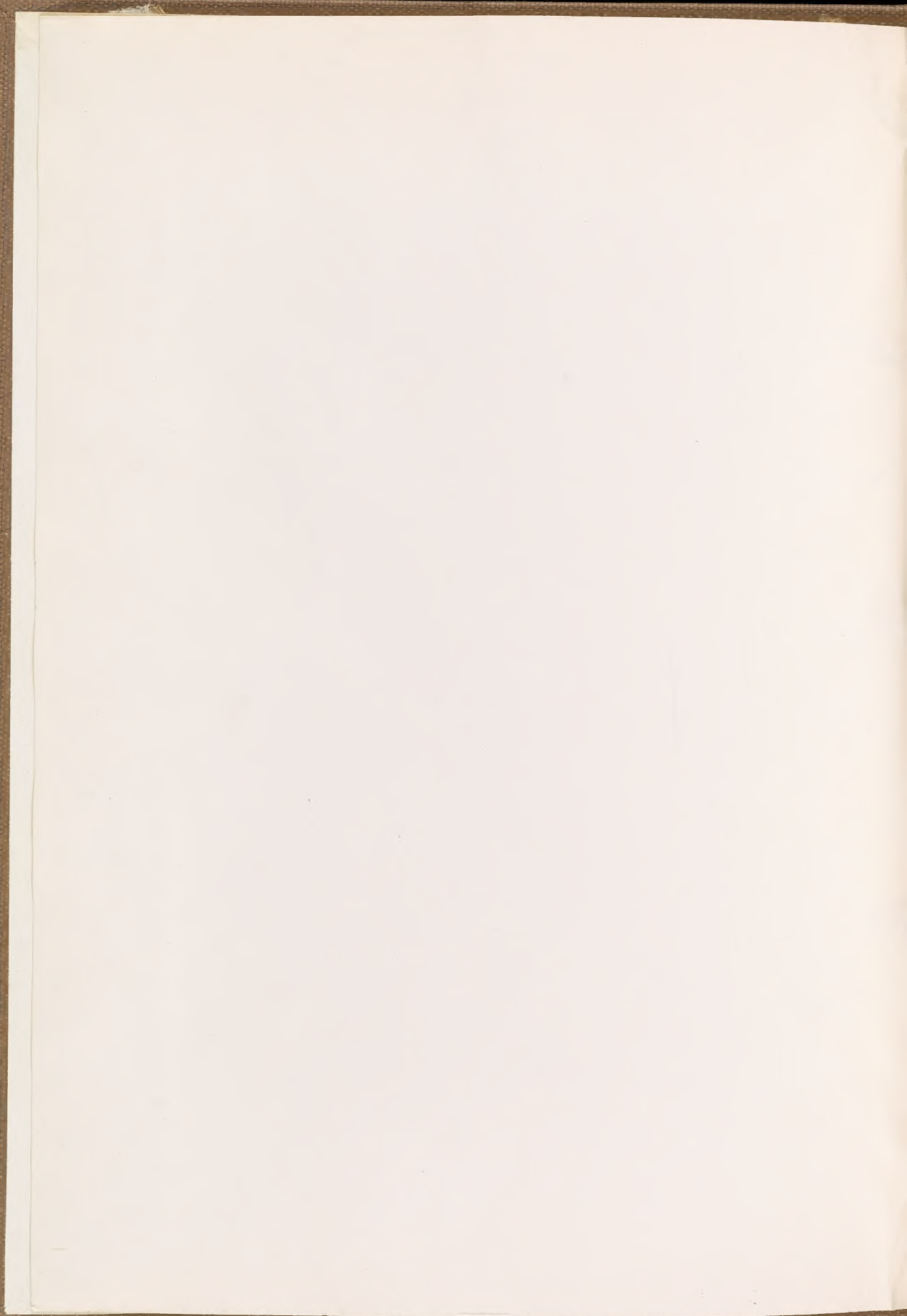


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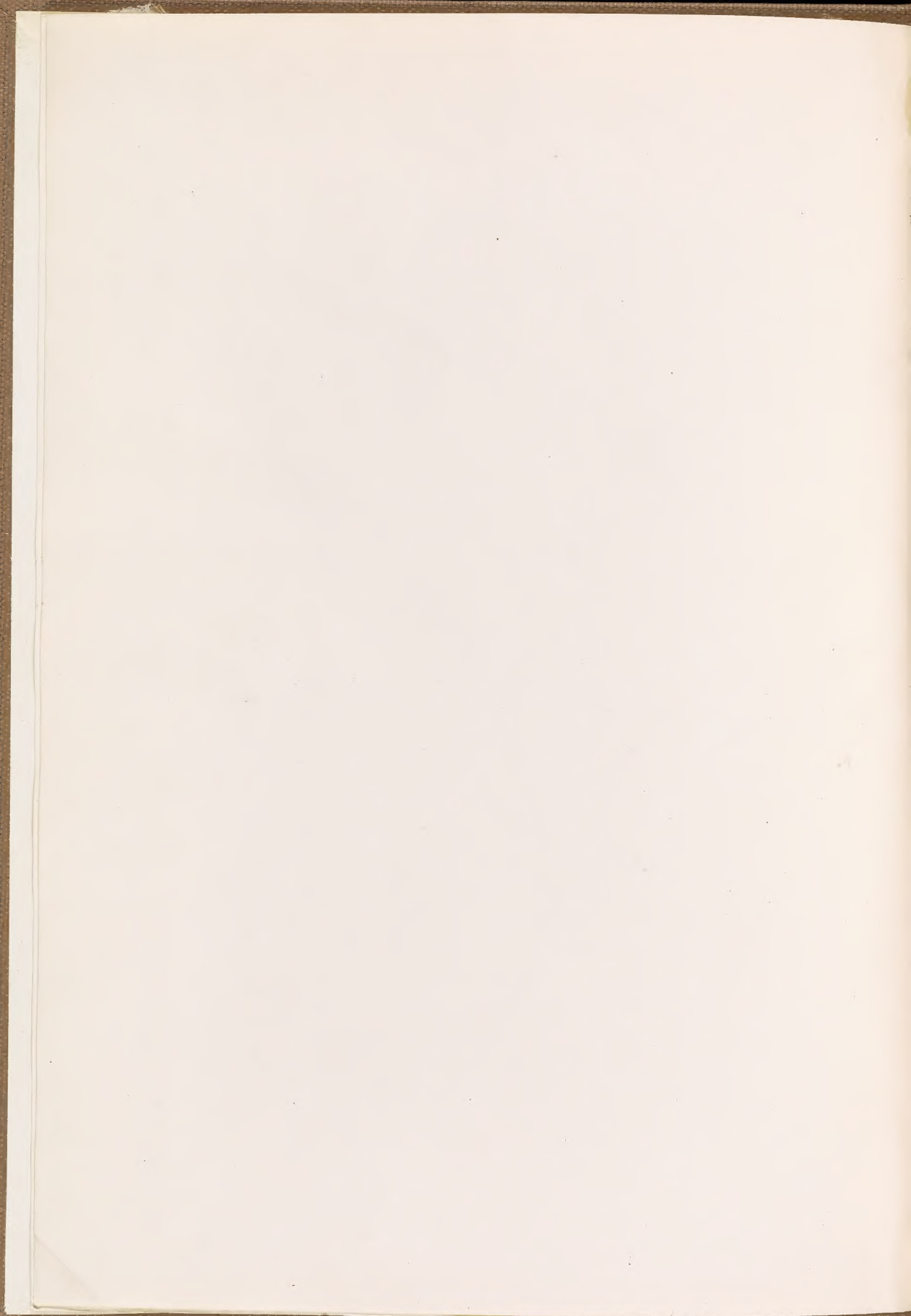












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## INDEX.

Throughout the Index the following abbreviations are used to indicate the nature of the reference:—

(Pat.) Patent News. (Cor.) Correspondence. (Soc.) Societies' Meetings. (Rev.) Review or Trade Notice. (Ans.) Answers

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Bankruptcies, Companies Registered, Exhibitions, Obituary, Patents (Authors of),  
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## SUPPLEMENTS.

A PORTRAIT STUDY. By Major C. Puyo. Issue of March 9th.

TWILIGHT. By Rudolf Dührkoop. Issue of April 27th.

SPIRÆA. By Henry Stevens. Issue of June 15th.

GROUP OF THE PHOTOGRAPHIC CONVENTION, Southampton, July 11th. Issue of July 13th.

KEY TO THE CONVENTION GROUP. Issue of July 20th.

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### SUMMARY.

The index for 1905 is presented with this issue.

Hatched vignette negatives are suggested as an alternative of much indifferent vignette printing. (P. 2.)

A portfolio of prints, personally submitted, is put forward as a possible means of attracting business. (P. 2.)

A review of the photographic year 1905 itemises the outstanding advances and comments on the somewhat colourless character of the past twelve months. (P. 3.)

A tested formula for a universal developer adjustable to various purposes is given on p. 4.

The first of two articles on stationery for professional photographers appears on p. 5.

New instructions for the making of lantern slides in three-colour and monochrome by the Pinatype process are given on p. 6.

Archibald Cochrane, in an address on the "Pictorial Aim in Photography," urged the selection of sufficiently important subjects treated with feeling and produced with very little hand work. (P. 8.)

Some simplifications of lantern calculations have been drawn up for the guidance of exhibitors. (P. 11.)

A number of modified formulae for the development of P.O.P. have been worked out by two German workers. (P. 11.)

Should the photographer use paintings instead of photographs in the decoration of his reception-room? (P. 12.)

A machine for continuous printing, on bromide and other papers, from drawings and flexible negatives, is described and illustrated on p. 13.

The Zander complementary colour process is described from official data. (P. 14.)

A developer containing a chromium salt has been patented as a means of conducting development at a higher temperature. (P. 15.)

Improvements in cotype printing are among other patents of the week. (P. 16.)

## EX CATHEDRA.

### The Year's Index.

With this issue is presented the index to the past volume, the compilers of which, so we hope and believe, have escaped the glaring commission of those sins for which readers ever heap anathemas upon the heads of indexers. To index by subject, in place of, or as well as, by title, should be one of the golden rules of the conscientious indexer, who, needless to say, ought to know the subject he is at work upon. If it were followed, we should be spared such cases as one which came under notice quite recently. There was occasion to refer to an article on slider cranks in an engineering periodical. The searcher had a distinct recollection of its appearance, but the indexes for the ten years near the probable date of its publication gave no trace of it. There was nothing for it but to go through the volumes page by page. At length it was found to be not an article but a letter which the editor, querying certain of the writer's claims, had titled, "Does It?" And the indexer—wretched man!—had so entered it under D.

\* \* \*

### Aids to Reference.

Apart from avoiding entries such as the above we have had other aims before us in supervising the compilation of the present index to the BRITISH JOURNAL for 1905. One of these has been to prevent needless reference on the part of those looking up any given item. Usually the reader has some idea in what form the subject he is looking up appeared, as a society report, a patent, or a review. Therefore we have adopted the suffixes "Soc.," "Pat.," and "Rev.," to indicate—wherever such a course does not complicate the index—the nature of the entry. In addition the numerous historical paragraphs which have appeared under the heading, "The Week in History," are indicated by the suffix "Hist." It will be noticed that there are several sub-indexes, chiefly the one of authors of patents, which it is hoped will enhance the value of the bound volume of the B.J. for reference purposes.

\* \* \*

### One Moral of the Index.

Society secretaries may be interested in looking up the entries which are indexed under "Societies Meetings," inasmuch as in selecting these items we have had to decide between what was of general and lasting value and what possessed purely ephemeral interest. A large number of society reports are necessarily left unindexed, and those which are included will be found in almost every case to be the sort of report which is worth printing week by week. The duties of a society reporter, as we took occasion to point out some time ago, are more important than is often believed. An indirect proof of the benefits which



he can extend to his society is contained in the fact that the greatest number of noteworthy reports emanate from the most active societies, the executives evidently recognising that nothing is lost, but much may be gained, by letting their activities be known.

\* \* \*

**Character in Portraits.** The confessions of the Parisian portrait painter, M. Theobald Chartran, as elicited in the current issue of the "Pall Mall Magazine," may be studied by photographers who aim at character rendering. M. Chartran finds a definite typical expression to run through a nation. In Americans he notices a certain expression in the eyes and a knitting of the brows which stamps the subject with his nationality, and appeals to the painter as the result of the tireless Transatlantic activity. Perhaps, also, the difference between portraits of Englishmen and Americans is explained by the habit of the latter to assume consciously an alert, aggressive expression, while the former prefer to withdraw into an attitude of reserve, and require all the tact of the photographer to resist the stupefying influence of the camera.

\* \* \*

**Hatched Vignettes.** For some few years past vignetted portraits do not seem to have been so much in favour with the public as they were a decade or two ago. This is not altogether surprising, so far as, say, cabinet-size pictures are concerned, seeing the wretched things that have been, and are being, turned out under the name "vignette." It is noteworthy that, although small vignetted portraits are not so much in favour as they were, by far the larger proportion of the enlargements now produced are vignetted, but the vignetting is of quite a different character. It is clouded or shaded, and sometimes there is an indication of hatching, as in the case of the celebrated "Richmond heads," quite different from the pear-shape shaded bust one so frequently sees at the present day in small pictures. At one time photographers paid great attention to the vignetting of their portraits, and printers skilled in this work were paid good salaries. Now the only practice seems to be to place a pear-shape or oval mask some distance before a bust portrait negative and print it, quite regardless as to whether that shape is suitable to the subject or not. If, in the vignette, a few sketchy hatched lines were judiciously introduced, after the style of the Richmond heads just mentioned, the picture would often be more effective and attractive.

\* \* \*

**Hatched Vignettes in the Camera.** Some forty years ago the late Napoleon Sarony introduced, and patented, a method of producing photographs similar in appearance to crayon drawings, known as Richmond drawings, and crayon heads. As a brief description of the methods used by Sarony may serve as hints to those on the look-out for novelties, we here give them as they appear in the official abridgment of the patent: "I effect this by a double process of vignetting direct in the camera. Firstly, I produce the bust of a person sitting, or other object required: vignetting that portion only that is seen in the finished picture by the use of a properly graduated glass suspended within the non-focal rays of the posterior lens, thus protecting certain portions of the sensitive plate from the action of the light; secondly, I place before such portion of the said plate as has already been acted upon by the light an inverted or reversed vignetting glass in such a manner as to secure the said part from any further action of light, while that portion of the plate previously unacted upon is now brought into the focus of a drawing which is placed before

the lens, and which represents the aforesaid Richmond drawing, the result being a scroll vignette or portrait." Another method of Sarony's was by double printing. In this method the portrait was first vignetted by printing in the ordinary way. Then a second negative, which was a copy of "the hatching or sketchy lines photographed upon the glass from a chalk pencil of such lines" was made. This negative was used for the second printing. Still another method of producing the hatched line negative, for double printing, was to coat a glass plate with black varnish and scratch the lines through this latter. Of course, the production of the vignetted negative in the camera involved extra trouble on the part of the operator, but when the negative was obtained there was no after trouble in the printing, as no vignetting was required. It was simply printed out as an ordinary print. It seems somewhat strange that so little attention has been given to the production of vignetted negatives in the camera with the view of saving trouble in the printing—to say nothing of waste in careless hands.

\* \* \*

**The Value of Glass.** A somewhat interesting fact is noted in one of our German contemporaries, as to the enormously enhanced value of raw material, such as that used for glass when made up into microscope objectives. The front lens of a micro-objective does not weigh more than about 0.0017 grammes, and as the cost of such a lens is about 20 shillings, the value of a kilogram of them would be about 12 million shillings. The cost of the raw material for making this weight of glass is from twopence-halfpenny to fourpence, and thus, when worked up into the shape of a lens, the glass has been increased in value about fifty million times. Such disparity between the cost of the raw material and the manufactured article is probably a record in industrial technics. The manufactured lens is literally worth a good deal more than "its weight in gold," for a piece of gold of the same size would be worth about a halfpenny. Radium and some of the rare metals are about the only things that excel it in value.

\* \* \*

**Circulating Albums.** Two suggestions for the New Year which we think should prove satisfactory in almost any good business outside the largest towns are a circulating set of albums and a portfolio of work shown by a lady traveller. The canvasser, or tout, is associated with the cheapest class of trade, and unfortunately with the free portrait swindle. The ideas suggested are on a higher plane, and both have been employed successfully within our own experience. In the one case, a dozen substantial folding cases of albums of special pattern are prepared each holding about eight perfectly produced specimens. The album is contained in a cloth-covered box or case, to which is affixed a label bearing the photographer's name and address. The parcels boy distributes the twelve cases at twelve selected houses, and if each is wrapped in brown paper and addressed, so much the better. Within is a circular giving the prices of the work shown and any other information about the establishment, and stating that the album will be called for in two or three days. This method affords the entire family an opportunity of carefully examining the work at their leisure. The second suggestion gives an opportunity of showing a greater variety of styles, work not suited to insertion in an album, and more expensive coloured work or ivory miniatures. Apart from the quality of the productions, the selection of a suitable receptionist who can call on the best people in the locality with such a portfolio is the principal point. The personal interview is an advantage in several ways; the lady traveller can



see, for instance, where a little further effort will produce an order, and much valuable information is obtained, which should be recorded, as to the possibility of doing business at some later date, and the class of work most likely to be appreciated.

\* \* \*

#### Another Celluloid Fatality.

Of late years celluloid has gained an ill-repute, and that not altogether without reason, seeing the number of accidents, fatal and otherwise, for which it has been responsible, both in this country and abroad. On Friday last another fatality was added to the list—a man being burned to death at Southwark. The account, as given in some of the daily papers, was that three men were engaged at the Odol Chemical Works in packing some celluloid, when it became ignited and exploded. One of the men was blown into a corner, and his charred remains were found amongst the debris after the fire was subdued; the other two men escaped. In some previous accidents it has been alleged that the celluloid ignited spontaneously, and also that it exploded. In this case an inquiry will, of course, be held, and as there are two witnesses of the catastrophe, we shall probably learn how the accident really arose, whether the ignition was spontaneous combustion, if there was an actual explosion, or only a very rapid combustion. Celluloid has for some thirty or forty years been extensively used for domestic purposes—knife handles, serviette rings, keys of pianos, dressing combs, etc.—indeed, almost every article for which ivory was previously employed; but until the last few years we did not hear of accidents from it. Photographic dishes, too, have been in extensive use for some years, and, so far as we are aware, there have been no mishaps from them. But there is celluloid and celluloid; some kinds may possibly be of a more dangerous character than others, and it would be well to know which they are. At the inquest, if expert evidence is called, some light may, possibly, be thrown on this point.

\* \* \*

#### Winter Pictures.

With winter thick upon us, photographers—at least, those residing in the metropolitan district—have as yet had no opportunity of obtaining pictures of scenes under the snow. However, there have been many heavy hoar frosts, some of which have been very like a slight fall of snow in appearance. Such effects as these should not be missed by those desirous of securing pictures depicting winter scenes, for they seldom last long, even a few minutes of sunshine often sufficing to destroy them. To obtain pictures of hoar frost one has not to go far afield. A suburban back garden will often supply several subjects. A currant bush or an evergreen, for example, when covered with the brilliant rime, forms an admirable subject, particularly if there is for a brief time a little direct sunshine upon it. Such subjects form excellent pictures for the lantern and the stereoscope. In the latter, slides depicting hoar frost are exceedingly pleasing; a shrub or bush which, under ordinary circumstances, is a very uninteresting object, becomes just the reverse when covered with hoar frost. It is scarcely necessary to remind our readers that to obtain the best effects of hoar frost the plates should always be protected against halation by backing, as the slightest halo would very considerably mar the excellence of the picture.

UNDIGNIFIED HASTE in announcing any event is always reprehensible, but particularly so in the case of a public body, like the London County Council. A correspondent sends us one of a number of circulars he has just received for distribution from the L.C.C. School of Art at Camden Road, in which announcement is made of a class in lithography commencing September 18, 1905.

#### WHAT OF THE YEAR?

PHOTOGRAPHICALLY, the past year cannot be assigned any very distinctive character. It cannot be credited with ushering in any new epoch; rather, it has formed with the past few years a period in the history of photography in which progress is less obvious because more widely disseminated. Existing processes and apparatus have reached a point at which any innovation must be highly novel to attract attention, and then it is frequently the case that the novelty turns out of little use in practice, having very probably been left alone by a previous worker as not worth elaboration. Nineteen hundred and five cannot claim to have been the sponsor to any published process or article of manufacture which has set the photographic world talking and working, as did, say, the new developers of the metal class or the modern anastigmats at their respective inception.

In the way of sensitive materials the market has enough and to spare of goods which conform closely to the present demand. Probably few photographic dealers would regret a P.O.P. or gaslight paper less; and as for a new brand, the dealer must stock it—even on the most limited scale—in that number of packets representing the permutations usually of three tints, two surfaces, and at least three or four sizes. Hence the increasing difficulty which minor modifications of plates or papers experience in reaching the goal of the shop counter, and hence the fact that an article must have very distinct and verifiable claims to novelty to obtain new entrance into commercial channels. These considerations, which are the natural causes of the paucity of commercial technical advances, may be commended to the study of persons who imagine photographic manufacture in a small way to be an easy road to wealth. It can be shown that certain printing papers can be made at extremely advantageous cost when the output is quite small, and thus, deceived by anticipations of a share of the photographic trade, small men will begin to manufacture, with the encouragement frequently of a party whose formula is the alleged key to wealth. There is one piece of advice which we give to such persons—namely, to get the views of a photographic dealer on the reception he (the dealer) will give to a new paper to be sold strictly without the hall-mark of an established firm and without the power of advertising. The answer is usually cold comfort to the prospective maker. But this counsel to self-deluded people is aside from our present purpose of looking back over the year which has just closed.

Of apparatus, if we except several hand cameras and accessories, the record of a reviewer must be that minor modifications of pattern sum up the situation. As a rule, the latest pattern of a camera is the best, and we have been gratified by seeing the infinite pains which some makers of the higher class instruments have expended upon their productions, yet it is easy to see how makers have also introduced movements and accessories merely for the sake of introducing them, and in some instances to the positive disadvantage of the camera. Apparatus of this kind we suppose is the inevitable response for something new, though to our thinking it must impress many a purchaser as got up primarily to sell, with its efficiency for practical work as a secondary consideration.

Turning to the technical advances of the year, probably the most distinctive are those in the field of orthochromatic sensitizers. Dr. König has added to the series of isocyanine dyes the bodies pinaverdol, pinacyanol, and dicyanine, and he and other investigators have examined the conditions under which these new sensitizers are to be employed.

Among processes concerned in the making of a negative

there is little to record beyond the examination of the bichromate intensifier by C. Welborne Piper and D. J. Carnegie, and the introduction of the cobaltamine reducer of negatives and positives which is now on the market. In printing processes the topics of the year have been self-toning P.O.P. and the sulphide toning of bromides. The latter method, after having worked its way through a number of formulæ, appears to have settled down to the use of a mixed solution of potassium ferricyanide and potassium bromide as the bleaching agent, followed by the solution of sodium sulphide for imparting the sepia tone. This procedure has proved to be that most suited to the commercial output of toned bromides. Mention should also be made of the processes of printing without light introduced under the name of catatype by Drs. Ostwald and Gros in 1903. Catatype processes depend on the catalytic action of the silver or platinum of a photographic image, and while thus far no practical use appears to have been made of the method, the sealing of patents claiming improvements in it points to its future possibility.

In colour photography we have had the usual crop of processes enjoying the brief celebrity of newspaper paragraphs, while among the methods claiming serious attention Dr. König's "pinatype" has re-inspired interest in

the printing of trichromes from gelatine plates by extraction of dye therefrom. Professor Lippmann has published a method of preparing interference colour photographs on bichromated films which holds out the hope of multiplying prints in colours by contact printing. Cinematography still awaits its long prophesied alliance with colour photography, and although the projection of animated photographs in natural colours which we have witnessed left us in no doubt of the practicability of taking and projecting the films, the public use of the process remains in abeyance. Meanwhile the work of education is immeasurably lightened by the applications of the cinematograph to the teaching of natural science initiated jointly by Mr. Chas. Urban and Mr. Martin Duncan. In artificial lighting the mercury-vapour lamp has come forward during the past year to strengthen the hand of the professional photographer. With its many obvious advantages it is yet too early to say if it exceeds in efficiency the enclosed type of electric arc lamp. Our retrospect has singled out what seem to be the outstanding items of 1905, an unnecessary performance, perhaps, on behalf of those who have studied their weekly journal, yet one which, in a year or two's time, will be instructive in showing the present position.

## A UNIVERSAL DEVELOPER.

AN exceedingly useful and universal developer of excellent keeping qualities may be made by suitably mixing a concentrated hydroquinone single solution developer with a metol developer of equal strength. The formulæ I have been using, and which would be hard to improve upon, are as follows:—

1. Water .....	20 ounces.
Hydroquinone .....	$\frac{1}{2}$ ounce.
Sodium sulphite .....	4 ounces.
Sodium carbonate .....	$7\frac{1}{2}$ ounces.
Potass. bromide .....	1 dram.

For use, one part of this should be mixed with three parts of water.

This is a complete developer, which gives an immense amount of contrast, but is very slow in action.

2. Water .....	20 ounces.
Metol .....	3 drams.
Sodium sulphite .....	$3\frac{1}{2}$ ounces.
Sodium carbonate .....	$3\frac{1}{2}$ ounces.
Potass. bromide .....	10 grains.

For use, one part of this is mixed with three parts of water.

This also is a complete developer, but is exactly the reverse of the former in action, yielding a very soft negative, full of detail and gradation with a minimum exposure; in fact, it is surprising how good a result can be obtained from what might reasonably be considered a hopelessly under-exposed plate. For plates exposed by artificial light, both in studios and flashlight interiors, it is invaluable, and gives results which I believe could be obtained by no other developer.

For use these solutions should be made up in the working strength already mentioned, and mixed in equal quantities when a really excellent normal developer will result, which may be used for a great number of times, and by varying the quantities of either, any desired effect may be produced with the greatest ease, or any subject easily treated to the best possible advantage without the slightest risk of chemical fog, which is so often the result of forced development by the usual method. In treating an over-exposed plate, which has been found to appear too quickly in the normal developer, the

hydroquinone solution may be used as a re-developer, and, if applied quickly enough, and the over-exposure be not too great, a perfect printing negative will result, and vice versa, of course, for any which do not appear quickly enough. For all makes of bromide and "gaslight" paper excellent results may also be obtained, but it is advisable to dilute still further for bromide. A good method of treating enlargements is to first develop in the metol, diluted with six parts of water instead of three, until all possible detail is out, and then to place without washing into the normal hydroquinone, when it will gradually attain all the vigour desired. This second development takes some little time in comparison with the former, but it will not be found to stain unless carried to an extreme, and yields such a pure black as to repay fully the little extra trouble. Gaslight prints are best developed in a mixture of three parts of the metol (normal strength) to one part of the hydroquinone (normal strength), or varied according to brand of paper employed; but with very few kinds will it be found advisable to dilute to any great extent, unless, of course, it is desired to obtain a soft print from hard negative, when the metol alone may be used, well diluted. These remarks also apply to lantern plates, and for making transparencies from which to make enlarged negatives. For copying very old or badly faded photographs this developer, with a process plate and a full exposure, will yield an astonishingly good negative. It should be borne in mind that any hydroquinone in the hypo will cause chemical fog, or yellow stain, so a good rinse before placing therein is advisable, especially with bromide paper. Also, I should recommend an abundance of pure, fresh hypo in preference to the popular acid fixers.

The formulæ given are not original, but selected, with slight alterations, from numerous ones in existence, and will be found to combine to perfection, and fulfil their respective duties as well as could be desired. A good pyro developer well restrained also acts well in conjunction with the metol in place of the hydroquinone, but is no better, and more expensive, as the developer quickly discolours, and is not safe to use more than once or twice, and a greater quantity



of pyro is necessary for use as a re-developer. A great many photographers will not consider anything but pyro as a developer for plates, but if some of that opinion will be persuaded to try this, they will find it equal in every respect and on an average to yield a quicker printing negative, to

say nothing about the greater economy and rapidity of action. It also has the advantage, as before stated, of being of universal application, which is a great blessing where occasional bromide work is to be done, or an odd lantern transparency to be made.

W. SHENTON.

## PHOTOGRAPHERS' STATIONERY.

### I.

From time to time the plea is raised on behalf of the work turned out by the average professional that any shortcomings it may have judged from an artistic standpoint are not due to his inability to produce something better, but rather to the fact that he is compelled to supply that which is in most general demand on the part of the public to whom he appeals. To a great extent there is truth in this, but the same defence cannot be advanced for the want of taste which is shown by too many photographers in their stationery, be it correspondence or advertising matter. Most business men nowadays admit that it is good policy to let the stationery represent as nearly as possible the standing of the house from which it is sent, and therefore that of the photographer should unmistakably convey the impression that he is the possessor of that quality which, difficult to define, is conveniently summed up in the term, "good taste."

Although much may be attributed to the desire to be "in the fashion," there still remains abundance of proof that the general standard of taste is considerably higher than it was twenty or thirty years ago. The building, decorating, and furnishing of our houses to-day all bear witness to this, while a still plainer proof is afforded by the character of the posters on the hoardings in our streets. This change is not so much due to any increased knowledge or ability on the part of those responsible for their production, as it is to the more refined ideas of the public, which shows that it appreciates the more artistic appeal to the senses. Papermakers and typefounders are fully aware of this—so much so that the good printer has sufficient material at his command to enable him to produce really fine work—such that, when used by the professional photographer, the recipient is at once impressed with the idea that it emanates from a studio in which good taste prevails. It is, of course, recognised that not every photographer caters for the class likely to be impressed by stationery of this description, but seeing that the very cheap trade involves neither making appointments nor giving credit, the necessity in such businesses for any correspondence with sitters will seldom arise, and it therefore follows that any photographer who has to correspond with his sitters will do well to consider the appearance of his stationery.

#### The Note Paper Used.

The photographer should remember that he is, or ought to be, an artist, and therefore his notepaper should not in any respect be inartistic—paper, type, ink, and the arrangement of the matter should all harmonise. Any illustration used should be both appropriate and well executed, yet one member of the P.P.A. uses a letterhead on which appears a representation of a pierrot photographing a pierrette, a banner over the two bearing the legend, "High class Photography," while a photographer in the Black Country uses a crude woodcut depicting a ruined archway and street in what is apparently an Italian village.

The quality of the paper itself is the first consideration, and seeing that the difference in cost between good and poor paper is so small it is as well when ordering the printing to

obtain prices for the work on various samples of paper. The wording of the heading has next to be arranged. One fault to be avoided is that of crowding in too much matter. Many photographers seem to forget that having a photograph taken almost necessarily involves a visit to the studio, or they would not set forth on their notepaper an amount of information which, if wanted at all, it is the duty of the receptionist to give. The stationery of the wholesale firms—the dealers, manufacturers, and trade-workers—must not be taken as an example. The photographer does not go to their warehouses, their travellers do not call on him more than three or four times a year, and so they are doing what is right when they use their notepaper for giving information about their business. "Enlargements a speciality" doubtless describes the willingness of the photographer to supply enlargements, although it will hardly do to apply the same line of reasoning to the announcement, "Children a speciality." "Old and faded photographs copied equal to new" is either untruthful or else an admission that one man's copy of negatives are as good as another's originals. "Enlargements in bromide, carbon, and platinotype" does not convey much more meaning unless the reader has dabbled in amateur photography, in which case he is likely to be puzzled by the "carbonettes and platinographs" announced by another photographer. "Photographing of dead bodies undertaken" may possibly bring in a commission once in a twelve month, but imagine the feelings of a young bride receiving a letter with reference to the photographing of her wedding group, upon noticing this cheering information. "A large stock of pictorial postcards" is another frequently used phrase. Where the possibility of securing the business by thus advertising on the letterpaper is so small, it is far better to aim at the reputation which is to be obtained by the use of a dignified and artistic heading. The commercial and technical photographer in a city who looks to business men for his commission does right in enumerating the various kinds of work he is prepared to undertake, but the average professional has no need to cover half his paper with wording of the above-mentioned description. At one time the possession of medals was something of which to be proud, but the increased number of photographic societies holding exhibitions and making awards has made medals so plentiful that it is hardly worth while mentioning them on the stationery. If the business be an old-established one, the fact may be embodied in the heading, thus: "Established over a quarter of a century," or "Established in the year 1870."

#### The Heading.

What information is the recipient of a letter from a photographer most likely to desire? The sender's name, what he is, and how to communicate with him by post, telegraph, or telephone; thus we have:—JOHN SMITH, Photographer, The Studio, 1, High Street, Northville. Telegrams, "Portraits, Northville." Telephone, "50, Northville." If Mr. Smith have branch studios in other towns, the heading should state "and at —," not, as is sometimes seen, two or even three addresses given with no means of distinguishing from which one the



letter is sent. The public generally applies the term "artist" to painters, and, therefore, if the photographer be prepared to accept commissions for paintings, the designation "Photographer and Artist" looks well, or, now that miniatures are so much in vogue, instead of "Artist" there may be substituted "Miniature Painter." Some of the leading American photographers use the expression "Maker of Portraits."

#### How to Print the Wording.

Shall it be in one or two colours? Printed or embossed? With or without illustration? With a good printer the two colours will be an improvement, but the ordinary printer is more likely to be successful with one. An embossed heading almost always looks well, especially if the user has the right to some crest or other device. Embossing is more expensive than printing, but the stationery thus treated may be reserved only for correspondence with sitters, plain printed paper being used for all other purposes. A good printer by judicious setting is able to make a very effective heading with plain type and "rules" alone, but there are printers *and* printers! Many, if left to their own devices, will insert all sorts of so-called "ornaments," ranging from representations of flowers and birds to motor-cars, and the illustrations of the "pierrot" style already mentioned. A number of photographers use headings in half-tone, the designs consisting either of views of the district or else portraits of pretty children, together with the name and address in suitable lettering. Although they do not bear the cachet of good form, nothing much can be said against these half-tone headings, except that to do the blocks, and, through them, the original photographs, justice, they have to be printed on highly enamelled paper, which has not a good writing surface. If something more ornamental than plain type be desired, it is better to have a specially drawn heading from which a "line" block can be made, and then printed on any class of paper. Such a heading printed in either one or two colours affords much opportunity for the display of good taste, but, except from printers who lay themselves out for high-class work, there may be difficulty in obtaining what is desired.

In the foregoing nothing has been said about cost, because prices vary so much, not only with qualities of paper, but also with the amount which is ordered at one time.

The envelopes should always match the paper, and should be of a size to take the octavo and quarto papers with one and two folds respectively.

#### System for Photographers.

Order makes for orders, and the photographer is well advised who adopts a good system of handling his correspondence. Letters received should at once have attention and, as soon as the reply is sent, be filed away so as to be of easy reference, in one or other of the numerous filing systems now on the market. If the replies are not copied, a memorandum may be made upon the letters themselves, or else in a scribbling diary, of the chief points. The use of the typewriter by photographers is gradually increasing, but many who buy them otherwise than direct from the makers, do not know that by using a sheet of duplicating carbon a copy may be obtained simultaneously with the original. Too many people seem to think that system is all very well in big concerns, but that there is no need for it in small ones. The idea is a mistaken one; the system need not be elaborate, but the small business man ought to relieve himself of worrying about details as much as possible, so as to leave his mind free for more important matters.

#### The Visiting Card.

The visiting card used by the photographer in making business calls should be of exactly the same style—that is, the small ivory card with square corners—as the ordinary private card, save that the usual "Mr." is dropped and the word "Photographer" added. One sees all sorts of cards more or less elaborate, deckle-edged, rounded-corner, and gilt-edged, but they should be avoided, there being no more room for doubt as to what is correct than there is as to what constitutes proper dress at any evening function.

#### The Billhead.

The form on which the account is rendered should resemble the notepaper as regards its being well printed, but it of course admits of more matter being added. The name of the bankers should be given. "Cheques to be crossed . . . ." While at the bottom of the bill there should be a footnote, "Extra copies or enlargements from this negative may always be obtained by mentioning the reference number . . . ." The gardee envelopes in which the prints are sent home may be made the medium for an excellent advertisement by being neatly printed, "A choice selection of frames suitable for this photograph always in stock."

A further article next week will deal with other branches of the photographer's stationery. W. J. CASEY.

## THREE-COLOUR TRANSPARENCIES BY THE PINATYPE PROCESS.

[THE Pinatype process, first demonstrated in this country at the last exhibition of the Royal Photographic Society, has been the subject of further investigation by Messrs. Meister Lucius, and Brüning, who have lately issued revised instructions for its use in the making of both three-colour and monochrome transparencies. The *modus operandi* will be clear on a perusal of these directions, a translation of which has been placed in our hands by Messrs. Fuerst Bros., who will shortly issue it in pamphlet form. The general instructions, to which reference is made several times below, appeared in our issue of September 22 last.—Eds., B.J.P.]

ANYONE who has already used the Pinatype process will at once see that transparencies may be made in various ways by means of the same; the following is an account of one of the simplest and most satisfactory methods.

Instead of using the commercial print plates, a suitable substitute can be prepared by anyone, if carefully cleaned glass is coated with the following bichromated gelatine. If this be used, it is obvious that they require no further sensitising; but the print plates must be sensitised before use, as described in the Pinatype instructions.

#### The Red Transparencies.

One of the sensitised plates should be printed under the negative taken through the green screen, but for rather less time than would be correct for a print on paper. After exposure the plate should be well washed till the drainings no longer show any tinge of yellow, which will be the case when all the unexposed bichromate is washed out. It should then be immersed for about one minute in a 5 per cent. solution of acid sulphite of soda or potassium metabisulphite, and then again washed for a few minutes. The action of this sulphite bath

is to remove the brown chromium compounds which are not soluble in water, and it may be used repeatedly, as it will keep for a long time in a well-closed bottle.

After washing the plate may be dried or used whilst still wet. In order to stain the same, the dye bath given on p. 24 of the instructions pamphlet should be diluted. 1 ounce to 2 ounces of water, and the plate immersed in this dilute solution and allowed to remain there till stained sufficiently deep; then it should be rinsed and hardened for about 5 minutes in the fixing bath given on page 26, and then washed and dried.

#### Preparing the Red and Blue Plates.

The red transparency should be placed face upwards on a levelled glass slab and coated with the following mixture in precisely the same way as is recommended for the preparation of the filters:—

Emulsion gelatine (best hard).....	77 grains
Water .....	3½ ounces.
Chrome salt .....	2 tablets.

The gelatine should be cut up into small pieces and allowed to soak in the water for about half an hour, and then dissolved by the aid of heat. The chrome salt tablets, crushed small, should then be added, and the mixture filtered through a fine linen filter. To every 16 square inches of glass from 67 to 84 minims of gelatine solution should be allowed.

The gelatine solution may be prepared and the plates coated by weak diffused daylight or artificial light. As soon as the gelatine has set the plates should be dried in a warm and dark place, free from dust. The coated plates will keep for several weeks.

The transparency taken from the negative through the red screen should now be superimposed on the red transparency, coated as described above with the bichromated gelatine, and the outlines of the images made to accurately coincide, which is much easier if a magnifying glass be used. The two glasses should be clipped together or temporarily bound so that they cannot shift, and then exposed to daylight of about two and a-half times longer than was necessary for the red image. This increased exposure is necessary, because some of the chrome salt penetrates into the red image and thus the sensitiveness of the upper film is lowered. Increase of the proportion of the chrome salt is not advisable, nor should any intervening film, such as a varnish of collodion or celluloid, be used.

After exposure, the plates should be well washed and then immersed for about 5 minutes in the acid sulphite bath and again washed, and then dyed in the blue solution. This should be made in precisely the same way as described on page 20 and diluted, 1 ounce to 2 ounces of water. When the image is sufficiently stained, it should be hardened as usual in the fixing bath, and then washed and dried.

#### The Reversed Yellow Image

The yellow image may be printed over the red and blue picture in exactly the same way as the latter was printed over the red, using the bichromate gelatine; it is, however, much simpler and easier to make a separate yellow image, and use the same as a cover glass for the transparency. Obviously in this case the yellow image must be reversed.

The necessary reversed transparency from the negative taken through the blue filter, which is used for obtaining the yellow

image, may be prepared either by using the Pinatype process, as described below, or by producing a reversed negative in the camera.

To make the reversed transparency by the Pinatype process, a sensitised print-plate should be exposed under the transparency from the negative taken through the blue filter for the same time as is necessary for making the yellow printing plate, and then well washed and dyed in the following bath:—

Pinatype black-brown .....	31 grains.
Water .....	3½ ounces.

When deeply stained the plate should be washed for a short time and dried. It is not essential to use the usual fixing solution, but if it is used the image will turn black.

In order to make the reversed negative in the camera, it is necessary to present the glass side of the sensitised plate to the lens, that is to say, to turn the film side away so that the image is formed on its lower surface. It is obvious that allowance must be made for this in focussing for all three images, and the easiest plan will be to place in front of the plates used with the red and green filters a sheet of clear glass of the same thickness as that of the plate used with the blue screen.

The reversed transparency is now used in the ordinary way for obtaining the yellow transparent image. The sensitised print-plate must be exposed rather longer than when preparing the yellow printing plate for a paper print. After exposure, the plate should be washed, treated with acid sulphite, and again washed, and then dyed. The dye solution is that given on page 25, which should be diluted with an equal quantity of water, that is to say, 1 ounce of dye solution to 1 ounce of water.

It is advisable to stain the yellow image at the same time as the blue image, because if they are both well rinsed from time to time, they may be temporarily superimposed and the correctness or otherwise of the depth of colour estimated. Finally, the yellow impression should be fixed or hardened as has already been described, and then washed and dried.

When the red and blue pictures are properly washed, the yellow transparency should be superimposed so that the outlines coincide, and if a larger sheet of glass has been used, then it should be cut down. If a print plate of the correct size has been used, it is, of course, only necessary to obtain coincidences of the image, to put a small dab of some mountant at each corner of the transparency, allow to dry thoroughly, and then bind up in the usual manner.

#### Lantern Slides in any Colour.

The above instructions deal with the production of transparencies true to all the colours of nature if the directions are properly carried out, but Pinatype places in the hands of the lanternist quite a new power, for with the aid of the special Pinatype dyes, which can be obtained in greens, browns, dark blues, etc., it is extremely easy to prepare monochrome lantern slides, which far surpass any that can be prepared by the ordinary photographic methods, for in the latter the image consists of particles of silver or other metals or pigments, whereas by the Pinatype process the image is formed of absolutely grainless and transparent dyes, and there must be, therefore, a far finer effect of transparency which, combined with the absence of any deposit in the higher lights of the picture, gives effects which are otherwise unattainable.

SEVEN-STOREY Kodak Building.—Ground for a new seven-storey building has been purchased in New York City by the Eastman Kodak Company. The new building will be located in Twenty-third Street between Seventh and Eighth avenues, and will be used altogether for warehouse purposes. Work on the new building will be started as soon as possible. At present some small buildings are located on the property, but these will be torn down without delay. The company will occupy as much of the building as it requires, and may rent some of the space. The offices of the company will not be moved from their present location in

Twenty-second Street. This will be the second large building to be started by the Eastman Kodak Company within a few weeks. At Kodak Park a new factory for the manufacture of film is now in whole course of construction. It is expected that both buildings will be completed by the early summer of next year.

ROYAL Postcards.—Princess Christian sent many of her friends some charming picture postcards conveying good wishes for Christmas and the New Year. One lot of cards consisted of beautiful three-quarter length photographs of herself, with Her Royal Highness's autograph on each.



## PICTORIAL AIM IN PHOTOGRAPHY.

A Lecture delivered by Mr. Archibald Cochrane at the third General Meeting of the Edinburgh Photographic Society for Session 1905-6

I HAVE drawn together some thoughts on a subject that must be frequently in the minds of those who are interested in the advancement of pictorial photography. Many are speculating on the tendencies of the movement, what school is most likely to "catch on." I shall, to-night, attempt to find out rather what school is most likely to "hold on." I do not urge you to follow any particular school with which you do not feel in sympathy, because its work is in vogue at the moment. Successful work is not done in this way. Rather I shall attempt to determine what, in any school, is best for us to emulate, and what influences we should resist, being guided to my conclusions by dicta that are applicable to art in general and pictorial photography in particular. To what should we bend our best energies, and in what direction should we who love the pictorial in art direct our aims.

### The Pictorial Appeal to Emotion.

We had better begin with the essentials of a picture. I take it for granted that we are all alive to the importance of pleasing line and good composition, not to mention a strong feature of photography, the charm of *chiaroscuro*, the "intercourse of light and shade." I want to go on to something higher than this. What constitutes the artistic quality which most of us seek earnestly? The Photographic Salon organised by the Linked Ring is probably the best exhibition of pictorial photography that is available for us to study, and what do we find is the qualification of admission to that important assemblage of photographic pictures. Here we have it, "Work only admitted which shows personal artistic feeling and execution." This seems a subtle rule to measure work with, yet it works well. Amongst those who have educated perception it is quite wonderful how quickly the necessary quality is discerned in a pictorial contribution. It is a puzzle to many aspiring pictorialists to know whether their work will make this appeal. Is it definable what is this artistic feeling and quality? It is not easy, as it is not easy to explain the charm or some other quality we love a picture for. Is the artistic feeling we appeal to uniform? No, not entirely, but wonderfully nearly so in those who have educated perception. (I qualify by the use of the word "educated," as those who are in a process of art development may have a less sensitive emotional nature, or may misunderstand the intent of the work they are observing.)

A picture which has artistic feeling is one that will appeal to the emotional side of our nature, and will create a feeling of loving sympathy with the work; a yielding of ourselves to its influence. The artistic achievement will be in proportion to how much we are made to feel. Do we feel with the artist and get a new standpoint of understanding? Our soul opened to sympathetic response where it had been dormant before? In this appeal to our emotions through our visual sense we seem to have more of the intellectual quality than is the case with music, where we are made to feel certain emotional experiences without being told what it is all about. You feel, in listening to the strains of a soul-stirring Largo, a sadness almost to tears; you know not why. Because of the simplicity of the emotional appeal to music many think it the purest form of art. Others again desire to have words to the music, or at any rate a descriptive programme indicated by the composer as to his emotional intention. In this case music becomes more nearly analogous to the appeal of the picture, where we generally know "what for" we feel a certain way about the work. Whilst it is a true and rich experience for humanity to have a susceptible emotional nature, still this must be balanced with reason, and held in proper proportion. We must not be over-emotional. The young art student, particularly if he go to finish in Paris, and has come under the influence of the French ateliers, often allows his emotional nature too much ascendancy. His soul is being continually swept with hurricanes. He does not talk calmly, but indulges in rhodomontades. He works at a high voltage (his best point). He comes to consider these moods as the true manifestation of the artistic soul. This passionate artist deals with Love, Hatred, Death, Blood, Passion, Poison, everything, in fact, save Piety. When a photographer comes alongside such an ardent soul, he hides his picture-making machine, and wisely refrains from indicating that he had any design on the

emotional preserves of his friends at home. If he have no desire to bring down the thunder, he can spare himself a rich emotional sensation by keeping a discreet silence. The photographer will be found plying his art later on, and we may venture to assert the claim that we can, with our pictorial work make men and women feel with emotional intensity, as deeply as can the painter, and in some cases the musician. We may produce slight things, the equivalent of the Gavotte or the Intermezzo in music, which appeal to little beyond the pleasure of the senses. But ambitious workers will one day want to produce something big that will appeal to the greater and nobler emotions.

### Feeling as a Judge of Pictorial Quality.

Now, perhaps, it is wrong of me to start on such a high platform. For, when shall we see a gallery full of photographs (or for that part of it, paintings) making an appeal to our inner nature? Probably, never! The bulk of words stops at being a correctly laid out composition and showing expert handling. We may see this kind of work, and, although thinking it all very good, yet we are untouched by it. It is possible for a pianist to be a great executant and yet not an artist, and although many are satisfied with the digital exhibition, yet it is the artistic quality that is so precious. The same with the photographer. He may be an expert technician and yet not be an artist.

Although I have stated that emotional effect is generally associated with an idea, in painting and photography, yet it is also true that the beauty of a line, which makes no intellectual appeal, may make us feel pleasure and joy. So also may colour arrangement; but the nobler emotions in graphic art seem only to be awakened when there is some intellectual suggestion.

The great judge, Feeling, presides at the bar of art, and there is little use in trying to overthrow his rulings. You listen to a song, and if you do not like it, no man need attempt to reason you into liking it (you know better than to attempt the task yourself). In the picture world it is much the same; you will not succeed in reasoning yourself into liking a picture if your feeling is against it. The dislike in the case of a picture is more intelligent than in the musical instance, as we are linked up more closely to the intellectual in our department of art. Yet feeling is the supreme judge. You feel that the modelling of a face is wrong, and you may not be able to say where, yet the feeling is justified. It may be that the planes are wrong in the tonal scheme of a picture, you may not be able to say what is amiss, still you feel that the rendering is not right, and such a feeling may generally be relied on. I have not time to go into what constitutes this feeling by which we are guided, but it may suffice if I say that it is a product from observation and stored up deductions from past experiences in the mind. When we find that our feeling is against a picture, it is not an unintelligent prejudice against the work in view, but is really the attitude of a trained emotional nature. When we feel admiration for a picture we may have this feeling without having taken thought for what we liked it. If we were to analyse the work, we should find that there was full justification for the feeling. The necessary canon of art had been attended to, and there were beautiful features so arranged that the appeal went straight to our emotional centre, the "seat of fond delight."

Now, I want for a little to consider certain features that go to build up an effective ensemble that will make a sure appeal as being an artistic work.

### Avoid the Commonplace.

Now, first of all, the subject. We are told that this may be anything "if paintable." I would recommend that in our branch of art the subject should be as important as we can find to do, so that our minds and aspirations may be lifted up continually. To lavish study and observation on an accurate representation of an unimportant subject, such as "copper stew-pans," would be a waste of our talents. The technical achievement may astonish (a cheap emotion) at the moment, by its resemblance to real stew-pans, but when all is said and done, the real culinary utensil will be as satisfactory to look at, and it also will have a gastronomical interest that

the other lacks. Subjects into which no artistic feeling can be infused should be avoided. The subject must appeal to the worker or he cannot put feeling into it. One cannot play a piece of music with artistic feeling if he is not moved by the composition which he is performing. All that can be expected of the performer (even if he be a great maestro) is, that the performance is unexceptionable as regards accuracy and technique. If the character of the subject be lofty, the pictorial worker's imagination will be fired, and his emotions touched, and in time if his rendering be successful, we will share in his experience.

The subject should show originality in choice. There is rightly high value given to this feature, as there is no over-supply of the inventor. Some do not approve of the commonplace subjects being treated by some of the men of the new school. But such objectors should remember that original work of this kind was also produced in the good old days. I have heard devotees of the Royal Photographic who date away back to the wet-plate times, and who are of a very reminiscent turn, speak with tears in their eyes of Davison's "Onion Field." No modern work seems to affect them like this.

### Portraiture.

The most important branches left for fresh and successful photographic work are portraiture and landscape. In portraiture, photography will probably reach its highest pictorial realisation. In no other class of work has the worker such opportunity, and the arrangement so much under control. There are few painters who could model a face as it is being done by the camera in skilful hands. It is said that the lens cannot see below the surface of the sitter. A painter is supposed to chronicle the inner qualities and characteristics of his sitter. This is accomplished at times, but, as a rule, the portrait painter is baffled to get correct resemblance of the outer man without attempting the interior. As I have already said, it is in this class of work that photographers will rightly take a high place. At present among us there is a tendency to run too much to one class of subject, such as the "mother and child" style of thing, which was started in the American nursery a few years ago. A worn groove should be avoided, unless one feels that he can "go one better" than anything as yet realised.

### Landscape.

For landscape work of the highest class we must get into sympathy with Nature. I sometimes think that the photographer in us is apt to kill the poet. The hunt for pictorial "bits" would appear to preclude the poetical possibilities. We have not the leisure to get into the contemplative mood of the poet. "What will compose?" is our feverish query, and it seems to occupy the mind more than any consideration of Nature's mood. We are told, "Yonder is a beautiful sunset." "Yes," and you recognise that there was a day when you admired such a sky, but now, alas! you know that it does not compose, therefore your interest in it is lukewarm. The colour may suggest to you that a tissue of that colour would be suitable for a really good sunset. I say that I think it is unfortunate if this represents a common experience. The painter is more happily circumstanced. He can give all the days of a month to study his "bit," and with so much leisure he can well spend the time to get into the spirit of the scene. One cannot rush this mood, although we must be busy when we are making records of a scene, and prosy thoughts may fill the mind, still, if we cannot at that moment, then at other times, we must make an endeavour to get into close touch with the spirit of Nature. We must be susceptible to Nature's moods before we can adequately attempt to portray them. There is certainly great difficulty in getting subjects that will compose artistically. Should he succeed in finding a well laid-out picture in nature, the expert artist-photographer may be trusted to make the most of his opportunity. If the worker knows how to manipulate his process nothing will be lost of the spirit of the scene. He will have to give up the colour, but by skilful development he will give as near as possible its equivalent tonal values. It is seldom, however, that we can put a satisfactory scenic setting before the camera, and we cannot import into the scene wholesale pictorial features in the way that Turner has embellished his canvasses. One can do something, certainly, by the use of several negatives, and combining these studies into one picture. Great knowledge is needed in this, to get the tone values into their proper relation. In all such ambitious attempts it will be necessary to employ much handwork on the negatives. This, how-

ever, should be kept down to the least possible amount, as the handwork will never rival the quality of the detail work of the negative. Some work (in keeping with the quality of the negative) can be added with tracing paper as a backing, but I am of opinion that there is a loss of quality if carried too far. Before we know it, an artificial, unreal quality will have come into the work that will be repellant to the observer.

### Figures in Landscape.

If figures are introduced into landscape they are apt to be self-conscious, and prove hurtful features in the composition. Unless the figures take their place naturally in the scene they are better omitted. There should be some motive for them being introduced. I noticed some nudes at the Paris Salon, introduced into a landscape scene, without any "motif." The realism of the rendering showed that the model was clearly embarrassed that she should have nothing to do in the field. It would not have improved matters to have pictured her pinning up a washing unless it were to show the poverty of the lady's wardrobe, and that a change was not available. If figures must be introduced then they must be engaged at something sanely appropriate.

Before passing from this head I might remark that figures should be small if the interest is centred in the landscape. If the study of the figures be of primary importance then they should be large with a landscape background. If the figures be of medium importance it will share the interest with the landscape. This makes rather a trying arrangement, and the eye is at a loss where to settle.

We cannot find chosen landscapes of beauty to our hand, it may be; but ordinary material is sometimes lifted to a state of beauty by the atmospheric conditions and the quality of the lighting. This is our chance, and the earnest worker must always be on the look-out. Do not say "We cannot get away at the moment." Fortunately we often can, as the best effects are generally at the end of the day. Broad daylight effects are seldom successful. The charm comes with the morning light, or with the even more beautiful evening rays.

### The Bane of Falsity.

We hear much about "truth to nature." Now this sometimes puzzles the worker, who thinks that his negative suffers from an overdose of stern facts in all their naked truth. Such truthful rendering of so many facts is eminently useful for a study, but these facts must be put into their relation to the picture as a whole, by sunning down, or in some other way lowering certain tones or softening focus of other parts, and thus simplifying the appeal to the eye. Yet at the same time whatever is rendered in the picture must be true to what it purports to represent. A natural object that is imperfectly represented as regards texture, modelling, or tonal value, must be repugnant to the observant eye. So that we photographers must "take heed where we stand lest we fall," by attempting modifications of our scene. We may still be true to the structural quality of our pictorial material, and be able to idealise the scene. An imaginative rendering must always be more lastingly interesting than an accurate transcription of a landscape. At the same time we must show true observation of nature's moods, an intimate understanding of all the works of nature that we may attempt to portray. In this branch of work we must strive after originality, as mentioned in the case of portraiture. There is too common a tendency to look at nature through the successful exhibitor's spectacles.

### Schools of Photography.

I should like to say something regarding the different schools of photography. The Edinburgh school has always been academic, producing good, sound, reliable work. (This is very temperate language.) Notwithstanding its attainment to good things I am of opinion that no harm would be done if more outside influence could be introduced. Some new varieties of beauty grafted on to your flourishing growth. I remember a picture shown at one of your exhibitions some years ago, which was a departure from the style of work usually shown here, but it did not create a vogue, and there were no workers influenced by its direction or tendency, as far as I know, and yet I think it was one of the finest pictures I have seen on your walls, as far as my knowledge of your exhibitions goes. This medalled picture was of a "Man Drinking." The focus was pretty soft, if I remember aright. It was, as I have said, a very new style of thing in your exhibition, but this successful example did not alter the direction of your aim to any appreciable degree. You do-



not experiment readily. You are, no doubt, satisfied with the solid reputation which you have built up for your society, and you naturally do not wish to jeopardise your position by any risky departures from the traditional class of picture.

It would interest you to see the material that a leading American worker utilised for picture making when in your picturesque capital. These pictures were not always captivating, but the freshness of the standpoint was a revelation. There is an abundance of material down in some of these old lanes and narrow thoroughfares that would make delightful gum pictures with the quality of a rich etching.

A recent etching, shown in London, was of "Ayr Prison." Here we have a suggestion for some Edinburgh worker. He might show his intimate knowledge in a realistic rendition of "Calton Jail."

#### American Eccentrics.

Seeing that we have made an allusion to American work, we may as well proceed to consider this school, which is as far removed from the Edinburgh methods as are the countries geographically. The most striking feature of Transatlantic work is its freshness of outlook. Things that have never been done into pictures before are now made to do duty, and are worked up assiduously. In this country we did not utilise such material, as we did not see that a picture could be made of it, and many of us do not see that a picture has been made of it. Many of the things put forward by the American school would give one the impression that pictorial subjects were exhausted, and that they must use commonplace material with a big dash of the personal in it to make things hum. Often this style of thing succeeds on account of the daring exhibited by the worker in making the attempt. If the thing is done with the necessary degree of courage it will always be sure of attracting attention at exhibitions. This class of work is put forward with cheek, and this is often the only Whistlerian attribute it possesses.

But whilst there is much eccentricity that we do not approve of yet there is a large amount of work being produced on the other side that shows a striking amount of insight into subjects that will yield them pictorial material. These American workers make us look again at ordinary things, and we find that we had overlooked something that was quite precious. The leading American workers show us that they have gripped the great pictorial truths, and they are revealing to us how they can make them serve their purpose. Although I am opposed to much of the American pictorial produce, still I readily admit that the pictures produced by photography which have made the highest appeal to the spiritual and emotional in us have been produced by Americans.

#### A "Rouged Corpse."

The German school cannot, I think, show us any lead that would be of any advantage for us to follow. They have carried colour printing in gum a considerable distance, but these essays have no æsthetic value. The gradations are clumsy, and the colours administered in large, even masses of half-tone. It would be better to learn to paint the picture from the start. One could soon reach the point that these coloured gums would occupy in the painting world.

## FOREIGN NOTES AND NEWS.

### A New Liquid Lens.

A FLUID lens has been recently patented in Germany under the name of "ophthalmochromat," which consists of two thin glass discs cemented together and filled with a fluid. Some extravagant claims have been made for this. As the thickness is only a few millimetres, very little light is absorbed, and it is therefore more rapid than an anastigmat working at the same aperture. The chromatic correction is said to be perfect, and, further, it possesses such great depth of focus that every object from two to three yards to infinity are simultaneously sharp. Even the colour rendering is better with these lenses, and orthochromatic plates are no longer necessary. Thus the puffs; but the cold facts are not so rosy. It turns out to be nothing more than a biconvex fluid lens, and possesses all the faults of such a form, namely curvature of the field, non-achromatism, coma, distortion, etc. With full aperture F/9 the whole image is fuzzy, and with smaller stops the definition is no better than with an ordinary spectacle lens. Sic transit gloria—advertisements.

The French have produced some striking colour works in multiple colour gum very much resembling pastel. These, although carefully done, have no colour quality so far, judged from a painter's standpoint. Something more may be done by this particular method, but by the time it is satisfactory the process will not be essentially different from painting.

Some of the work at the Salon this year had tinting on some of the lights, such as touches of yellow. I do not know how it would appear to a painter, but to me as a photographer it suggested chemical dissolution. Any one who had not experienced a chemical discoloration might not have this feeling. I should not like to say that this colouring habit will not go further; I fear that it will, now that the lead has been set by illustrious workers. That which I have seen with tinting has not favourably impressed me. But it is within the bounds of possibility that complete photographs may be coloured by hand some day, and it need not necessarily be bad art. That would depend on how it was executed, well or ill done. An art critic has likened a coloured photograph to a "rouged corpse." This is a wee bit hard, but probably it would be found to be near the truth as regards the bulk of such productions.

### The Printing Process.

Perhaps I should say a word on process before closing. By what printing medium shall we express ourselves? Our aim might be right, and also our achievement as regards the negative and the preparation of it for printing, and yet fail to get what we want in the print. The better way is for every capable worker to judge for himself. He should print from a good negative a number of copies in the different available permanent processes, and choose the most artistic by the results. The carbon process has hitherto given me the results I desired. Gum has not tempted me up till now. I did not succeed in getting as satisfactory prints by gum as I had by the process I already practised. Gum was in my hands too erratic. My experience was something like that of a regular exhibitor at the Salon. I asked him why he had not sent a certain subject in gum. His answer was delightfully candid, "I had not time."

I am taking a new interest in gum since some paper of a Scotch make fell into my hands. I did not believe that it was possible to get such uniform results by this process, and it was a pleasant surprise to me to find so much control possible, and yet have a straight out print if such was desired. Although wrong in principle yet there seems to be a working point where the difficulties can be got over and a compromise reached if the coating be thin enough. As regards the recent London exhibitions, I did not find that gum was advancing, either in popularity or in performance, as might have been anticipated, but I am of opinion that recent developments are likely to bring this process into much greater favour. Now, in conclusion, I would urge that the great thing for us as pictorial workers is, that our powers of appreciation of what is artistic be developed to the highest point, so that we may be quick to seize fleeting opportunity. Art is long, but the time for practice is brief.

### Metallic Emanations.

In the "Phys. Zeitschrift" Strintz states that magnesium, aluminium, zinc, and cadmium, which are electro-positive, will, when polished, act on paper soaked in potassium iodide, and also on dry plates, but the latter are less sensitive than the former, and therefore a longer time is required to form a latent image. In twenty-four hours polished strips of magnesium give a very vigorous image, aluminium a vigorous one, but zinc a faint one, and cadmium a very faint one. The magnetic metals, cobalt, nickel, and iron will also blacken silver salts, but a prolonged contact is necessary. The action decreases considerably with the increase of the distance of the metal from the film; the images are broadened, as though the air had some dispersive effect, and the edges become indistinct. ●

### A Projection Anastigmat.

The optical firm of Rodenstock, of Munich, have introduced a new anastigmat for projection purposes, which consists of four uncemented lenses. It is stated to possess a very flat field and to

be free from distortion and all other aberrations, and is suitable, therefore, for photographic work. Its aperture is F/3. 8.

### Stable Colours for Three-colour Prints.

M. Pacini, of Marseilles, after experiments, recommends the use of picric acid, carmine, and Prussian blue for the pigments for three-colour prints prepared with bichromated gelatine, the idea being that these are stable in light and not liable, like aniline stains, to fade. Unfortunately, gelatine impregnated with picric acid darkens on exposure to light, as was pointed out by Burton many years ago. The carmine is used in an alkaline solution, and the Prussian blue is formed *in situ* by immersing the gelatine relief in the ordinary sensitising solution as used for the ferro-prussiate paper. It is then dried, exposed to light, and developed in water as usual.

### Developing P.O.P.

In the current number of "Das Bild" Drs. Knopp and Biltz give the following table of developers and tones obtained therewith on faintly-printed P.O.P. It will at once recall to our readers' minds the table by Schmidt which appeared in our issue for August 18, 1905, p. 646:—

Developer.	Acetone	Chloro	Silver	Potash	Bichro-	Chlorine	Various.	Approximate Colour of Fixed Print.
	Drops	Drops	Drops	Drops	mate 120	Alum 120		
Gallic Acid 15gms	—	—	—	—	—	—	—	Brown
Sodium Acetate } 30 "	—	—	—	—	—	—	—	Green
Water 1000 ccs.	4-10	—	—	—	—	—	—	Green
Con. sol. of Gum Arabic 60 c.c.	—	—	—	—	—	—	—	
Meto 2 gms.	20	10	—	—	—	—	—	Photo. Brown
Water 1000 c.c.	—	15	—	—	—	—	—	Gold Tone
	—	—	—	—	—	—	Sod. Sulphite 1-10, 10 drops	Carmine
	—	—	—	—	—	—	Tartaric Acid 1-4, 5-10 drops	Yellowish Brown
Hydroquinone 10 gms.	10	—	—	—	—	—	—	Yellowish Brown
Water 1000 c.c.	—	—	.5	—	—	—	Gum Solution 10 c.c.s.	Photo. Brown
	—	—	—	—	—	—	—	Red Brick
Hydroquinone Developer 20 c.c.	—	—	5	—	—	—	Gum Solution 10 c.c.s.	Gold Tone
Meto do, 20 c.c.	—	—	—	10	—	—	—	Bright Brown
Pyro 2 gms.	—	5	—	1	—	—	—	Yellowish Brown
Water 1000 c.c.	—	1 c.c.	—	2	—	—	—	Greenish Brown
	—	1 c.c.	—	2	—	—	—	Olive
	—	—	—	—	—	—	Glacial Acetic Acid 1 c.c.	Chocolate Brown
	—	—	—	—	—	—	—	Dark Reddish Brown

### The Lanternist's Problems.

The following very simple statements of the calculations required to find the necessary distances in optical projection and enlarging are given by M. Niewenglowski in the "Photo-Revue":—

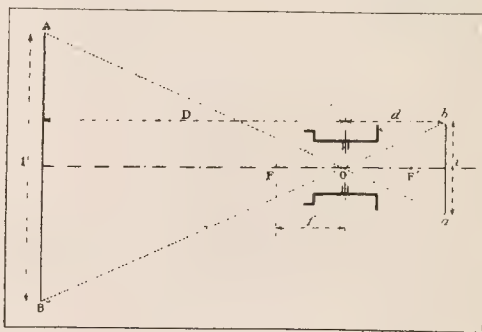
The accompanying diagram shows the relative positions of the image *a b*, which is to be projected and enlarged, the lens *O* and the enlarged image *A B* on the screen.

We will represent the necessary measurements which must be taken into consideration by the following letters, and all measurements must be in the same unit, inches or feet: *f* = the focus *O F*, of the lens *O*; *i* = one of the dimensions of the image; *I* = the corresponding dimension of the projection; *d* = the distance of the image *a b* from the centre of the diaphragm; *D* = the distance of the enlarged image from the same point; *a* = the magnification.

Then if an image 3 × 3 is to be projected to 2 × 2 yards, the magnification is  $a = \frac{72}{3} = 24$  or generally  $a = \frac{I}{i}$ .

A consideration of the like triangles *O a b*, *O A B*, shows that *I* and *i* and *D* and *d* are proportional, so that we may write  $a = \frac{I}{i} = \frac{D}{d}$

From this it is very easy to determine with quite sufficient accuracy the focus of lens that is used. On a spoiled lantern slide draw two diagonals, intersecting one another at the centre, using a needle or the point of a penknife. At equal distances from the centre draw two lines, exactly parallel, and a given distance apart, say 1 inch. Then project on the screen and focus sharply, and measure on the screen the distance between the two lines, and find the magnification. Then, without shifting the lantern or screen,



measure carefully the distance between the screen and lantern slide, and this is *D + d*; then the focus is easily found by the formula

$$f = \frac{a(D + d)}{(a + 1)^2} \quad \text{or put into words: Multiply the magnification}$$

by the distance between the screen and slide; add 1 to the magnification, and square the result; divide the first by the second quantity, and the result will be the focus: supposing the magnification to be 15 and the distance  $D + d = 128$  inches, then  $f = \frac{15 \times 128}{16 \times 16} = 7.5$  inches

To find what should be the focus of a lens to give a given-sized image in a room of given length, we use the formula  $f = \frac{D}{a + 1}$

if we assume the room to be 33 feet long, and allow 3 feet for working the lantern in, and that the slide is to be shown on 6-foot screen, we get  $f = \frac{360}{24 + 1} = 14.4$  inches.

Supposing we have a lens of known focus, and wish to know what will be the size of the projected image in a room of given size, or, in other words, what is to be the size of the screen, we use the formula  $a = \frac{D - f}{f}$ . If we assume the focus of the

lens to be 10 inches and the length of the room 40 feet, then we have  $a = \frac{480 - 10}{10} = 47$  inches, and if the slide is 3 inches, then  $3 \times 47 = 141$  inches, or practically 12 feet, the size of the screen. Practically  $I = a i$ , that is multiply the size of the slide by the magnification.

Inversely it is easy to calculate what should be the size of a slide, so that under the above circumstances the enlarged image shall occupy the whole of the screen, then  $i = \frac{I}{a}$ .

The last problem that one may meet with is: at what distance from the screen must the lantern be placed, when the focus of the lens is known, with a given-sized slide and a given-sized screen. As an example, if the screen be 6ft. square and the slide 3 × 3 inches, the lens has a focus of 9 inches. Then first finding the magnification  $72 \div 3 = 24$ , then  $D = (a + 1) f$ , we get  $D = (24 + 1) 9 = 225$  inches or practically 19 feet.



## THE MUDDLE OF THE COPYRIGHT.

VARIED comments have lately appeared in the newspapers regarding a case of interest to photographers and publishers, which came up in a New York police court.

As stated by a writer in the "American Amateur Photographer," it appears that William G. Gray, a photographic printer, was arrested because he had sold photographs of "The Sowers," by Millet, which is the property of George Vanderbilt, but which is on exhibition at the Metropolitan Museum of Art. The magistrate discharged Gray; but he advised the complainant, who had Mr. Vanderbilt's permission to photograph the picture and sell copies, to test his rights in the civil courts.

Merrill and Baker, publishers, engaged William A. Cooper, a photographer, to reproduce for them pictures in the galleries of George Vanderbilt and others. Photogravure copies of the best paintings in these collections were to be embodied in a work that was to sell at 1,000 dollars a copy, limited to fifteen copies. Cooper was to own the negatives, but agreed to make no copies from them unless at the request of Merrill and Baker.

Cooper, when he caused Gray's arrest, alleged that he had engaged Gray to make carbon prints from the negatives, and that Gray knew of the agreement with Merrill and Baker, and himself agreed to make no prints other than those required by Cooper.

It was specifically charged that Gray retained the carbon prints and negatives of the Millet picture and sold them to Hegger, of Fifth Avenue, and other art dealers, and sent the negatives abroad.

Cooper alleged that the value of the pictures said to have been disposed of was 4,000 dollars.

It is difficult to say what amounts to a publication of a work of art, and each case depends entirely upon the facts. The sale of a picture is not a publication of it. The publication of a wood engraving of a painting in a magazine, with an article describing the painting, is not a publication of the painting, for to constitute a publication there must be publication of the thing itself, and not a

copy, so the publication of a cast is not the publication of the statuette from which the cast is taken.

The starting point here is the intention of a publishing firm, Merrill and Baker, to produce a work containing a series of photogravure copies of certain paintings, the property of George Vanderbilt and others, limited to fifteen copies and to cost 1,000 dollars each, the presumption being that the owners of the paintings were also the owners of the copyright thereof.

The first step of the progress seems to have been that the publishers, not being photographers, employed a W. A. Cooper to make the negatives in the private or public galleries where they were, and their right to do so is evidently undisputed. Here, however, the publishers made an inapprehensible mistake; the negatives were to be the property of Cooper, although he was to print from them only at the order of his employers, the publishers. Now, it seems that Cooper was not himself a printer, and employed a W. G. Gray to make the prints; and here begins the mystery. Cooper was employed to make negatives for the production of the photogravures for the 1,000 dollar book, and was only to print from them on the order of his employers; yet he employs Gray to make carbon prints from them. It is just possible that there is something not recorded in the extract here reproduced that might throw light on the carbon question, but there was evidently no excuse for Gray, as is alleged, retaining negatives and making and selling carbon copies from them, as seems to have been proved, and yet he was discharged, the magistrate saying that it was a serious question whether Cooper or Vanderbilt were injured.

A more serious question, apparently, is the injury done to the publishers. And very little thinking is needed to show that a book, the edition of which was limited to fifteen copies, and the value of which was 1,000 dollars per copy, was dependent on its illustrations. It would be very much handicapped by sales of carbon copies of those illustrations for, practically speaking, an old song.

## ART IN THE RECEPTION ROOM.\*

It seems to be the fashion now among photographers to decorate the reception room of their studios with oil paintings, to the total exclusion of photographs, which are kept in cabinets or sample cases. When the art display comprises works of considerable value, and evidences of the proprietor's true vocation are lacking, what wonder if a stranger mistakes the place for the office of a regular picture dealer. Such an error might flatter the vanity of the photographer desiring to abrogate to himself the airs of an art connoisseur; but is it consistent? Is it honest? It has been the sincere belief of many successful practitioners that to screen the character of the photographic studio, often mistaken by timorous persons for a real "operating room," is excellent diplomacy, and the substitution for the conventional coloured enlargement with its gorgeous gold frame, or the customary array of prints in variegated enclosures, oil paintings, water-colours, statuary or other evidences of a refined and cultivated taste, impart to the establishment a distinctly artistic atmosphere. In many cases where the photographer has sent forth work of a high order of merit, the end seems to have justified the means, and his patrons are impressed with the idea that he is truly an artist.

It cannot be denied that an impressive art display enables the artist photographer to exert an educational influence over those of his patrons who have but a limited idea of artistic taste or fitness and to instil in their minds maybe the first principles of what constitutes a beautiful and appropriate likeness. It thus serves a useful purpose. When, however, the photographer is deficient in knowledge of art, and knows not how to produce a likeness conformable to well-known art principles, he assumes a false and embarrassing

position in making an ostentatious display of valuable paintings in his studio, and, unable to practise what he pretends to preach, he will reap only failure and humiliation. A distinguished American photographer, whose professional quarters are spacious and commodious, devotes one large and well-lighted room to the uses of a picture gallery, where at all times may be seen examples of the work of eminent American portrait painters, who do not need to be urged to exhibit here. Not only does this afford a convenient opportunity for artists of note to display their work, often with pecuniary benefit to themselves, but it serves to entertain and educate patrons of the establishment while waiting for the appointed sitting. Incidentally it forms an ideal preparation for the frequently dreaded ordeal in the studio and, in this case, a valuable asset of the establishment, besides showing how art and photography can be made to help each other.

The reception room, one of liberal dimensions, contains a limited number of photographs, framed in dark mouldings, which illustrate the artist's scope and versatility. A grand piano, the usual amount of furniture, including cabinets holding specimen prints, several large plants, Oriental weapons, bronzes, and bric-à-brac, all in subdued tones and excellent taste, serve to produce a rich and harmonious effect, but not a single picture in colour is to be seen. The proprietor is a talented musician and a man of liberal education, having also travelled considerably in Europe, the artistic appointments of his establishment are singularly appropriate. Like Pelscheid, Duehrkoop and Van der Weyde, who are men of culture and erudition, this American photographer enjoys the friendship of painters, musicians, and men of letters, and on occasions his reception room becomes a *salle de musique*, where the genius of music is supreme.

\* From "The Photo Era."

## MACHINE PRINTING OF DRAWINGS AND FILM NEGATIVES.

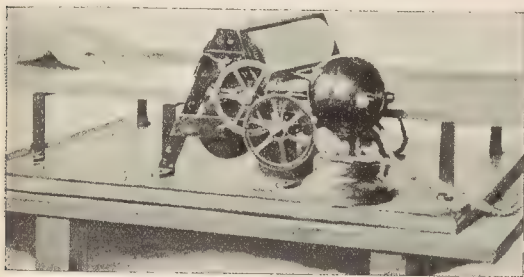
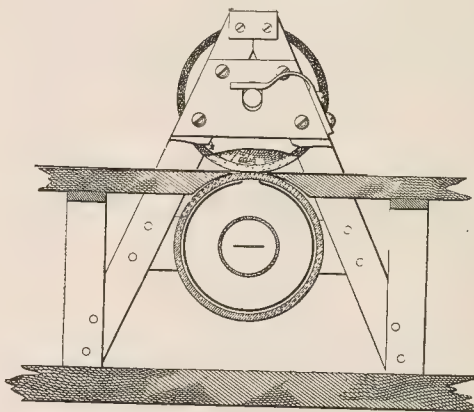
At a recent meeting of the New York Camera Club, a demonstration was given by Mr. F. C. Beach of a simple apparatus for the rapid duplication of plans and tracings, or for printing from flexible negatives. For the text of the report and the illustrations of the machine we are indebted to our contemporary, the "American Amateur Photographer."

The apparatus is designed to produce duplicates of drawings principally, which will be reversed as to colour but positive as to letters, figures, writings, etc., without the use of a printing frame, and with greater facility. It is also adapted to make positive prints from film or flexible negatives.

As will be noticed in the accompanying illustration, the machine consists mainly of two rollers about three inches in diameter, similar to the rolls in an ordinary clothes wringer, mounted one above the other; the upper one is solid, covered with soft felting material, and runs in slotted bearings at each end, having pressure springs above to exert pressure on the lower roll. This latter is more complicated, but runs in solid bearings. It consists of a glass cylinder about one-eighth of an inch thick, having a metal plug in one end with suitable ventilation openings, and a shaft to fit in a bearing in the supporting frame. The other end of the glass roll is open and is held in position by outside roller bearings, supported in the frame. On the interior of the transparent roll is a shade held stationary, extending the full length of the roll, which has a slot in its upper part directly under the contact point of the two rolls. Supported upon another removable frame is an incandescent candle-shaped electric light bulb made long enough to equally illuminate the slot in the shade within the glass

varied by inserting resistance in the motor circuit to make the motor rotate faster or slower if the drawing is thin or thicker.

In the case of film negatives, the intensity of the light may be reduced by interposing between the lower glass light roll and the negative one or two sheets of translucent celluloid. When the right thickness has been determined by experiment, duplicate prints may be made with certainty. Mr. Beach operated the machine from an ordinary electric light bulb socket before the members and exhibited



Apparatus for Making Bromide Prints Without a Printing Frame.

cylinder, or, in other words, to illuminate only the section of the drawing or film at the actual point of contact of the two rolls. The electric lamp is inserted at the open end of the glass roll. Gears at one end of the rolls cause the latter to rotate with equal speed. In front and behind the rolls are platforms arranged for feeding in the drawing as the rolls are rotated. It is highly essential in this machine that the rolls shall revolve with a continuous, steady, music-box-like motion, in order that the light may act equally upon the whole sensitive surface. An uneven movement will show in the form of lines across the print. It was found that a small electric motor produced the right effect, although the machine could be operated as well by a spring or weight suitably geared up. It will be observed the shaft of the small motor (similar to an electric fan motor) attached to one side of the platform has a spiral worm screw on its end which engages a gear wheel; from this gear the speed of rotation is still reduced by other interchangeable intermediate gears, until the right degree of movement is ascertained for a given thickness of drawing or negative to be run through. The diagram shows plainly the principle of the apparatus.

In operation the sheet of drawing is laid upon the platform, then over it is laid a sheet of slow bromide paper with the sensitive side upward, the motor is started, and the drawing and sensitive sheet are pushed or fed to the two rolls. The time of exposure, or of the passage of the drawing through, is about ten seconds. The exposed sheet is then developed and duplicates are obtained by simply repeating the operation, all in a dark room. The time of exposure can be

duplicate prints of a drawing and film negative which he had made shortly before the meeting. He explained that it was possible to photograph through letters or documents of any kind in this way and secure fac-simile copies showing the various water-marks and other markings in the paper of the original as wet. By exposing through the back of the sensitive sheet the print shows the writing as white reading the right way, while the ground is black on the reverse in colour of the original.

### STEREOSCOPIC PORTRAITS.

(Received too late for the "Almanac.")

THE study of optics, and both the working and playing with optical instruments, has been with me the hobby of a lifetime. As a lad, though, I took very little stock in the stereoscope, as such; I enjoyed the big pile of views, but looked at them with one eye. Plenty of people do so, but whether from a similar cause I know not.

My own eyes are very unequal, and in my early youth I was markedly affected with what the doctors call strabismus—polite, but unlearned people call squint, and my very unpolite and still less learned school friends called by a very vulgar name indeed. I can see stereoscopically, but the way I have to accommodate my eyes to the instrument instead of vice versa annoys me. Many times have I been struck by a passage in "Kingsley's 'Two Years Ago,'" published early in 1857, suggesting the use of the stereoscope in portraiture. The contention in the passage referred to, that the use of the stereoscope would avoid many of the exaggerations of "the one-eyed cyclops staring at his petrified brother cyclops" depends on the focus of the twin lens system; if too short the exaggeration would be liable to aggravation. That stereoscopic portraiture might eliminate or destroy minor blemishes is possible. Looking through the literature of the subject, I find that Claudet, that many-sided genius of the early days of photographic art, actually did such work, the price he charged being one guinea a copy. Luck man! But then Claudet was Claudet, and it is not to be supposed that he trusted the mounting of such work to his errand boy or even to the lady of the reception-room.

If this should meet the eye of any photographer, professional or otherwise, or even the eye of one who is no photographer at all, and a stereoscopic portrait of himself or friend is required, he may



obtain more than one copy for very much less than a guinea, as follows:—

Patronise the lowly (or is it not more often lofty?) den of the postage stamp, gem, or Victoria artist, merely stipulating that you want the goods unmounted and uncut; you will probably find him not too proud to accept the same price for the lesser amount of work, and he will be more anxious to please. Do the mounting yourself, carefully laying down the prints at the regulation distance apart, taking care to reverse right for left in the case of silver prints; with ferrotypes this is not necessary. There is a possibility of variety about the whole business that should lend the experiment an additional charm. With three rows of three prints taken with a nine-eyed Argus—I mean camera—you could take two prints wide apart, or two prints close together, giving your face just as much solidity as you pleased; you could mount a pair wrongsidely and see yourself hollow-faced; you could mount a pair taken slantingly and look at yourself cornerwise. But this is getting frivolous—fortunately it will be published about Christmas time.

C. RAY WOODS.

## Photo-Mechanical Notes.

### The Zander Complementary Colour Reproduction Process.

THE patent specification of the process, a description of which appeared in the last issue of the BRITISH JOURNAL, has now been published (No. 27,023, 1905), and some extracts therefrom will amplify what has already been said and claimed by Mr. Zander in "Penrose's Pictorial Annual." The four printing colours are magenta, red, lemon yellow, emerald green, and ultramarine blue. These hues may be departed from to some extent without detrimentally affecting the results obtained to any great extent, and such departure may be necessary or advisable in certain circumstances, as for example, when it is desired to use more permanent pigments as reproduction colours than those which most nearly yield the four fundamental hues described. Thus, one or more of the following substitutions may be made: carmine for magenta, sulphur yellow for lemon yellow, peacock green for emerald green, violet blue for ultramarine. At the same time it is to be noted that the hues selected respectively for the red and green pair and for the yellow and blue pair should be as nearly as possible complementary to each other.

The allowable variation in the four fundamental colours and the spectral position of the preferred colours are best expressed by reference to their wave-lengths. Thus for the yellow may be used any or all of the hues having wave-lengths between 6,000 and 5,600; for green, any or all of the hues having wave-lengths between 5,600 and 5,000; for blue, any or all of the hues having wave-lengths between 4,900 and 4,200; while the limits of the red are defined by the complementary colour of any or all of the hues of spectrum green between wave-lengths 5,500 and 5,000. The preferred hues may similarly be defined to those corresponding to wave-lengths 5,890 (about D line), 5,220 (about  $E\frac{1}{2}$  b) and 4,580 (about  $F\frac{1}{2}$  G), together with the colour complementary to that of wave-length 5,220.

In carrying the colour scheme into practical effect the requisite photographic colour-records or negatives are made by using a combination of suitable colour-sensitive photographic plates and selective colour filters, each of which, roughly speaking, should pass all the colours of the spectrum with the exception of the respective reproduction colour, the latter being represented in the negative or film as more or less clear glass or film according to the density of that particular colour in the original, whereby are produced monochromatic records in hues respectively approximating to the complementaries of the four proposed reproduction colours. From these negative colour records, printing positives (blocks, plates, and the like suitable for the various printing processes) or transparencies are made for reproduction respectively in their proper colour.

It is advisable in these colour records that there should be overlapping in the green and red records in the region both of the D and of the G lines, and in the yellow and blue records in the region of

the lines E and b. These overlappings, the extent of which is discretionary and may be determined empirically, produce corresponding gaps at D, G, and E to b in the positives, whereby the production of the yellow, spectrum green and blue respectively may be effected.

### Paper Negatives for Poster Collotypes.

The operation of reversing, by stripping, a negative intended for the production of a collotype printing plate is advanced as unnecessary by a German worker, Carl Schaack, of Parkstrasse, Treptow, Germany, by whom has been patented the use of a paper negative for collotype work. The patent specification (No. 11,239, 1905), sets forth the alleged advantages of the flexible support, not only in regard to reversibility, but as facilitating retouching and preparation for printing. The granularity of the paper negative is no found a drawback in its use for poster work. The paper-negative can be freely retouched to an unlimited extent not only for "lights" but also for "shadows" by use of rubber, pencil, brush, knife, and the like and in this respect it far exceeds films. With regard to dry-plate films, it is mentioned that black spots, lines, points, and the like, which are unavoidable in enlargements, since they are due to blemishes in the original, can only be retouched incompletely and with great difficulty, since one is forced to scrape with a knife through the hard layer which appears as it is polished; this is a very difficult process, which requires exceptional skill on the part of the operator, and nevertheless does not always succeed so completely that subsequent treatment of each separate print can be dispensed with, a very tedious operation with large issues. Owing to their cheapness, paper-negatives allow of making small issues even of the largest sizes, which is of the greatest importance in competition with other processes. They combine with small weight, easy manipulation in technical work, and allow of adding text and decoration to the pictures.

### Sweating in Process Cameras.

In the current issue of the "Zeitschrift für Reproduktions-Technik," appears a leader upon the above subject, and it is pointed out that the sweating or dewing of the cross-lined screen is extremely likely to occur in cold weather, when wet collodion plates are used, and, that as it may disappear during exposure, its effects may be unrecognised, for they would principally be felt in the "flashing," and therefore would chiefly affect the shadow dot. The cause of this trouble is, of course, that the screen and the inside of the cameras are colder than the dark slide and sensitive plate. The remedy then is obvious, the inside of the camera must be warmed. The methods suggested for this are either to introduce into the camera a copper wire of about 1 in. thickness and 8 in. to 10 in. in length, and heat the protruding end, or to utilise the well-known foot-warmer principle; that is to say, to arrange for the insertion of a copper vessel filled with super-saturated solution of sodium acetate, which can be heated by placing in a boiling-water bath. As is well known, this last thermal box will give out heat for many hours.

### Applications for Patents.

The following applications for patent were made last week:—By Florence Prout Rouse, 18, Chalk Hill, London Road, New Bushey, Herts. An improved method of preparing photographic prints, for reproduction, in the manufacture of pictorial printing blocks (No. 26,568).

Improvements in process blocks.—William Francis Cooper, 12, Southampton Buildings, Chancery Lane, London. (Nos. 26,715 and 26,716.)

THE United Stereoscopic Society have recently held a competition of stereoscopic slides. The judging was carried out by members of the society (by form of vote). The following is the list of awards:—Silver medal, H. Bradshaw, "Portrait of a girl;" bronze medal, Victor Selb, "Florentine Minstrels;" highly com., F. Low, "The Climbers;" bronze medal, A. J. Snow, "A November Morning;" bronze medal, J. Cole, "In ye Old Monks' Days;" highly com., Victor Selb, "Palace," Paris. Officers of the Society:—President, Theodore Brown; vice-president, Victor Selb. Committee: Messrs. J. C. Dancer, E. Turner, J. Cole, and W. Pugsley. Hon. Secretary, A. J. Snow, 74, Lloyd Road, Walthamstow, E.

## Exhibition.

### WISHAW ARTS AND CRAFTS.

THE annual arts and crafts exhibition promoted by the Wishaw Photographic Association was opened on Saturday last December 30. The following awards in the open classes were made by the judge, Mr. Archibald Cochrane:—Portraiture or Figure Studies—Bronze plaques: A. H. Allan, Edinburgh; Dan Dunlop, Motherwell. Bronze medals: A. H. Allan (debarred), A. W. Hill, Shotts. Landscape, Seascape, or River Scenery—Bronze plaque: Fred Judge, Hastings. Bronze medals: A. W. Hill, T. Jackson, Leeds; R. M. Readdie, Edinburgh. Flowers, Fruit, or Still Life—Bronze plaque: E. Seymour, Herts. Bronze medal: Dan Dunlop, Motherwell. Architecture—Bronze plaque: S. G. Kimber, Southampton. Bronze medal: T. R. Somerford, Brixton. Any subject (confined to exhibitors who have never received an award in open competition)—Bronze medals: Miss Sylvia Cardwell, Eastbourne; R. Sneddon, Wishaw; Arthur Neilson, Partick. Lantern Slides—Bronze plaque: Fred Judge, Hastings. Bronze medals: G. J. T. Walford, Essex; H. W. Dick, Manchester. Any subject (confined to Federation Association)—Bronze plaque: N. S. M'Murtrie, Wishaw. Bronze medals: G. L. A. Blair, Paisley; A. W. Hill, Shotts; Robert Ure, Glasgow.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."*

The following applications for patents were made between December 18 and 23:—

**LANTERN-SLIDE CASE.**—No. 26,310. Improvements in cases for lantern slides. William and Henry Hudson, Tower Chambers, Halifax.

**CINEMATOGRAPH.**—No. 26,440. Method of and means for starting a phonograph or cinematograph in reproducing animated pictures accompanying an audible entertainment. Wallace Cranston, Fairweather, 65, Chancery Lane, London.

**COPYING MACHINE.**—No. 26,612. Improvements in photographic printing or copying machine. Otto Lunenkampf, 31, Bedford Street, Strand, London.

**NEGATIVE WIPER.**—No. 26,621. A wiper or pad for removing or preventing the formation of air bubbles in the development of photographic negatives and bromide prints. William Pomfret Burra, 53, Chancery Lane, London.

**FLAT FILMS.**—No. 26,708. Means for containing photographic plates or flat films and for operating same in cameras. Thomas Baker, 46, Lincoln's Inn Fields, London.

**PRINTING APPARATUS.**—No. 26,740. Improvements in photographic printing apparatus. William Mycock, 17, St. Ann's Square, Manchester.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

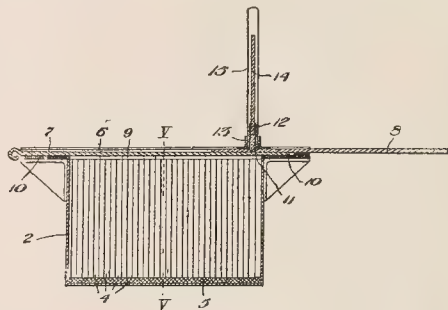
**DEVELOPER.** No. 9,116, 1905. The invention consists in the addition to a developer, which can be used with sodium sulphite alone, of a salt of chromium, such as chromic chloride, chrome alum, etc., the function of which is to permit of the warming of the developer to 85 to 95 deg. without softening the gelatine on the plate. The following are two examples of a developer made up in this way:—1. A mixture of 2 parts of "amidol" (meta-diamidophenol) with 3 parts of chromic chloride is made by dissolving this mixture, together with 6 parts of anhydrous sodium sulphite, in 300-400 parts of water. The clear solution will develop a normally exposed plate clearly and strongly within about six minutes without damaging the coating on the plate; or, if the developing is carried out at 85 to 95 deg. F., the operation occupies only about three minutes. After the developing process is finished the plate is washed with water whose temperature is 105 deg. to 140 deg. Fahr.

For fixing the developed plate there must be used, for instance, a fixing bath made by dissolving 2 parts of crystallised sodium hyposulphite together with  $\frac{1}{2}$  part of potassium metabisulphite in about 16 parts of water. This fixing bath is applied to the developed plate in the usual manner; the fixing operation being finished, the plate is washed with water of a temperature of 105 deg. to 140 deg. Fahr., and then dried at about 176 deg. Fahr. Thus the production of a finished negative from the beginning of the developing process occupies only thirty to forty minutes.

2. A developing bath is prepared from one part of "amidol" (meta-diamidophenol), 3 parts of chrome alum, 3 parts of anhydrous sulphite, and 150 to 200 parts of water. This bath is applied to the exposed plate in the usual manner. The development being finished, the plate is washed with water the temperature of which is 105 deg. to 140 deg. Fahr., and then fixed in accordance with the method given in Example 1. Washing and drying after fixing are also to be conducted as in Example 1.

In this case the negative obtained is likewise well-shaded and with strong contrasts. C. D. Abel (for the Actien Gesellschaft für Anilin Fabrikation, Berlin).

**DEVELOPING BOX.**—No. 16,576, 1905. The claims are for a tank (for development of plates placed in vertical grooves), which is provided with two sliding covers, by means of which plates are introduced into the tank from a light-tight case, e.g., a dark slide. The figure represents the body portion of the tank, which is provided at each side with slide-ways or guides 4 arranged to receive the edges of the plates and to hold them apart from each other, but sufficiently close together to practically utilise the entire interior area. Upon the bottom of the tank is placed a layer of rubber, felt, or other suitable



cushioning material adapted to provide a soft bearing for the edges of the plates, the tank being preferably composed of thin sheet metal.

Mounted upon the top of the tank between enclosing flanges or guides 6 are the sliding covers 7, 8, both being arranged to slide longitudinally, either together or independently of each other along the full length of the apparatus. The under one of these covers rests upon a strip 9 of soft bearing material adapted to provide a cushion and to make a binding fit with the cover slides 7 and 8, so that when inserted they fit snugly within their slide-ways formed by bearings 9 and flanges 6.

For the purpose of ensuring a tight fit the slides or covers 7, 8 are preferably slightly tapered, as shown in the figure, so that when drawn apart they will be comparatively free to move, but when adjusted to the closing position shown in the figure, or when entirely closed, they will make a snug, tight fit in their slide-ways, positively excluding the light, and also making a fluid-tight joint.

The upper one of such slides 8 is provided with an opening 11 and with an inner upwardly-extending shell 12, and a surrounding outer upwardly-extending shell 13. The purpose of these shells is to receive a photographic plate 14 within the inner shell 12, and its surrounding envelope 15 (encasing the plate) between the outer walls of shell 12 and inner walls of shell 13. The object of this construction is that the plate and its enclosing envelope may make a light-proof engagement with



the inner and outer shells, before the slides 7 and 8 are drawn apart for the purpose of dropping the plate into the tank. Jesse Dougherty Lyon, Room 2,024, Farmer's Bank Building, Pittsburg, U.S.A.

**CATALYTIC PRINTING.**—No. 20,372, 1905. The patent specifies a method of treating negatives or positives, which are to be copied by a catalytic process, with substances to modify the action of the negative or positive on the catalytic agent. For example, when a normal silver negative is converted into a platinum negative or a manganese dioxide negative or otherwise treated to serve as a catalytic negative, the pictures reproduced therefrom are frequently too hard, that is to say, the fine half-tones do not appear.

This objection is now overcome by treating the catalysing original with substances which diminish its effect on the substance which is to be modified by catalysis. From the original thus treated there may be obtained prints according to the method in question which are free from the above objection.

The invention consists, therefore, in diminishing the catalysing effect of the original according to the necessity of each case. As particularly useful, the following materials and method of applying them may be cited:—1. A platinum negative is bathed with a solution of 0.1 gram of thio-urea or of 0.2 gram of thio-sinamine or of 20 drops of a saturated aqueous solution of sulphurous acid, in 100 grams of a mixture of 4 parts of alcohol and 1 part of water. The catalysing effect of the negative is thus so strongly reduced that a soft positive may be obtained therewith. 2. A manganese negative is similarly treated with a mixture of 4 parts of alcohol and 1 part of water containing 0.1 per cent of thio-urea. The action is the same. Neue Photographische Gesellschaft, 27, Siemensstrasse, Steglitz, Berlin.

## New Books.

"The Science Year Book, 1906." London: King, Sell, and Olding, 5s.

The second issue of this annual of science contains a frontispiece portrait of Sir William Huggins, the retiring president of the Royal Society. The aim of the Year Book is to provide a review of scientific progress during 1905, and this it accomplishes in language which is popular without being inexact, although the immense field to be covered precludes anything like a detailed résumé of recent advances. Mr. Chapman Jones contributes the section on photography, but the three pages at his disposal are quite inadequate for his purpose. Physical and chemical tables, particulars of the learned societies, and a diary for the year complete a handsomely-produced volume.

"Camera Work."—No. 13 of Mr. Alfred Stieglitz's quarterly is chiefly devoted to the work of the Austrian pictorialists Henneberg, Kühn, and Watzek, an appreciation of whom is printed from the pen of Herr F. Matthies-Masuren. Whatever one may think of the aims or accomplishments of these well-known workers, one is compelled to accord the very highest praise to the whole character of the production. It is scarcely too much to say that whatever the subject matter of "Camera Work," the influence of the editor is felt from first to last, and if we are asked to name the best example of sympathetic photographic reproduction we instinctively turn to "Camera Work," as showing what the highest culture, wedded to infinite care, is capable of in the way of magazine production. The present number will be specially acceptable to some English readers for the candid criticism of the last Photographic Salon by Mr. Fredk. H. Evans.

"ROTARY" Festivities.—By the invitation of the directorate, the employees of the Rotary Photographic Company's works, West Drayton, and their friends, spent a very jovial time in the sorting rooms of the works on Friday evening last week. It was on the occasion of the annual Christmas concert and distribution of seasonable and acceptable gifts to the workpeople from their employers.

THE Prime Minister, if we may believe the daily press, has only one hobby—photography.

## New Material.

Silk Colour-filters. Sold by A. E. Staley and Co., 19, Thavies Inn, London, E.C.

A new description of material for the dark-room lamp has been placed upon the market by Messrs. Staley in the shape of Japanese silk specially stained from formulae supplied by Dr. Miethe. The material, to judge by samples submitted to us, is in every way an excellent filtering medium for its particular purpose, being light, strong, and not subject to deformation by heat or wet. The texture of the silk imparts an agreeable diffusion to the light, and the colours of the filters, we are informed, are specially adjusted to adapt the four varieties of fabric to the different purposes of bromide printing, and development of ordinary and orthochromatic plates. The filters are at present made in yellow, red, light red, and green, and in two sizes, 7 by 5 and 11½ by 9½, at prices of 1s. 6d. and 2s. 6d. each respectively. They are certainly a noteworthy addition to the means of illuminating the dark-room with safety and comfort.

### CATALOGUES AND TRADE NOTICES

MESSRS. Rajar Limited send us the 24-page price-list of their various specialties, including the new Rajar film slide. The list gives prices for a great variety of photographic and collotype printing, and will be sent post free on request.

MESSRS. Hood and Co., Limited, St. Bride Works, Middlesbrough, are early in the field with election designs and literature, a selection of which before us is thoroughly good work, in both typography and half-tone engraving. We are glad to find the opportunities of the General Election being seized by enterprising firms.

MESSRS. EPSTEIN AND Co. notify us that they have removed their offices from Broad Street, Bristol, to Rupert Street, near to their works. The change, they believe, will be to the advantage of their customers by facilitating the rapid filling of orders. It may also be stated that Messrs. Epstein have now ready a large number of new patterns of mouldings, and have opened a separate frame department from which they are able to produce a constant variety of new lines for photographers. One frame at present in great demand is a 20 by 16 in. green and gold or walnut and gold, selling at 45s. per dozen retail.

MR. PAGE CROFT, 24, Quadrant Chambers, New Street, Birmingham, has at length placed on the market a ready-made paper for the gum process, of which we shall report further when we have tried it.

A PRICE-LIST, which is also a calendar, and a quite characteristic piece of decorative printing, reaches us from Messrs. Wellington and Ward, by whom, we have no doubt, it will be sent to any applicant.

**PHOTOGRAPHIC EVIDENCE.**—A remarkable photograph has just been added to the collection in possession of the Cincinnati (U.S.A.) police, writes the New York correspondent of the "Express," showing a crowd of 200 persons gathered near the entrance to a circus tent. The faces in the forefront of the picture can be recognised, and there are three men in it who are engaged in stealing a diamond stud and a watch from an innocent bystander. The victim is in the centre of three men. One of them is at his back, another at his right-hand side, while the third, the man who does the real work, is at his left, talking to him. The faces of two of the men were plainly recognised by the finger print department of the Cincinnati police as those of pickpockets, and one of the men was arrested later in the afternoon on the day that the picture was taken.

THE Studio Light.—In reference to the query of "Novice" in our issue of December 22 a correspondent writes:—"I find it suitable to have a supplementary light instead of white reflector as recommended, and if carefully arranged it will also light the shadow side of subject and permit of better modelling than taking the light from one source only. If 'Novice' will try the above, I am sure he will be pleased with the results. I shall be pleased to advise further if not quite clear." We will forward any letter to our correspondent.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Jan.	Name of Society.	Subject.
5	Watford Photographic Society	Members' Lantern Slides.
6	Colne Camera Club	"Switzerland." Mr. Joseph Hey.
8	Leek and District Photo. Soc.	Exhibition of Members' Prints.
8	Ulster Amat. Photo. Society	Election of Officers, &c.
8	Heaton & Dis. Camera Club	"Velox and Its New Applications" Demonstrated. Mr. W. Sadler.
8	Southampton Camera Club	Annual General Meeting.
8	Scarborough and Dis. Ph. Soc.	Amateur Photographer Prize Slides.
8	Dewsbury Photo. Society	Annual General Meeting.
8	Widnes Photographic Society	"Switzerland." Mr. O. Heslop.
8	Wallasey Amat. Photo. Soc.	Focus Slides.
8	Cripplegate Photo. Society	"The Hand Camera as a Companion." Mr. W. L. F. Westall, F.R.P.S.
8	South London Photo. Society	"Trimming and Mounting." Mr. H. Creighton Beckett.
9	Royal Photographic Soc.	"The Latent Image." Mr. J. C. Kingston.
9	Otley & Dis. Cam. & Art. Soc.	"Incarnation in Art." Rev. A. J. Saxton, B.A.
9	Sunderland Camera Club	Photography Prize Slides.
9	Sheffield Photographic Society	"The Pilgrims' Way from Winchester to Canterbury." Dr. John W. Ellis.
9	Jersey Photographic Society	Focus Stories without Words.
9	St. Helens Camera Club	"A Trip to Norway." Mr. W. H. Ward.
9	Nelson Photographic Society	Members' Lantern Slide Evening.
9	Manchester Amat. Photo. Soc.	R.P.S. 1905 Competition Slides.
9	Halifax Camera Club	Members' Evening, Slides and Prints.
9	Darlington Camera Club	Annual General Meeting.
9	Glasgow Southern Photo. Assn.	Federation Portfolio.
9	Newcastle-on-Tyne Photo. Assn.	"Some Edinburgh Notes and Views." Mr. Arthur Scott.
9	Gateshead Camera Club	"Majore" Illustrated. Mr. T. G. Davidson.
10	Edmonton and Dis. Photo. Soc.	"Principles of Composition." Mr. W. E. Tindall, R.B.A.
10	Coventry Photo. Club	Judging Summer Lantern Slides.
10	Leeds Camera Club	"Bromide Papers." Demonstrated.
10	G.E.R. Mechanics' Institution	"Carbon." Demonstrated. Mr. H. W. Bennett, F.R.P.S.
10	Huddersfield Nat. and Ph. Soc.	Amateur Photographer Prize Lantern Slide Sets, with Descriptive Lecture.
10	Everton Camera Club	(Chemical Demonstration. Messrs. C. B. Stonehouse and G. J. Drysdale.
10	Acton Photographic Society	"Wild Flowers of West Middlesex." Mr. C. B. Green.
10	South Essex Camera Club	"Belgian Trip." The President.
11	Hastings and St. Leonards P.S.	Lecture. Mr. W. A. Hubbard.
11	Liverpool Amateur Ph. Assn.	"The Platinotype Process." Demonstrated. The Platinotype Company.
11	Harrigate Camera Club	Members' Night.
11	Hull Photographic Society	Y.P.U. Portfolio of Members' Prints.
11	Rodley, Farsley, & Calverley Dis.	"Bromide Printing." Mr. J. Seaman.
11	Woolwich Photographic Soc.	"Gum Bichromate." Mr. J. C. S. Mummery.
11	Pudsey and District Photo. Soc.	Amateur Photographer 1905 Prize Slides.
11	Boit Court School of Ph. Eng.	"The Future of Illustration." Mr. Carl Hentschel (Carl Hentschel Ltd.).
11	Rugby Photographic Society	"What Can be Done with a Hand Camera." Lantern slides by C. P. Goerz.

## News and Notes.

THE business of Talbot and Eamer, 54, Seel Street, Liverpool, has been purchased by Mr. F. Strettell, who notifies us of his intention to carry on the manufacture of the cameras and other specialties of the firm on improved and up-to-date lines.

A PHOTOGRAPHIC Pilgrimage.—A number of French photographers recently made a pilgrimage to the grave of Daguerre, Bry-sur-Marne. The visit, which was paid under the auspices of the Photo-Touring Club de France, appears to have appealed to the inherent spirit of French patriotism. It is to be followed by another—to Chalon-sur-Saône, where Niepce lived and died.

A CELLULOID FATALITY.—A destructive fire broke out one night last week on the premises of the Odol Chemical Works, in Southwark Bridge Road. The premises were well alight when the fire brigade arrived, and the conflagration spread rapidly from the basement up to the first, second, and third floors. Great damage was done before the firemen obtained the mastery over the flames, and the loss is estimated at several thousand pounds. The fire originated

in the ignition and explosion of some celluloid which three men were packing. Two of them escaped, but one man was blown into a corner, and when the flames were subdued his charred body was found among the debris on the ground floor.

LECTURES on Photography.—A course of ten University extension lectures on "The Chemistry of Photography" will be given by Mr. Halford Strange, M.Sc., on Friday evenings, at 8 o'clock, commencing January 19th, 1906, in Exeter Hall, Strand, W.C. The lectures, which are to be illustrated by lantern slides and experiments, deal with the chemical action of light, the chemistry of raw materials used in photography, of negative-making and printing processes, and of orthochromatic and three-colour photography. Each lecture will last one hour, and on the same occasion a class will be held for those students who wish to study the subject more thoroughly; the object of the class being to give the students an opportunity of coming into personal contact with the lecturer, in order that they may get their special difficulties explained. The fee for the course (ladies and gentlemen) is 5s.; for Y.M.C.A. and C.P.S. members, 3s. 6d. The introductory lecture, on January 19th, is free. Tickets and a full syllabus, with lecture notes, questions, a plan of study, etc., may be obtained at the Enquiry Office, Central Y.M.C.A., Exeter Hall, Strand, W.C.

THE Free Portrait Swindle.—A woman made an application to the Tottenham magistrates last week for advice. About two months ago a man called at her residence and asked her if she wanted any photographs copied for nothing, and showed her one belonging to her next-door neighbour that he intended to do free, gratis, and for nothing. He said his firm was doing it as an advertisement. She had a photograph of her dead mother, so she gave him that to copy, and he took it away. In due course she received a postcard from the firm, which carries on business in Seven Sisters Road, asking her to call round and inspect the copy, which was finished. She did so, and found that they wanted the sum of 4s. for it. She said the man said it would be done for nothing, and they explained that they had had to discharge him for telling other people the same tale. They did not copy photographs for nothing. Applicant asked them to give her the original back, but they had refused to do so, and it was the only photograph she had of her dead mother. The magistrate instructed an officer to go round and interview the firm.

CLASSES in Photography and Process.—On Monday, January 8, at 7.30, commences the spring term of lectures and demonstrations in pure photography at the Acton and Chiswick Polytechnic. The fee till end of April is 2s. 6d. Tuesday, January 9, at 7.30, begins the term of practical workroom lessons in half-tone negative-making by wet collodion process, with incidental work in orthochromatic wet collodion. The fee for fourteen lessons is 6s. Wednesdays and Thursdays (from the 10th and 11th January), 7.30 to 9.30, are devoted to advanced negative retouching. Fee for one evening per week, 6s. per term of three months and a half. For two evenings 10s. 6d. The Polytechnic is close to Turnham Green station (S.W. and District).

A SECOND great International Photographic Exhibition will be held in Paris this year. Its venue will be the Grand Palais, and the exhibition is announced to open in the middle of July.

ETCHING with Hydrofluoric Acid. Nicholas Knight, writing in the "Chemical News" on the method of etching glass with fluor spar and sulphuric acid, points out that it is desirable to have both the surfaces of the glass coated with a thin layer of wax or paraffin; otherwise the upper surface becomes etched by the acid fumes, and the experiment is thereby marred. To obtain the desired effect, the writer for a number of years has kept an ordinary copper water-bath, 6 inches in diameter, nearly filled with paraffin. This is carefully heated to avoid burning until it is all melted. The glass object upon which the etching is to be made is immersed in this liquid and quickly withdrawn, when both sides and the ends as well are covered uniformly with a thin layer. After the etching is accomplished, the paraffin is easily removed by immersing the glass in warm water, not sufficiently hot to break it. The usual way of spreading the paraffin on one side of the glass by warming it with a small flame underneath often fractures the glass, but by the method described in the foregoing the etching is so easily and satisfactorily made that the students are eager to repeat the experi-



ment, and they etch beautiful monograms and designs on various objects—watch-crystals, drinking-glasses, paper-weights, and similar articles.

**Posocopy.**—According to the "Chemist and Druggist," Mr. Friedrich Detsinyi, Budapest, has invented a dry printing process. An aluminium plate is used as the medium, and on this any picture or printed matter is transferred. The negative impression on aluminium thus obtained is used for taking copies from in the same manner as a lithographer works. It takes about a quarter of an hour to make the aluminium plate in the first place. The process seems to be a simplified method of algraphy.

**An Artist's View.**—A writer in "T. P.'s Weekly" wonders at the tendency to overlook the fundamental difference between the artist's sphere and that of the photographer. Ruskin (he proceeds), in his "Lectures on Art," urges the definition of art as "Human labour regulated by human design," and incidentally points out the true limits of photography, which hold good to-day as they did thirty-five years ago, and, indeed, will hold for ever. Curiously enough, it is probable that no drawings from nature have ever equalled Ruskin's in their likeness to good photographs, and yet how much greater is the charm of the drawings! But these were rather laboured studies than pictures, since Ruskin never developed a personal creative power. What, then, of those pictures, faulty perhaps, or merely suggestive of facts though they may be, but through which we can gain access to a living soul? What camera has helped this Art, and how are these to be compared to the feeble and fuzzy productions all too prevalent in our modern photographic exhibitions? Surely we have here the lowest level of Art! Photographic artists!—please no; but artistic photographers we will welcome—those who recognise the limits of the camera, yet benefit by the laws of Art. And every photographer can be one of these if he but choose. Let him destroy every negative and print that does not fulfil a useful purpose of record, and in his own scientific direction let him make the most of his "human labour regulated by human design," without intruding the realm of the truly-striving artist. Art then, I think, can help the camera.

**KODAK Photographs by Royalty.**—As we go to press an exhibition of photographs entirely the work of Royal amateurs, is being opened at the Oxford Street Gallery of Kodak, Limited, at which address it will remain open to the public daily from 10.30 to 5 p.m.; Saturdays 10 to 2.

**THE Autoscope Company,** 50, Gray's Inn Road, Holborn, W.C., has amalgamated with and taken over the entire management of the Warwick Trading Company, Limited, 4 and 5, Warwick Court, Holborn, W.C., where all future communications, orders, etc., should be addressed. The whole of the present staff at Gray's Inn Road will go over to the new business, and everything will remain under their sole supervision as before.

**THE LATE G. H. JUDD.**—Many readers of the "B.J.," especially those of the "old brigade," will learn with regret of the death, after a short illness, on December 15, of Mr. George Henry Judd, who occupied important positions under the late J. H. Dallmeyer, and afterwards with the company bearing his name, for over thirty years. Mr. Judd was born in 1847, and was educated at the Enfield Grammar School and afterwards at the London Orphan Asylum, then at Clapton. After nearly twelve years' training at the Royal Small Arms Factory at Enfield he became first foreman, then manager, and for the last nine years was secretary to the firm of J. H. Dallmeyer, Limited. He did not take an active part in photographic politics, occupying himself more in promoting the interests of the London Orphan Asylum and similar institutions, being for several years vice-president and afterwards president of the L.O.A. Club. He was besides a sidesman and energetic worker at his church St. James's, Holloway. Mr. Judd leaves, besides a widow, three sons and a daughter, and his loss is keenly felt, not only by his business associates, but by a large circle of private friends, many of whom paid the last tribute of respect at Highgate Cemetery on December 21.

**MR. G. B. COWEN,** photographer, Ramsey, so we read in an Isle of Man newspaper, has presented the Ballajora Wesleyan Chapel with a beautiful copy of the tunes of the Methodist hymn-book, inscribed as an expression of goodwill.

## Commercial & Legal Intelligence.

**BANKRUPTCY of a Falmouth Photographer.**—Mr. William Marsden Harrison, photographer, of Falmouth, etc., underwent his public examination at Truro Bankruptcy Court on Saturday last. Mr. J. Dobell appeared for debtor, who told the Official Receiver (Mr. G. A. Jenkins) that he commenced business at Falmouth in 1872, and continued there until July, 1874. He was then obliged to file a petition for liquidation, but he did not remember if the estate was vested in a trustee with a committee of inspection. No accounts were furnished to him, and he did not know anything about it. He did not know if there was a dividend paid, because he never heard anything about that affair any more. He was never told about a dividend of 1s. 5d. in the £ being paid to the creditors, and never saw any accounts. Owing to the absence of the trustee no information was forthcoming regarding Mr. Harrison's affairs, and the examination was closed.

**THEFT BY A CANVASSER.**—At the Burton Police Court, on Friday, Charles Fenton, a youth of 16, and described as a canvasser, of Lichfield Street, Tamworth, was charged with stealing a photograph, valued at 1s. 6d., the property of George Gilbert, on December 18. Mrs. Ellen Gilbert, wife of the prosecutor, stated that the prisoner came to her house three weeks ago canvassing. He also came at 6.30 on December 18. She had given him the first time an order for an enlargement, and the second time he brought the enlargement and the photograph back. She paid prisoner for the work, and when he had left she missed the cabinet photograph, which she had placed on the table. Her son saw Fenton pick up the photograph and followed him to the railway station. Police-Constable Smith deposited to receiving the prisoner in custody from the Tamworth police, and in reply to the charge he said he was followed to the railway station. Prisoner said he did not do it with intention. The mother asked for leniency, and prisoner was bound over under the First Offenders' Act, with costs (3s.).

**C. J. CULLIFORD AND SONS, LIMITED.**—Registered December 12. Capital, £25,000 in £1 shares. Object, to carry on the business of stationers, printers, lithographers, photographers, art printers, etc., and to take over the business carried on by H. T. Culliford as C. J. Culliford and Sons. No initial public issue. The first directors are H. T. Culliford and J. J. Edwards (both permanent). Remuneration, £100 each per annum, plus £500 per annum for H. T. Culliford as managing director. Registered office: 14 and 15, Fulwood Reuts, Holborn, W.C.

**DAVY HILL AND HODGKINSON, LTD.**—Registered December 22. Capital, £100,000, in 95,000 Preference, 2,000 Preferred Ordinary, and 3,000 Ordinary shares of £1 each. To carry on the business of manufacturing chemists, importers, exporters, manufacturers of chemicals for pharmaceutical, technical, photographic, scientific, and other purposes, etc. No initial public issue. The number of directors is not to be less than two nor more than five. The first are: C. Hodgkinson, F. Clarke, A. Hicks, and C. A. Hill. Each of the three last-named may retain office for life. Qualification, £1,000 shares or stock. Remuneration, as fixed by the company.

## Correspondence.

- \* \* Correspondents should never write on both sides of the paper. All notice is taken of communications unless the names and addresses of the writers are given.
- \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### A WAGES QUESTION.

To the Editors.

Gentlemen,—This subject cropped up in your answers to correspondents, December 21, 1900. Various letters appeared, one from the undersigned on January 4, 1901, also from John A. Randall, and "An Employer" on January 19, 1901, and later on one from "G. W.," chiefly in reply to Mr. Randall.

The editor's advice was: "Do not relinquish present employment." My employers seem content to retain my services, and I have, so far, remained with them, I venture to hope, to our mutual satisfaction. Since the above date I have had two additions to my salary,

so that I am now earning 19s. a week extra on the £6 6s. I was then receiving, and I am in hope of obtaining 10s. a week extra before 1906 has passed, as I anticipate being made foreman of the photograph department. At present we do without one.

The firm depreciate our time, and if this occurs they only pay at the rate of 1s. 6d. per hour, and I now have to put in three to four hours most Saturdays. In addition I now make half-tones and print zinc plates for litho work. This is extra on the work I did in 1900.

My real object in writing is to interest those intelligent operators who can command 50s. to 60s. per week to take up the study of work outside their own horizon, like collotype, photogravure, tri-colour, photo-transfer, line, half-tone, enlarging, lantern slide making: even blue printing, ferro-prussiate or ferro-gallic are all helps. St. Bride Institute, Bolt Court, Cripplegate, and the various Polytechnics, are all advantages which are sadly neglected by operators and printers in London.

I spent nearly five years qualifying for the position I now hold, and in the summer of each year I arranged to work the process I had learnt in the winter with some small man, generally giving him my time and in one case my money also.

Let me add, engineering firms in the north are glad to give £4 for a good man, and I am informed of one man who is paid at the rate of £6 a week who can reduce an original down to within 100th of an inch and make cyanide or ferro prints afterwards. All this class of work also demands careful stopping out, also machinery is photographed, and much retouching done on the negative.

I am working with two men who are now getting £6 and one who has £7, besides several who obtain £5, all in commercial work.

I have only two rules by which success may be obtained (1) Turn out the very best work possible, and (2) keep your promises as to time, and, if possible, be five minutes in advance.

Finally, don't walk in as the clock is striking but endeavour to be at work when it does. This should mean an hour to an hour and a half every week in favour of your employer. Only once in ten years have I arrived as late as five minutes to the time of starting work.—I am, Gentlemen, yours truly,

COMYN,

A BOLT COURT STUDENT.

December 27, 1905.

## FREE PORTRAIT SWINDLES.

To the Editors.

Gentlemen,—I am sure my brother professionals must be grateful to you for the frequent exposures in your pages of the free portrait pest to our profession. The presence of these gentry in a district is an evil which can be fought in no better way than by acquainting the public with the plain statements of their methods in various places such as you have—unfortunately—been able to record of late. I have found that customers of my own have been taken in by the plausible tales of firms of this kind; but when I have shown them the reports of similar businesses as reported in the B.J., they have recognised the underhand nature of the offers which have been made to them. I am prepared to fight the next attacks on my custom by these "free-traders" by circularising my clients with a few excerpts from the JOURNAL, reprinted with headlines and references to the source of publication, and would personally express my satisfaction that the JOURNAL places this power in the hands of all of us.—Yours faithfully,

C. HIMMINS, Manager.

Glasgow, January 1, 1906.

## COLLODION EMULSION.

To the Editors.

Gentlemen,—In reference to the recent article reproduced in your issue of December 29, may I take the liberty in signalling a slight error.

It is stated that the emulsion is more convenient in the dry state, but this only because it is easier to pack for travelling and carriage becomes insignificant, whereas the emulsion can only be forwarded per goods train. But as regards use we think the one as good as the other, and have no preference for the dry.—Yours very sincerely,

H. CALMELS.

150, Boulevard du Montparnasse, Paris.  
December 30, 1905.

## Answers to Correspondents.

\**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.

\**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*

\**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

## PHOTOGRAPHS REGISTERED:—

A. D. Coon, 72, Park Street, Dundalk, County Louth, Ireland. *Photograph of the Members of the Dundalk Theatrical Club on the Stage of the Dundalk Town Hall, taken by Flashlight, December 12, 1905, in Costumes of Play entitled, "The Checkmate."*

F. C. Clarkson, Royal Studio, Colchester. *Seven Photographs—Lady Pearson; Sir Westman D. Pearson, Bart.; Mrs. Worthington Evans; Laming Worthington Evans, Esq.; H. K. Newton, Esq.; Mrs. Levy Lever; A. Levy Lever, Esq.*

T. F. Pearson, 352, Christchurch Road, Boscombe, Bournemouth. *Photograph of unique Post Office at Lford, near Christchurch, Hampshire.*

J. Pottle, Eastbrook, Wimbome. *Photograph of Lord Alington's Shooting Party Group at Crickel, December 6, 1905. Photograph of His Majesty presenting Cup and Medals to Swanage Volunteers at Wimbome Railway Station, December 5, 1905.*

L. Berry, 27, Chapel Street, Chorley. *Two Photographs of Lady Balcarres.*

A. H. De'Ath, 32, Bank Street, Ashford, Kent. *Photograph of P. Harris, Esq., Liberal Candidate for the Ashford Division of Kent.*

P. M. Lee, 2, Endsleigh Place, St. Marychurch, Torquay. *Three Photographs of F. L. Barratt, Esq., M.P.*

PHOTOGRAPHS ON CELLULOID.—Can you tell me how to do miniatures on celluloid? I believe they are done on P.O.P. and then coloured, and in some way put on the celluloid. I find I cannot get the print to stick to the celluloid. Is it necessary to use an adhesive roller, or is there any way I can squeeze the print on so that when it is dry it will not peel off?—D. G.

The prints are moistened with alcohol and hot rolled into contact with the celluloid. Write to Mr. Jonathan Fallowfield, 146, Charing Cross Road, for his photo-button catalogue (6d.), which will give you the information.

DUNDALK.—The postcard is printed from a half-tone block. You will find the advertisements of several firms doing work of this kind in our pages.

INTENSIFIER.—If a drop of intensification mercury dries on a varnished negative would it chemically affect the P.O.P. that might afterwards be printed from it. 2. Is "iodide" poisonous?—CHEMISTRY.

1. Certainly P.O.P. coming in contact with mercury chloride will be prevented from printing. 2. Yes, but not violently so.

SILVER RESIDUES.—1. Could you tell me roughly how much liver of sulphur it will take to throw down the silver contained in 500 gallons of old fixing bath? 2. What test can I apply to ascertain when all the silver is deposited? 3. Is there any silver in bromide developing solutions worth throwing down as residues? If so, how is it precipitated to that state ready for the refiner?—I.

1. Impossible to say. If the baths were completely saturated with silver bromide, the quantity of sulphide would work out theoretically to 50 lbs. But it is not likely that it will approach this figure in practice. 2. Add a little liver of sulphur solution to some of the clear liquid. A further dark precipitate indicates that the silver is not all down. 3. Not worth recovery.

A. D. COON.—We should think your requirements would be met by the Short portarit lamp, a description of which you will see on page 1156 of the "Almanac." Any electrical fitter would make you the battery and ignition device.

DEVELOPER.—I have recently made a trial of a developer which I saw quoted in the contributed notes in the "Annual." It is



described as a "process" developer, and the formula is somewhat as follows:—Metol 40 grs., quinol 50, sulphite 120, water 20 ozs.; No. 2 consisting of 180 grs. caustic potash in 20 ozs. I like the way this brings the image out in the case of preparing enlarged negatives from carbon transparencies, but I find that the developer discolours immediately after mixing, and the negatives are much yellow-stained. I want to get a clean negative, using this developer. Will an acid-fixing bath meet the case? I have not been using one. Or will an extra amount of sulphite prevent staining, and not interfere with the action as at present of the developer? What I mean is, that I want the image to come up at once, and to acquire full density quickly. Shall be much obliged for your kind information.—J. H.

Either plan will diminish the stain. If you do not find the first sufficient, try the second.

**BOOK ON LIGHT.**—I shall feel obliged if you will recommend a book treating in a plain manner upon the phenomena of light and colour, not necessarily in relation to photography. If some simple experiments are described therein it would be the very thing I want.—STUDENT.

"Light, Visible and Invisible," by Professor Sylvanus P. Thompson.

**OWNERSHIP OF A NEGATIVE.**—A customer of mine sat for portraits. Soon after this she wrote and asked for the negative, a request which I politely declined to accede to. I received another letter saying that the negative by law was her property, and that in some cases of the kind recently decided the negative was ordered to be given up. I maintain that the copyright only is vested in her, and that I cannot sell or supply any copies to anyone but herself, but that the negative is my property, booked up in my register and forms not only part of my stock, but one of the assets of my business. If she is right in making this claim the numbering and listing of one's negatives may be at any time rendered useless work. The negatives might as well be packed up and sent with the prints to each customer.—R. H. RAMSDEN.

The negative is absolutely yours. All the decisions of the courts uphold this right of the photographer. You will see a reference to one or two in the article on "Photographic Copyright" in the current "Almanac," p. 675.

**COPYING FADED PHOTOGRAPHS.**—We have an unmounted print on salted paper, taken in 1850, which is rather valuable, but very much faded. Some years ago we used to revive this kind of print, but have quite lost sight of the formula. Could you assist us in the matter? It would not matter if the print came up uneven, as we have to copy it, but it is very faint in its present state.—G. WEST AND SON.

The formula to which you refer is probably a somewhat dilute solution of bichloride of mercury. That will remove the yellowness and brighten up generally a gold-toned print, and render it better for copying. It will not, however, restore any lost detail. As the print you have to deal with was made so long ago it is doubtful if it was toned with gold, in which case the treatment might be injurious. We should advise you to copy the print as it is, using an orthochromatic plate. It is often surprising how well old faded photographs copy without any treatment whatever.

**H. MALLETT.**—If a person sells his business, and it is stipulated that he shall not set up in business or be concerned in any within a certain radius, he is bound by the agreement. If he practises photography for gain within that radius, although he may reside outside it, we should say it would be illegal. Otherwise agreements might easily be evaded. With regard to the undue restriction of trade, that is a very vague term. What, in law, might be so termed under some circumstances might not in others. For example, if an agreement were made that a person should not practice photography within, say fifteen miles of St. Paul's it would probably be classed as an undue restriction of trade. But if it were for the same radius of a country town the case might be just the reverse.

**J. WIDEROR AND Co., AND J. W. C.**—The address of the makers is Heselike and Co., No. 2, Lützow-strasse, Berlin, W. 35.

**LENS QUERIES.**—1. I have a 22in. telescope, and should be glad to know whether it would be possible to use the negative combina-

tion of same in front of an ordinary lens for tele-photo work, or would it need to be corrected to chemical focus? 2. Also, are the cheap supplementary lenses on the market so corrected or not?—TELESCOPE.

1. By negative combination we presume you mean the negative lens forming part of the achromatic object glass. This is most probably cemented to the positive lens, in which case it cannot be separated from it without spoiling the telescope. It might serve fairly well as a supplementary lens, but an ordinary spectacle lens, costing only a few pence, will probably do as well, if not better. Being of heavy flint glass, the telescope lens might show the effects of want of correction. 2. The cheap supplementary lenses are uncorrected, but being specially selected for their purpose they act fairly well, and one of them will probably give you more satisfactory results than any makeshift of your own. You can get corrected lenses, but if you do not wish to go to that expense we would advise you to buy one of the cheaper ones. Select the largest diameter lens that will fit your lens hood. If you do not, the mount of the supplementary lens will cut off much of the view.

**WINDOW BLINDS.**—Could you kindly oblige by giving me the name and address of a firm, or several, who can supply shop-window blinds, and can insert lettering on same?—INTERESTED.

Such shop-fitters as Potter and Co., Aldersgate Street, E.C., or Sage and Co., Gray's Inn Road, E.C.

**COPYING.**—Kindly tell me how to get best results when copying blue prints and type-writing in violet ink.—H. G.

Use a deep yellow or a red screen on a green-sensitive plate. You will find an article on the subject, with formulæ, on page 775 of the "Almanac."

**W. HARRISON.**—Probably Valentine, of Dundee.

**A. E. (Barnsley).**—The registration applies to reproduction in any size. In regard to the separate copyrights you should obtain a written assignment at the time of the sitting if you wish to be on the safe side. See par. 28 of the article on "Photographic Copyright" in the ALMANAC.

**PHOTOGRAPH ADVERTISEMENTS.**—A curious case, involving the question of what is the legitimate use of a photograph is arousing much interest and amusement at Pittsburgh. Miss Evelyn Nesbit, the once well-known American actress, now the wife of Mr. H. Thaw, a millionaire of the region, recently found that her former fame has been utilised by a butcher of the city to advertise ham and pork sausages by means of a poster representing the lady reclining her head on that of a Polar bear. The title of this idyll was "Beauty and the Beast." Though not intended to cast any reflection upon Mrs. Thaw's husband, this poster has aroused the ire of her mother-in-law, who has taken the most drastic means known to law to have the posters suppressed. The "Globe's" comment upon the incident is that the butcher pleaded, but Mrs. Thaw was as ice.

**MESSRS. Lambert, Weston and Son,** of Folkestone, last week obtained a flashlight photograph of the audience in the Pleasure Gardens Theatre. The picture has been exhibited at their studio, and has elicited some favourable comment in the local press.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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# JOURNAL OF PHOTOGRAPHY.

PRICE TWOPENCE.

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## SUMMARY

An exhibition of colour photography will be opened in London next week. (P. 22.)

Some necessary preliminaries to successful carbon printing are discussed on p. 22.

At the Lord Mayor's fancy dress ball over 400 negatives were taken by arc light between 6 and 11.30. A special report of the method adopted appears on p. 25.

The R.P.S. Progress Medal has been awarded to Professor Janssen, of Paris, for his work in astronomical photography and his researches in reversal. (P. 24.)

Some further advice on the way a photographer may impress his customers by good taste in stationery appears on p. 25.

The bleach-out process of making colour prints at one exposure from a coloured transparent original appears to be approaching a commercial stage. Directions for the use of a sensitive tissue have been issued. (P. 26.)

Instructions have been published for the toning of silver prints with sulphide, with and without the assistance of a combined bath. (P. 28.)

Some peculiar phenomena in the drying of gelatine and collodion film containing salts have been observed by R. E. Liesegang. (P. 29.)

An exhibition of portraits of prominent personages in London society by H. Walter Barnett has been held in the studio of J. C. Strauss, St. Louis. (P. 31.)

A new kind of tube for dry cartridge chemicals has been patented. (P. 32.)

The photographer's advertisement should be an argument to the reader—the reason why of the photographer's merits, not merely a statement of them. (P. 32.)

Stereoscopic effect in cinematograph pictures is again the subject of a patent. (P. 33.)

## EX CATHEDRA

### The Sun's Biographer.

**The Sun's Biographer.** There is a peculiar fitness this year in the award of the Progress Medal of the Royal Photographic Society to Dr. Janssen, for no man has done more to tell us what the sun is like, and the camera has been the means by which he has shown us the structure and fiery moods of the source of all photography. In his own country photographers have not been so long in recognising his scientific applications of the camera. The French Photographic Society awarded him a medal thirty years ago, but the magnitude of his work in astronomical photography has its graphic record in a presentation by M. Janssen himself to the French Academy of Sciences a year or two ago. The gift was an atlas of the sun drawn by photography, and to produce it six thousand negatives had been taken during a long series of years. The atlas records all the tremendous physical changes of which the sun and its surrounding envelopes are capable. It is, in fact, a kind of photographic biography of the sun during the years between 1876 and 1903.

\* \* \*

## A New Discovery?

**New Discovery ?** "Revolutionise photography" is a favourite phrase of the inventor ignorant of the field in which his revolution is to come to pass. We have heard the phrase applied many a time, but we have had to wait for the old order to change. But about the naivest claims to revolutionary potency which we have seen for a long time appears in a periodical issued under the ægis of what professes to be some sort of college of photography—in America. We read that a glass plate has been perfected which will replace the ground glass of the camera, and will remove all colour, giving simply the high-lights and shadows. This stupendous achievement is the work of the Monochrome Glass Company, and is heralded with the headline, "Will revolutionise artistic work among both amateurs and professionals." Has the writer ever heard of such a thing as a blue focussing screen?

\* \* \*

### Three-colour Without Filters.

**Three-colour Without Filters.** During the early part of last year a patent was sealed in Great Britain, and, we believe, in other countries, for the production of the three-colour sensation negatives without the intervention of light-filters of any kind. Indeed, the patentee's claim is wider than this, and applies to methods of colour photography without respect to the number of negatives on which the colour records shall be made. The essence of the patent consists in the decomposition of the image formed by an ordinary lens into a spectrum. The various parts of this spectral image are then deflected by



suitable arrangements of prisms and transmitted by a series of objectives on to the sensitive plates. Herr C. J. Drac, the patentee of the apparatus constructed on these lines, has recently given us the opportunity of witnessing the visual performance of the first working model. The apparatus consists, first of an ordinary photographic lens, behind which is mounted a direct vision spectroscope by which the rays from the lens are decomposed into a spectrum. In the plane in which this spectrum is formed are two prisms, separated by a space which can be adjusted at will so that any required central part of the spectrum can pass directly to the second series of lenses—numbering three in the camera we inspected—whilst the prisms on either side displace the outer portions of the spectrum, producing altogether three parallel beams of light which form their respective image in the focal plane of the triple set of lenses. The adjustments of the two prisms provide for the splitting of the spectrum at practically any two points, and the optical system of the instrument also includes other prisms to correct the aberrations of the decomposed beams, and to produce three images of the same size and of optical perfection. The camera as it stands is reversible: on inserting a positive transparency in place of the ground glass an image in natural colours is projected by the original taking lens, or can be viewed on looking into the objective. The analysis and synthesis of the light in the respective operations of taking and projecting are thus performed without the aid of filters, though we prefer to reserve any comments on the results until we have also witnessed a photographic demonstration of the method.

\* \* \*

#### **An Exhibition of Colour Photography.**

In view of the great and increasing interest taken in colour photography, it is a somewhat remarkable fact that no exhibition solely devoted to this subject has been yet held in this country. A collection of photographic and photo-mechanical prints in colour was brought together last spring in Paris, by the Comité d'Etudes Photochromiques, but unless we except the exhibits of colour photography which have turned up at the leading photographic exhibitions, principally at that of the Royal Photographic Society, the public has had no opportunity to examine side by side the results of processes which are at disposal at the present time. We may, therefore, assume that some interest will attach to the announcement that such an exhibition has been organised by **THE BRITISH JOURNAL OF PHOTOGRAPHY**, and will open immediately. In our next issue we shall be able to declare it open and extend to every one of our readers a cordial invitation to pay it a visit.

\* \* \*

#### **Photography at the Society of Arts.**

Two forthcoming fixtures at the Society of Arts should be noted by photographers able to attend the meetings at the society's impressive—we will not say gloomy—premises in John Street, Adelphi. They are "The Artistic in Painting and Photography," by J. C. Dollman, and "The Production and Collection of the Picture Postcard," by Frederic T. Corkett. As manager of Raphael Tuck's postcard department and one of the pioneers in the picture postcard cult, Mr. Corkett should be able to speak authoritatively on his subject. But we are surprised to see that the collection of postcards enters into his discourse. Imagine any of the audience at the Society of Arts being advised on the best methods of accumulating examples of this modern scourge of middle-class society.

## **PRINTING PROCESSES.**

### **XVII.—CARBON.**

CARBON printing, alike in theory and practice, is essentially different from any of the processes previously dealt with in this series of articles. Not only is it different, but it offers advantages that are not possessed by any other photographic printing method. Carbon pictures may be on any kind of support—such as paper of any tint or surface, opal glass, porcelain plaques, wood panel, metal, jewellery or the like. And the picture can be of any colour or tint that may be desired, and that without the trouble of toning, and with the assurance that all the prints will be of exactly the same tint. This cannot be assured with any other process. With bromide printing and after-toning, as described in previous articles, a great variety of colours may be obtained; but it is tolerably well known that, with the exception perhaps of the "sulphide" sepia, there is a great difficulty in getting even half a dozen copies of exactly the same tint. In some of the methods of toning bromides the stability of the results is of a very doubtful nature—to say nothing of the trouble involved when two or, perhaps, three distinct operations have to be very carefully performed. With the carbon process there is no more trouble in producing one desired colour than another. The operations are the same in every way, whether black, blue, green, or any other colour or tint is required, and, what is more, with this process the results are undoubtedly permanent.

It may be asked why, if all these different advantages are possessed by this process, do people first produce bromide prints, and when finished go to all the additional trouble of toning them to get, after all, only uncertain results, when they can secure all they desire by the most simple means? The explanation, we think, is that those who have not given the carbon process a trial are under the impression that it is a difficult one to work, and that special appliances are a necessity. This is a fallacy of old standing, and one which requires only a trial of the process for its dissipation. One thing, possibly, that has deterred some whose experience has mainly been confined to P.O.P. from trying this printing method is that there is no visible image as a guide to the right exposure. But there is a greater latitude in exposure allowable with carbon than with any other printing method, so that a print need rarely, if ever, be lost through error in the exposure. It is not our intention to enter into a lengthy disquisition on the theory of carbon printing or even to explain every detail and element of the process—the text-books do that well enough—but we desire to pick out a number of points to which special attention is necessary, and which are the causes of half the alleged inexplicable difficulties of the process. It is hoped that even some present carbon workers may learn something from notes drawn up in this way.

If the tissue be purchased ready sensitised—and it is now supplied commercially in a great variety of colours in that condition—no chemicals whatever are required from beginning to end, beyond a solution of alum, and even that is not absolutely necessary. It is a great convenience to small workers to buy the tissue in the sensitive state, as then the little trouble of sensitising is avoided and the user ensures having it in the best condition for working. In the sensitised state the tissue can be kept, at this time of the year, for two or three weeks, if kept dry and fairly well protected from the air. A simple, and effective, way of preserving it is to put it into a printing frame of the box form with a few sheets of blotting paper, which have been thoroughly dried before the fire, at the back, and then close up the back tightly. Preservative

cases, provided with chloride of calcium, are on the market, and in these the sensitised tissue will remain in good working condition for several months. A tin case, such as employed for the storage of platinotype paper, may be used with equal result. If one of them be used it will be well to roll the tissue up, prepared side outward, as then there is less likelihood of the coating cracking when it is unrolled should it happen to become abnormally dry from the extraction of its moisture by the chloride of calcium.

In a first essay in the carbon process we should, for the reasons mentioned above, advise that the tissue be purchased ready sensitised, and this we shall assume is done. A query we have frequently had to reply to in the Answers column is:—Why does the printed tissue sometimes refuse to adhere to the support when squeezed upon it for development, or perhaps, when it does adhere, why does the backing refuse to strip in the hot water? The answer is simple; the tissue, from some cause or other—long keeping or possibly exposure to light—has become insoluble. Trouble and disappointment from this cause may easily be avoided by testing the tissue before printing it, which is very simply done. Cut off a small strip and put into cold water for three or four minutes, then transfer to warm water—say at a temperature of about 100 deg. Fahr. If the coating at once begins to dissolve we shall know that the tissue is in good condition. If it does not the heat of the water may be raised by another ten degrees; then if it dissolves it will still be workable, but it will have gained in sensitiveness by the keeping, and a somewhat shorter exposure in the printing should be given, and rather warmer water than usual employed in the development. Sometimes by long keeping, or exposure to light, it will be found that as the coating dissolves at the higher tem-

perature, a thin film may be seen floating in the water. This shows that the tissue has become "tinted"—that is, slightly fogged. Such tissue is still workable, and, for some negatives, *i.e.*, those of hard contrasts, is a decided advantage. It is specially suited to hard ones. With negatives of this character it is very common with experienced carbon printers—after the exposed print is taken out of the frame—to expose it for a few seconds to the light to produce this partially insoluble film in order to get from such negatives a harmonious result. If at the higher temperature the pigmented coating refuses to dissolve the tissue is useless, and it would be a waste of time to attempt to employ it.

In printing by the carbon process it is essential that the margins of the tissue are protected from the action of the light, otherwise it will be liable to come up or frill at the edges during the development. Therefore, it is necessary to provide the negative with what is known as the safe edge. This may be a line of black varnish, a quarter of an inch or so wide, run round the negative with a brush: or a cut-out mask of black or yellow paper which will serve over and over again may be used. The safe edge is, preferably, put on the glass side of the negative so that it is slightly vignettied in the printing, as a sharp outline coming against a very deep shadow in the picture is not so safe as a less abrupt one. If, however, the picture is required to be printed with a white margin as many carbon pictures are, particularly those on drawing papers, the safe edge must be on the film side. The best safe edge in this case is a strip of thin yellow or black paper, or tin-foil, neatly gummed on the margins of the negative of sufficient width to protect the tissue to its extreme edges.

The next article will deal with the printing and development of the pictures.

## PHOTOGRAPHY AT THE MANSION HOUSE.

The programme of the Juvenile Fancy Dress Ball, held on January at the Mansion House, bore the following announcement on the back page:—

### NOTICE.

Miss Annie Bell, of the Photographic Studio, 179, Regent Street, W., will be in attendance during the evening in the Entrance Hall (downstairs), to receive sittings from any of the children guests whose parents may wish them to be photographed.

Photographing commenced at 6 o'clock, the Lady Mayoress, Mrs. Torbay-Steer, exposing a plate, which proved a very successful picture, on the Lord Mayor, the Rt. Hon. Walter Vaughan Morgan, and his grand nephew, the Lady Mayoress's little son, who was dressed as King Edward VI. From then until 11.30 there was a constant stream of juvenile sitters, over 400 photographs being taken in all. Several dozen of the exposed plates were developed during the night, and prints were in the hands of the Press agencies by 11.0 the next morning.

Miss Bell herself was at the camera with an assistant for focussing and manipulating the dark slides, while another assistant moved the new accessories in use and helped the little sitters on and off the platform. All the organisation for numbering and changing the plates, and the arrangement and fitting up of the electric light Miss Bell placed in the hands of the Polytechnic School of Photography, Regent Street, W., of which she was a student before opening her business. The fact that during one hour over a hundred exposures were made, and that the whole evening's work was carried through without a hitch, speaks well for the thoroughness of organisation and the care with which every eventuality was anticipated and provided for.

As the negatives are of extremely good quality it will no doubt interest professional workers if we give a description of the arrangement of the artificial light, which was practically that in constant use in the studio operating classes at the Polytechnic School. One of the Westminster Engineering Company's large enclosed arc lamps was suspended in a 6ft. umbrella-shaped reflector at a suitable height, and yet as near the sitter as possible so as to give the maximum illumination. A three-fold screen covered with white blotting paper was so arranged as to increase the illumination towards the sitter, and at the same time cut off direct light from the camera and lens, thus avoiding any danger of flare and the use of a focussing cloth. The shadow side was lighted by a blotting paper reflector of large size. A diffusing screen a yard in circumference, covered with tracing linen, was placed to cut off direct rays from the head and upper part of the sitter, and to allow uninterrupted illumination of the feet and floor, and of the shadow side reflector. The large amount of reflected light from the three-fold screen prevented the least trace of any shadow of this diffuser being present. The plates used were 250 H. and D., and with a Ross Homocentric lens at F/5.6 the exposure was 1-3 second, or practically a studio snap.

We do not know that the enclosed type of arc lamp has ever before been employed for a similar piece of work, and the fact that running on a 200 volt current for five and a half hours it was only necessary to raise the lower carbon twice, and to replace the top carbon once should convince portrait photographers of the entire suitability of these lamps, and in a thoroughly practical manner vindicates the constant advocacy which they have received for portraiture at the Polytechnic School of Photography during the last few years.



# THE PROGRESS MEDAL OF THE ROYAL PHOTOGRAPHIC SOCIETY.

AWARDED TO PROFESSOR JANSSEN.

ON Tuesday evening last, January 9, at the meeting of the Royal Photographic Society the announcement was made that the Council had awarded the Progress Medal for the year 1906 to Professor Janssen for his "work in astronomical photography, his researches in reversal, and other photographic investigation."

The medal, which was instituted in the year 1878, is granted "for important advance in the scientific or artistic development of photography," and has previously been awarded to the following for the reasons stated:—

1878.—Captain W. de W. Abney. For his scientific work in the advance of photography.

1881.—W. Willis. For the platinotype process.

1882.—L. Warnerke. For general progress and his discoveries in photography: actinometry, sensitometry, instantaneous shutter, gelatine emulsions, etc.

1883.—W. B. Woodbury. For the Stanotype process.

1884.—Dr. J. M. Eder. For his work respecting gelatine chloride emulsions.

1890.—Captain W. de W. Abney. For his continued work, experiments, and investigations in photography.

1891.—Colonel J. Waterhouse. For his original and continuous researches in relation to orthochromatic photography; the successful elaboration of a process of photographic etching; and the direct production of reversed images by the use of thio-carbamides in the developer.

1895.—Dr. P. H. Emerson. For his work in the advance of artistic photography.

1896.—Thomas E. Dallmeyer. For the telephotographic lens.

1897.—Professor Gabriel Lippmann. For his discovery of the process of producing photographs in natural colours by the interference method.

1898.—Hurter and Driffield. For their work in the determination of the speed of plates.



[Photograph by]

DR. C. J. JANSSEN.

[Boissonnas, Geneva.]

Awarded the R.P.S. Progress Medal, 1906.

1900.—Louis Ducos du Hauron. For having initiated three-colour heliochromy as a working process.

1901.—Dr. R. L. Maddox. As the inventor of the gelatino bromide of silver emulsion dry plate process.

1902.—Joseph Willson Swan. For his services to photography in connection with the carbon or pigment process and its applications.

1903.—Frederic Eugene Ives. For his work in three-colour photography.

1904.—Dr. Paul Rudolph. For his researches in photographic optics.

M. Janssen, who has now passed his eightieth birthday, has had many scientific honours in his time, and has occupied many positions in astronomical and photographic life. In 1877 the French Photographic Society conferred its "grand medaille" upon him for his photographic work in astronomy. Ten years later he was

President of the Academy of Sciences, and in 1893 he received the Peligot medal of the French Photographic Society, whose president he was for one session. When the Congrès International de la Photographie was founded in 1889, he was its first president, and to-day he fills the same office in the Union Nationale des Sociétés Photographiques de France. He is a member of the Council of the Legion of Honour, and at the present time, despite his great age, discharges the many duties which his position as a leader of science in France lays upon him. We publish below a short account of M. Janssen's labours by M. Leon Vidal. The photograph, by Boissonnas, was taken some five years ago.

## AN APPRECIATION OF DR. JANSSEN.

By Leon Vidal.

THE life of M. Janssen has been devoted to astronomy, yet it is not of his purely astronomical work that one must speak, only of that part of it which is related to photography. Probably every one has a general notion of the great and valuable services which he has rendered in the application of photography to, particularly, solar astronomy, yet few are familiar with the long series of investigations dating from about the year 1874. It was about this time that M. Janssen exhibited to the Academy of Sciences a photograph of the transit of Venus, obtained with the "photographic revolver," an instrument of his own invention, by means of which 48 images, or twice or thrice this number, could be taken. The instrument was a remarkable one for that day. It permitted of the adjustment of the total time of exposure, and of the interval between each exposure; it was automatic and, if necessary, could be held in the hand while in operation. In the same year (1876) M. Janssen made photographs of the sun 18 inches in diameter from his observatory in Montmartre. In a communication about this time to the Academy of Sciences he forecasted the great part which photography was to play in physical astronomy:—"Celestial photography is now entering a new channel: up to now it has only been used to obtain faithful records of phenomena. It is now proceeding to the more important duties of discovering facts which escape investigation by our optical instruments." Only two years elapsed before he confirmed the truth of this prediction by photographing the "rice grain" structure on the sun. The photograph was an enlargement to three diameters from a negative 18 inches across and made with an exposure of 1-3,000 of a second. It showed the granulations of the sun surface and the regions where these granulations are effaced by vast rising streams of hydrogen gas.

Many other of M. Janssen's astronomical photographs must be passed over until we come to the year 1880, in which he made a communication to the French Academy of Sciences which aroused as much interest in its purely photographic respects as in its astronomical relations. It was on the reversal of photographic images by over-exposure. It was shown that in the case of the negative photographic images produced on a sensitive plate, increase of the exposure converted these images into positives. "At Meudon," wrote Janssen, "our images of the sun are obtained with an exposure which varies with the state of the atmosphere and the nature of the subject, but this period of exposure is rarely more than 1-1,000th second when it is required to obtain

detail in the photosphere. In the case of gelatine plates, the exposure may be very much less—1-20,000th of a second and less. Under these conditions if a plate receives an impression of a half or a quarter of a second—i.e., ten or twenty million times as much, the action of the developer shows a positive—i.e., the disc of the sun white and the spots black, as is seen in the telescope. This positive image is obtained with all the delicacy of the negative one. Between the two extremes of exposure there is a point at which the image is neither negative nor positive—the plate is uniformly veiled—and if, on the other hand, a longer exposure still is given than is necessary for the production of positive image, this latter in turn disappears and the developer discloses only uniform transparenence on the dark ground of the sky. This ground itself disappears on prolongation of the action of light." This second state of reversal which Janssen discovered in his solar photography was afterwards confirmed by Brebner and Krone.

Janssen himself was occupied not so much with photographic theory as with the application of this curious phenomenon, and proposed to employ reversal in obtaining photographs of the sun's penumbra showing both the granulation and details of the chromosphere.

M. Janssen was continually applying his photography to astronomical purposes. In 1881 he read a paper on photographic photometry, taking the result of the action of light as the measure of the radiation from a celestial body. In 1893 he was at work on the spectro-photography of the chromosphere. He placed before the sensitive plate a second slit to isolate in the spectrum the particular rays forming the image. He had suggested this method so long before as 1869.

When quite an old man M. Janssen founded the observatory on the summit of Mont Blanc, and himself made the ascent of the mountain a number of times to pursue his observations in the clear and rarefied air of the highest point in Europe.

The very great extent of M. Janssen's work requires more lengthy consideration than can be given it with the space of such a review as the present one, but as a last word it may again be said that he deserves to be considered as one of the most strenuous and whole-hearted exponents of photography applied, not only in a general way, but especially in scientific astronomical photography. He is one of the great men of photography.

LEON VIDAL.

## PHOTOGRAPHERS' STATIONERY.

## II.

LAST week's article having dealt with the photographer's correspondence with his sitters, a few notes on that with the firms from whom he obtains his supplies, may not be out of place. Whether or not it be thought necessary to adopt any systematic method of transacting business with the sitter, there can be absolutely no question as to the necessity for so doing with the wholesaler. The tendency nowadays is for wholesale houses to widen the scope of their activities, and, consequently, their work can be, and is, subdivided into more numerous departments, and the photographer who is systematic in his correspondence will find that he receives much better service from them. There is no better means of doing this than by using duplicating or manifold books, preferably with the pages numbered, by which a copy of all correspondence is retained. For instance, in the event of any mistake in the execution of an order, the photographer is able to satisfy himself that his order was sent in as he intended it should be, and then, by mentioning the order number in his letter of complaint, he renders it easy for the dealer to refer to his order as received by them. Judging by the imprint on the invoices of most of the leading dealers

one firm of printers makes a specialty of this class of work, and doubtless they would be willing to supply professional photographers. Although these manifold books are desirable for correspondence with the wholesaler they must not be used for writing to the sitter as they cannot be said to maintain the necessary appearance of dignity.

## The Price List.

Years ago when albumen was the only process and gilt-edged Bristols in a few unvarying sizes the only mounts, the photographer could very well have a large number of price lists printed, knowing that they would not only prove of considerable service but would also last for a long time without any need of revision. Nowadays the number of sizes of mounts is only exceeded by that of the various colours and substances in which they may be obtained, while the processes are so numerous, and in some cases so nearly resemble one another, that even photographers themselves are unable to say offhand in what process a print has been made, as, for instance, to quickly distinguish a good collodio-chloride print from a carbon. Under these circumstances the price list must necessarily be



differently compiled. Much must be left to local circumstances of which the photographer himself should be the best judge, but whatever is done the list should, by its general "get up," be a credit to the studio. This cannot be said of the majority of photographers' price lists—even where no glaringly inartistic effect is presented, they are frequently plain and unattractive to a degree, instead of being such that they compel attention by reason of their tasteful appearance. Such a list is that which was recently issued by a photographer in a Midland town for his Christmas trade and which is well worth description here.

#### A Model Booklet.

It has a cover of art paper,  $4\frac{1}{2}$  by  $2\frac{1}{2}$ , in the shade which the ladies describe as "crushed strawberry," and printed in black ink relieved by a small design in bright red. "Artistic Portraiture," "Especially for Xmas," and the name of the studio, is all that appears on the cover. The body of the booklet consists of four pages about a quarter of an inch less each way than the cover, which thus overlaps all round, and is stitched with thin silk cord. On the first page is the note, "A personal photograph is a Xmas gift always appreciated." The second page strikes the seasonable note again, "Artistic photographs in special covers designed for Xmas," and "A charming series of new designs in private greeting cards with your own photograph specially taken or copied"—in each case prices being given. The third page runs, "Many prefer to use the photograph mounted with the usual large margin at present in favour," followed by the prices thereof, and "Circular midgets finished in a sepia tone and mounted to harmonise." The fourth page quotes prices for pendants and locketts and has a note, "The morning light is preferred for a sitting during the winter months. Studio always kept warm and comfortable in cold weather." A headline across the middle pages runs, "Electric-light portraiture on dull days or at night," while a similar line at foot gives the name and address. The booklet is admirable alike in conception and in execution. By its pleasing appearance it attracts attention which it sustains by its unusual presentment of matter of seasonable interest.

#### The Need of Variety.

It may, perhaps, be thought that some injustice is done to the photographer who issued the above-mentioned booklet in so closely describing it, but such is not the case, as there is not the slightest doubt that, having displayed the possession of so much originality in its production, he will be quite capable of issuing something totally different when next he puts out a price-list. As with the Athenians of old, the public is ever thirsting to hear some new thing, and, frequently lacking the desired novelty wherewith to satisfy it, the photographer must perforce utilise new methods of describing what he has to offer

—in other words, he must vary the appearance of the price-lists and other matter sent to his prospective patrons. To many photographers this statement of the necessity for the adoption of the most modern commercial methods by the profession may seem exaggerated, but the fact that the most successful studios to-day are those whose proprietors are good business men—for such can generally obtain capable operators—is sufficient proof that the man who is working on a smaller scale should endeavour to combine up-to-date business methods with whatever amount of professional skill he may possess.

#### Circular Letters.

The circular letters which most photographers have occasion to issue from time to time generally admit of much improvement. Alike in their style and the way in which they are printed, they too frequently resemble the small tradesman's letter, which "begs to inform the nobility, gentry, and clergy of the surrounding district, etc., etc." The "script" type, which the average printer invariably uses for such letters, must be avoided, typewriting type, especially the "ribbon-face" in which the dotted effect of real typewriting is closely imitated, being by far preferable. Instead of the "Dear Sir or Madam" commencement, an estimate should be made of the probable number required of each, so that, at a slight extra expense, the printer can do a certain number with "Dear Sir," and the remainder "Dear Madam." If the usual note-heading be printed in black and the letter itself in purple, the greater part of the recipients will read it as an ordinary letter, and pay more attention to its contents than they would if they thought they were only reading an ordinary circular. For the same reason it is better to post in sealed envelopes with penny stamps, than at the open communication halfpenny rate.

#### The Question of Expense.

It may be objected that penny postage doubles the expense at once. It does, and so also may a high-class piece of printed matter cost twice as much as a poorly-printed one, but the point to bear in mind is that the purpose in view is not merely to inform people, but rather to so firmly impress them that results in the shape of sittings may follow. Any outlay in printed matter must therefore be measured by the business accruing therefrom, as well as by the amount of money expended, and it is obvious that if with twice a given outlay six times as much business is obtained, the bigger expense is the more profitable of the two. If, which is very likely to be the case, the sum which can be spared is limited and the expensive issue apparently impracticable, instead of saving on the quality, it is far better to cut down the number sent out by careful discrimination in making up the list of names of the addressees.

W. J. CASEY.

## THE SZCZEPANIK BLEACH-OUT PROCESS OF COLOUR PHOTOGRAPHY.

[The Austrian inventor, Herr Jan Szczepanik, has been announced for some time past to have been occupied in perfecting a sensitive bleach-out tissue for the printing of coloured images at one exposure from transparent coloured originals. The drawback to such processes in the past have been the extreme slowness of the tissue and the comparative impermanence of the copies, but Szczepanik's method appears to be approaching a commercial stage, inasmuch as the tissue is to be manufactured by Dr. J. H. Smith and Co., of Zurich, by whom provisional instructions for its use have been drawn up. We cannot better explain the application of the tissue than by translating the major portion of these directions.—Eds., B.J.P.]

THE paper is made in two varieties, black and dark grey. The latter paper is more sensitive and is intended for printing from soft originals, whilst the deep black papers are less sensitive and are to be used in the copying of oil paintings or such reproductions of

natural objects where there are great contrasts of colour. It requires to be printed in direct sunlight. Both papers are treated in exactly the same way.

#### Sensitizing.

The paper consists of three coloured films, each of which is capable of being completely bleached. The uppermost film—red gelatine—becomes insensitive some days after the preparation of the paper, which must therefore be used quickly—within 24 hours—after sensitizing. If the paper is not employed within this period, it can be resensitized and can be used as well as in the first case. This red film is sensitized by a short immersion in a special bath purchased with the paper. During the process the film must be kept in motion just as is done in developing a plate. After five minutes, it is taken out of the bath, any streaks removed, and laid between filter paper. By one or two strokes with the flat of the hand the superfluous moisture

is made to pass into the filter paper and the sensitized paper then taken up and left to dry in a dark corner of a room by free exposure to the air, and until the surface has lost all tackiness, as shown by applying one finger to a corner of the paper. The filter paper used for drying can be employed over and over again. Drying usually requires about 15 to 30 minutes. It should not occupy more than one hour and should not be conducted at a higher temperature than 70 deg. Fahr. The sensitizing is done by ordinary light of a room. The sensitizing solution is returned to the bottle after use and carefully protected from access of light and heat. About 250 c.c.s. will sensitize eight to ten sheets, 18 x 24 cm. (= 7 x 9½ inches).

#### Printing.

The paper may be printed in two ways:—

a. Direct printing from coloured original such as a hand-coloured lantern-slide, pictures in natural colours on glass, paper, and prepared by such well-known processes as those of Sanger Shepherd, Lumière, Rotary, Smith, Selle, Hoffmann, etc.

b. Printing by the Szczepanik method from the three monochrome positives.

In the first case, when there is a transparent coloured original to work from, the process is as easy as taking a print on P.O.P., the coloured print being placed in the printing frame and the sensitive paper exposed in contact with it in sunlight for 15 to 20 minutes. The process can be interrupted several times and continued by repeated exposure. When the printing involves no special difficulties the beginner is recommended to prepare one or two prints from the coloured pictures made on films and enclosed in every packet of the papers. In laying the bleach-out paper on the films the latter should be placed with the glossy side in contact with the paper as the colours of the film are not quite fast to light.

Immediately after the commencement of the printing the colours of the paper commence to bleach and a picture begins to show up on a dark background, on which, at first, the colours are only faintly seen, becoming gradually more and more brilliant. If exposed too long the print loses in strength and appears then more as a soft picture with scarcely discernible colours against a light background.

The properties of the upper film of red makes it necessary that the paper should be exposed at least at first to direct sunshine, so that the red film may bleach completely out. If this is done the rest of the time may be given in diffused daylight or in artificial light, the duration of the exposure being dependent on the intensity of the light. Freshly sensitized paper, after bleaching out the red image, must be protected by a piece of red glass on removal from the printing frame into the light in order to arrest the further bleaching of the red image. If this point is not attended to the red image will very likely be totally deficient in the print and the results, green only.

Compared with ordinary printing-out papers the sensitive paper is very slow, a defect which can be turned to advantage in arresting the process in parts of the image and thus producing colour effects at will.

The paper reproduces colour for colour, and with this fact in mind a hint may be given how coloured originals may be corrected in copying and better results obtained on the bleach-out copy than in the original. Since the red parts of the original give red in the copy, the use of a red screen will be understood to retain the red all over the image. The same action takes place in the case of the other colours, and thus a given tint can be given to the copy or the defect of a coloured original made good. For example, if a three-colour transparency is too blue, it is necessary to print the blue more than the red and yellow, and therefore the frame is covered with an orange screen which protects the red and yellow and allows only the blue to print.

#### Fixing the Prints.

The finished prints should be treated to repeated baths of benzole till the smell of aniseed has disappeared, and this takes at least twelve hours. The best plan is to leave the prints in the benzole bath all night. When dry, the prints should be immersed for about five minutes in the fixing solution, and then washed and dried.

The stability of the prints to light is somewhat limited. It is advisable therefore to protect them from sunlight and very bright light, or otherwise, even with the most careful fixation, they will soon lose their brilliancy and depth of colouring. In the light of an ordinary room the prints will keep for a very long time.

#### Finishing the Prints.

It is advisable to mount the prints before they are absolutely dry, as later, when they get too dry they may roll up and crack.

The print should then after fixation be superficially dried between filter or blotting paper, then brushed over with mountant and mounted in the usual way.

With good monochrome negatives and a little care and experience it is actually possible to obtain colour rendering true to nature. With natural coloured prints there can be no retouching. Through carelessness, prints may be obtained which will leave much to be desired in many respects. The improvement of individual places, such as spots or lines, can be very easily effected by applying the colour that is wanting, red, yellow or blue, by means of a brush to the absorbent gelatine film. Günther's transparent colours, which are used for colouring transparencies, are suitable for this purpose.

#### Szczepanik's Patent Printing Process.

It is assumed that the reader is acquainted with the theory of the so-called three-colour process which requires a set of three negatives, say prepared on Dr. Smith's patented three-colour plates, which permit of the three negatives being obtained with one exposure in any ordinary camera, or made on panchromatic plates with three exposures through the three corresponding colour filters. It will only be stated here how the colours of nature which are reproduced in the three negatives, can be produced on paper by a direct printing process.

For direct printing on the bleach-out paper, negatives cannot be used, for in this process where the light acts a bright colour is formed, that is to say, one lighter than black, so that from a negative a negative will be obtained. It is therefore essential to use a positive if a positive is required. Monochrome transparencies must therefore be prepared from the three negatives, each of which represents one of the three fundamental colours, red, yellow or blue. In order to avoid mistakes it is advisable to mark the plates with a letter, r, y, or b.

All three positives must be clear, rich in half-tones, and not too dense, and must be protected with a thick varnish of 6 per cent. collodion. Without this varnish, transparencies, when placed in contact with the bleach-out paper will immediately become yellow and therefore totally useless.

In order to make a print on the bleach-out paper it is necessary that the red transparency should only print on the red film, the yellow on the yellow film, and the blue on the blue film. The red must be printed first, as the red film soon loses its sensitiveness after sensitising.

The transparency for red is placed in the printing frame in contact with the paper, or with specially prepared glass if the picture is to be on glass, and so that the image shall only print on the red film it is necessary to cover the printing frame with a colour-filter, which only transmits those rays which bleach out the red and do not act on the yellow and blue films. In other words the filter must only transmit the green rays which are absorbed by the red dye, but reflected by the blue and yellow dyes. The printing frame must thus be covered with a green filter.

The rule is, The monochrome transparency must be printed under the complementary colour filter.

After printing the red positive, which will be recognised by the edge of the paper appearing a bright green, the picture will be seen in black on a green ground. The printing of the yellow is then proceeded with. The transparency representing the yellow is then superimposed on the image already obtained so that the outlines of the two absolutely coincide, and then this is printed under a violet filter till the edge of the paper shows a pure blue, and the picture is seen in orange on the blue ground, but also in some compound colours.

Finally, the blue plate is printed under an orange filter. This must be printed till it accurately corresponds, as regards density, with the yellow and red images, and this can be best controlled by frequent examination.

Special stress must be laid on the fact that the colour filters used in printing must be specially prepared for this purpose; they may be obtained commercially.

Should the print show any predominant tint this may be reduced by printing under the corresponding plate. If this tint is very faint it will be quite sufficient to expose the print under the corresponding filter.

With a little care the three transparencies may be alternately superimposed on the paper so that the outlines may accurately coincide in an ordinary printing frame, but special printing frames, which may be obtained commercially, will make this much easier.

The transparencies may obviously be enlarged, and therefore enlargements in colour may be made in precisely the same way as previously described.



## SULPHIDE TONING OF SILVER PRINTS.\*

THE toning of silver prints is generally understood to be accomplished with some preparation employing chloride of gold as the actual toning agent, the use of platinum salts being quite exceptional. In many of the so-called combined toning and fixing solutions where chloride of gold enters into the combination the actual toning takes place by the sulphurisation of the image, the gold remaining in the original solution, which can be extracted after the combined bath ceases to act.

Sulphide toning is a very different thing when compared to the effects of sulphurisation brought about by the complicated action of the combined bath.

Sulphide of silver is a very permanent substance, and photographs can be produced in pure black sulphide of silver by a special process, where collodion forms the basis, and the developed image converted into sulphide of silver by an after process. It must have been noticed by many amateurs that the whites of so many prints are degraded, and present a sickly greenish yellow appearance, when they have been toned in a combined toning solution containing many deleterious substances.

### Fixation Before Toning.

For sulphide toning the hyposulphite of soda solution must be much greater in strength than for use under ordinary circumstances, for in this case the fixing of the print takes place before toning, and success will depend very largely upon perfect fixing and thorough washing after fixing. The precautions to be taken are but few, but they must be carried out in a thorough manner.

The printing may be carried out the same as usual, about two shades darker than required for a finished print. Of course, a slight reduction of the image will take place during the fixing operation. Make up the fixing solution as follows:—

Hypsulphite of soda .....	4 ounces.
Filtered water .....	20 ounces.

As soon as the hyposulphite is dissolved the prints may be taken and plunged into the solution without being washed. As soon as all the prints are immersed, keep them in motion for ten minutes, so that the image becomes completely fixed; remove the prints, one by one, into clean water, or, better still, place a print upon the hand, rinse it well under a stream of water from a faucet, back and forth, then place it in a tray of clean water. Continue this operation until all the prints have been treated the same way, then, after rocking for a short time, change the prints again into another tray of clean water. This should be done eight or ten times. The prints may then be washed in running water for another ten or fifteen minutes. The object of this thorough washing is to free the print of every trace of hyposulphite of silver.

### The Sulphide Toning Bath.

As soon as the washing of the prints has been accomplished, make up the following toning solution:—

Filtered water .....	40 ounces.
Sulphide of ammonia (hydrosulphuret of ammonia) .....	10 drops.

Do not exceed twelve drops of this substance. Stir the mixture with a strip of glass. Toning may now proceed by placing the prints in the solution. Keep them moved about by rocking the tray and turning the prints over well—one over another. After a short time the prints will commence to change colour, first to a rich brown, then through the various shades to purple. Do not carry the toning too far; stop a little short of the colour desired, because prints that are toned by this method will dry down much darker.

As soon as the desired colour has been reached, place the prints in clean water, give them a few changes in clean water, from tray to tray, then about ten minutes more in running water. They are now finished and can be trimmed and mounted the same as ordinary prints. It will be found that the colours obtained are very much like gold-toned prints. Rich in colour, sometimes almost black, these prints will not fade. They are produced in true sulphide of silver. The hypo. fixing solution must be made fresh every time; if it is used twice, the probability is that the whites of the prints will suffer. The sulphur toning solution, too, must be thrown away as soon as toning is complete. This toning solution is probably the cheapest that can be made, the cost being about one cent per gallon.

### Causes of Failure.

If the paper used to make the prints on is at all discoloured, then it must not be expected to secure good, brilliant prints. If the white should become degraded, then the cause may be looked for in defective washing. If there is a trace of hyposulphite of silver left in the print, it will become reduced in the toning solution. The operations are not at all difficult nor tedious. Those who have never attempted this kind of toning will be surprised at the result, and if attention is given to the details described, there will be no fear of being unsuccessful. It may be well to mention here that the hydrosulphuret of ammonia is a somewhat offensive smelling liquid and should not be poured from its bottle except by drops directly into the water to be used as the toning bath. No doubt the sulphide of sodium might be used, or the sulphide of potassium, but the proportions of these salts would have to be worked out for successful working, while the proportions for working with the hydrosulphuret of ammonia have been carried out successfully.

### Sulphide Plus Gold Toning.

In connection with sulphide toning may be mentioned the fact that after a paper print has been toned in a gold toning solution, fixed in hyposulphite of soda, washed and dried, it can be retoned to a variety of colours, especially the rich purples, by semi-sulphur toning, in the following manner:—

A combined toning bath will be required, which can be made up by any one as follows. The chemicals should be dissolved in hot water the total quantity of water being 40 ounces:—

Hypsulphite of soda .....	1 pound.
Sulphocyanide of ammonium .....	6 drachms.
Citric acid (crystals) .....	2 drachms.
Powdered alum .....	2 drachms.
Nitrate of lead .....	1 drachm.
Acetate of lead .....	1 drachm.

Dissolve the above ingredients in separate portions of water, then mix in the order given; lastly dissolve six grains of chloride of gold in two ounces of cold water and add to the mixture; stir the mixture well; keep it under cover in a small stoneware jar or pitcher until quite cold; it is then ready for use. Pour into a clean tray about sixteen or twenty ounces of this mixture, then take the prints that have been previously toned and fixed, plunge them one at a time beneath the liquid, without previously wetting them. In a short time the colour of the prints will be seen to change. Keep them in motion, so that the retoning will be uniform. Stop the toning the moment the desired colour has been reached, by plunging each print into a tray of running water; wash the prints for about fifteen minutes, then lay them out to dry, back down, upon clean blotters, or, if they have been previously trimmed, they may be pasted and mounted upon the desired mount, carefully rubbed down and dried.

The writer has prints made upon printing-out porcelains toned in this manner six years ago. The colour has not changed in the least. The image seems to be a compound of gold and sulphide of silver. When porcelains are retoned the action in the above solution takes place rapidly.

This combined toning solution may be used over and over again for about six times, if a large number of prints are not treated each time it is used.

When the solution is first made up it will be noticed that there is a precipitation of sulphur; this may be kept in a wide-mouth bottle, and the clear liquid poured off when required for toning. There appears to be an advantage in allowing the precipitated sulphur to remain, although it must not be allowed to deposit upon the prints.

It is quite possible that the combined toning and fixing solutions that are made up for sale at the stock dealers will answer the purpose, but for those who desire to become acquainted with the chemicals they use, the above formula has been given. There is at all times a certain amount of pleasure in preparing the various compounds that are to be used in photography, and, having prepared them, to observe the action that takes place. This gives satisfaction and aids in fixing the cause and effect upon the memory. It also makes the operator far more proficient than is he simply buys everything he uses ready prepared. Then when work has to be carried out upon a larger scale, should difficulties arise he is competent to cope with them, which is not the case with those that at all times purchase ready-made articles.

A. J. JARMAN.

\* A paper in the "Camera and Dark Room."

## FOREIGN NOTES AND NEWS.

**Bichromated Gelatine.**

M. LUMIERE and Seyewetz have continued their researches on the above, and this time have investigated the insolubilisation of the same in the dark. The conclusions they come to are that it contains much less sesquioxide of chromium than that which is rendered insoluble by the action of light, and that the quantity of this salt increases very slowly, for after one month it amounted to only 0.67 per cent., and 1.15 per cent. after six weeks, whilst after a few hours exposure to light it amounted to over 5 per cent. Further, bichromated gelatine which becomes insoluble in the dark does not, even after  $4\frac{1}{2}$  months, completely withstand the action of hot water. If the bichromated gelatine is kept at 120 degrees C., boiling water will no longer attack it, but the gelatine becomes disintegrated and breaks up into small particles, which will pass through a filter.

**A Peculiarity of Drying Gelatine.**

R. E. Liesegang calls attention to a peculiar action of gelatine and accidentally of collodion, which, so far as we are aware, has not hitherto been noticed. A mixture of equal parts of a 10 per cent. solution of gelatine and 10 per cent. solution of potassium bichromate was coated on glass and dried; after two days the salt had crystallised out on the film in the well-known tree-like form. The plate was then well washed, but the gelatine itself showed the tree-like markings. Other salts showed the same results. The crystals are not evenly distributed for the extreme margins, for about five millimetres breadth, showed no crystallisation, although the yellow colouration proved that they contained bichromate. This phenomenon appears with other preparations, such as silver chloride printing-out plates, and the author asks, "Why are the margins poorer in salts?" If the edges dry before the middle of the plates, does the water in the damp parts extract the salts from the neighbouring drying parts, although the damp parts may themselves be saturated with salts? Liesegang ascribes this to a peculiar action of the drying gelatine, that is to say, the salts are pressed out of these parts, and states that with collodion precisely the same action, which is not a pure diffusion process, takes place, for with all collodion papers gradually the whole of the soluble salts and acids are "pressed out" into the paper support. [The note on "Marginal Fog," see our issue of December 22, 1905,

p. 1008, should be read in connection with this subject.—Eds., B.J.P.]

Liesegang states that if to a washed collodio-chloride emulsion some soluble chloride be added and coated on glass after a few days the whole of the silver salts have "wandered" from the collodion film, which is perfectly clear and silver free, and that they are imprisoned between the glass and collodion. A collateral experiment with barium platino-cyanide suspended in collodion or celluloid varnish for making a radio-active screen, showed exactly the same phenomenon. That this is not one to the sinking of the heavy particles of the salt is proved by the fact that exactly the same thing occurs when the position is reversed, that is to say, when the collodion film, after setting, is placed face downwards.

**Catalytic.**

Dr. Gros, who, in conjunction with Dr. Ostwald, patented the above process, contributes to the current number of "Das Bild" some interesting notes on this subject, and says that catalysis is the change in the rapidity of a chemical reaction produced by a substance which does not itself take part in the reaction though it may be affected by a secondary action. A well-known example of this is, of course, hydrogen peroxide solution and platinum, for the addition of the latter at once causes a copious evolution of oxygen. The quantity of platinum required to produce this action is extremely small, for if to 1 c.c.m. of a 1.50 normal solution of peroxide 0.000,003 gm. of colloidal platinum be added, the whole of the oxygen is given off in three hours. An analogous case occurs with a mixture of chlorine and hydrogen, the addition of 0.1 milligrammes of colloidal platinum to 50,000 times the quantity of  $H + Cl$  produces chemical combination. If this fact be true of catalytic agents, then it should also apply to anticatalytic agents, and Gros finds that minute additions of iodine, mercuric chloride, sulphuretted hydrogen, hyposulphite, or hydrocyanic acid will act as anticatalytic agents, and that the addition of 0.000,000,001 gramme of hydrocyanic acid per cubic centimetre will reduce the catalytic action of 0.000,006 of colloidal platinum to one-half. We have heard but little of the practical applications of catalytic, but Dr. Gros suggests that we have in these "anticatalytic" salts powerful agents which will make the process of more practical value.

## ELECTRICITY v. GAS AS A SOURCE OF HEAT.

The heating and lighting of premises are questions to which a photographer has to pay constant attention, and, like anyone else, he must consider them together. The two sides of the matter will probably appeal to our readers more directly than to those of a general paper, and therefore we quote at length from a well-considered discussion of the question recently published in the *Globe*. The points raised may assist those about to change their system of lighting and heating as to which source of these commodities they shall adopt.

Electricity for lighting, if it has not been the rival of gas which was anticipated a few years ago, is certainly gaining ground steadily, and there is little doubt that its advent into the field of illumination has stimulated the gas companies to improvements and developments which, but for the healthy exercise of competition, might never have come into being. When we come to another department into which electricity has quite recently begun to assert itself, the domestic category of cooking and heating, the pros and cons of the rival agencies are not so clearly defined, and if the exhibition held a month or two since at Olympia has served to increase public interest in the possibilities of electricity, it has also induced the gas companies to examine into the claims of their electrical competitors, and, not unnaturally, to come to the conclusion that gas is an easy winner in the race for popular favour.

**Electric Prices for Heat and Light.**

It is not our business to hold a brief on the one side or the other, but having regard to the fact that the Gas Light and Coke Company

have gone to the trouble of issuing an interesting circular on the subject of cooking and heating we have thought the subject of sufficient importance to obtain the views of some of those qualified to answer for the electric lighting companies on the points raised, and incidentally to clear up certain questions which will naturally have occurred to anyone who, having electricity in the house, has contemplated the possibility of adapting it to newer uses. And on this matter we may say at once that no very convincing explanation is given by the electric lighting companies of the great disparity in the price per unit for lighting and cooking respectively. It would surely be to the interest of the companies to bring the charges into nearer relation; either that for lighting is too high, or the price charged for cooking is absurdly low.

**Usable Heat.**

In the circular to which we have referred the gas company very rightly makes a strong point of the cheapness of gas both for heating and cooking compared with electricity. Six cubic feet of gas, costing one-fifth of a penny, will give as much heat as a unit of electricity, the lowest price quoted for which, for the purpose under discussion, is one penny. The answer is not without its own force. Freely admitting the accuracy of the figures quoted, and preface the reply with the debating point that the anxiety of the gas company to place its case before the public is an acknowledgment of the growing competition of electric heating, health and efficiency are the heads under which the electric lighting companies take their stand. The six



cubic feet of gas may give as much heat as a unit of electricity, but they ask how much of it do you get? In nearly all cases (and if not all the health consideration comes in with increasing force) gas fires are provided with chimneys leading into the fire-places in which they are situated, with the result that a large proportion of the heat, even with the best and most modern stoves, finds its way up the chimney, the loss being stated at what is declared a moderate estimate at between 50 and 60 per cent.

Gas stoves were, of course, first in the field, being welcomed for just those reasons which electricity can adduce with the health advantages as a set-off against the greatly increased price. The gas fire is cleaner than the coal, saving dust and obviating labour, but it cannot, it is contended, make any claim to being a healthy means of heating a room. In the best circumstances, it uses up an amount of oxygen which soon produces an appreciable dryness in the atmosphere, and the acetylene fumes so often given off when coal gas is burned with an insufficient supply of air are, of course, poisonous and produce the effect of a narcotic. No one who is in the habit of using gas fires can be unconscious of such conditions, or of that trick of "firing back," as it is termed, which produces the fumes already mentioned. Granted we are more expensive, says Electricity, but considering that our efficient heating is so much greater than gas, with its immense chimney waste, and realising that if we dry the air, as we needs must, we neither draw off the health-giving properties nor pollute the atmosphere, we hold that we give a better article, if a dearer one. Price must have its influence, but quality, alike in the capacity to do fully what a unit pretends to do, and in the innocuous character of its operations, argues Electricity, must surely be put against the cheapness of the six cubic feet.

#### Heat Without Fire.

As to the sentimental aspect of the question—the gas company asserts that "few people have been found to try as a source of heat an apparatus that bears no resemblance to a fire"—Electricity is inclined to treat the point as a trivial one. There is the luminous radiation and there is the non-luminous one, and Electricity holds that it looks quite as cheerful in its former capacity as do many of the long lamp-like chimneys of many a gas heater, while it declares that the only gas fire which does bear some resemblance to the cheery original, the asbestos bits in the open grate, is at once the unhealthiest and the most expensive in its consumption of cubic feet.

#### Electric Heating.

Concerning the electric cooking stoves, it is admitted they are still in the experimental stage, out of which the gas cooker itself has only for a few years emerged, but this period we are optimistically assured will be speedily passed; rapid improvements are being made, and it will quickly demonstrate its practicability for general use as well as for special cases. Many of the leading restaurants now have a complete plate-heating service installed in the buffet and dining rooms. It is admitted that owing to the various patent rights in the electrical apparatus the prices are expensive, and to some extent prohibitive, but we are assured that so soon as the manufacturers of this apparatus are enabled to reduce the price the adoption of electricity for cooking purposes will greatly increase. Such companies as the Charing Cross and Strand Electric Supply and the Chelsea Electric Supply—to mention only two out of many—lose no opportunity of demonstrating the many domestic uses to which electricity can now be applied.

And this brings us finally to a consideration of the conditions of the domestic supply of electricity. The competition between the gas and electric lighting companies cannot fail to interest the public, for a wholesome rivalry means in the end efficiency and cheapness. The question naturally arises why the electric supply companies can offer the power as low as a penny per unit for cooking and heating purposes, while for lighting the cost is so much greater. The answer is that the bulk of the supply for cooking and power is used at the hours of low load, and that it pays to charge a price which is barely cost. Where electric heating is employed, and is carried on for eight hours a day, it constitutes what the companies term a very good load factor. If electricity for lighting purposes was used at all hours of the day, it could be supplied, we are told, at approximately the same figure as for cooking, but having regard to the fact that there is no restriction as to the cooking hours—and, obviously, none would be possible—we

still maintain that the difference between, say, one penny a unit for cooking and sixpence for lighting is unconscionably great. As meters and wiring, it is explained that in the case of power for cooking and lighting double wire is necessary, as the copper needs to be of greater capacity for cooking, heating, and power than for illumination. The current used can be measured in two ways—either by a double tariff meter, charging a certain rate at hours of high load, and a lower one for the period of low load, or the separate circuits can be separately metered. The latter is the more prevalent practice.

## Photo-Mechanical Notes.

### Penrose's Annual.

We process workers—all of us that can afford it—make a point of getting our "Penrose's Annual" year by year, and I should be sorry myself to see the continuity of the volumes on my shelves broken at all. Thus a lengthy review should not be necessary to readers of these Notes: but my object is to draw special attention to some items in the volume which appear of special importance to the photo-engraver. A mention of them should shew him—if he has not the volume—the extent of its value to him.

The cover has on it a three-coloured modelled design. It does not strike one as particularly artistic; some of the modelled effect is bound to be lost when it is coloured, and though it is a *tour-de-force* to print three-colour on the cloth itself, this is not going to wear at all well; already the picture is half worn on my own copy.

Generally, the type, ornament, and get-up of the book are pleasing, but some of the colours in which many of the blocks are printed are, to my mind, extremely unpleasant, and do more at all do the work justice.

Among the ordinary half-tones the example of catalogue work are the most striking, those hailing from America being the best of these.

Of the three-colour plates, André and Sleight's vase and reproduction of a painting by McWhirter stand easily on top; after this beautiful quiet and restrained colouring, most of the other colour work looks crude and garish. The reproduction by Mr. Zander's four-colour process, except in the rendering of the violet and green, does not look at all superior, in the copy I have, to the reproduction of the same subject by the ordinary three-colour process.

There is a capital reproduction of pencil by the Sear's "high light" process, though the statement that it is printed on rough drawing paper must not lead any one to suppose that it is printed on the surface as shown, because this roughness has probably been obtained by embossing after the printing. There is a good article on the way this process may be worked by Mr. Burton Norton.

Another very interesting supplement is the reproduction of portrait on four different papers by the wet-plate process, collodion emulsion, and dry plates. On the whole, the palm must be awarded to the dry-plate, the emulsion looking very hard and contrasted. There are some useful tables relating to exposures by "C. B." (Does the Prime Minister go in for "process" as well as photography?) and Mr. Branfill which should be kept at hand in every process camera room.

Finally, the workers in this craft ought to ponder the article by Louis Flader on "Some Results of Organisation." He speaks of the high position of the employee in America (where "the are the people," as an American once said to me), and he asks if we can now understand the astonishment of the American at the failure of his European brothers to organise. Certainly, it

view of the results they have attained, this astonishment is excusable.

I have left unmentioned many good things in the "Penrose's," and probably items which I have omitted will be more useful to some than those I have dealt with, especially to the collytyper and lithographer. But I have aimed at picking out a few of the contents of special interest.

HALF-TONE.

### Another Henschel News-sheet.

It was not to be expected that Mr. Henschel could resist the temptation to appear with a repetition (with variations) of the "Half-tone Times" during the General Election; in fact, it was evident that he was waiting his chance to combine again humour with advertisement. This issue of the Henschel periodical press shows him in a new though expected rôle—that of agent for the sale of photographs to the Press. His firm in Fleet Street holds stock of the portraits of celebrities and of those who may be celebrities any minute in these stirring times. The series is that of Elliott and Fry, and the worried editor will doubtless turn for a portrait to reproduce where he can get both block and licence at one operation.

### A New Paper.

In a recent number of the "Photographisches Wochenblatt" was given a colotype supplement, printed on a "bromsilberimitations-karton," made by Beneke, of Löbau, Saxony. This paper is a novelty, and in consequence of its great absorptive power it sucks the printing ink up so thoroughly from the plate that it gives the most delicate details with a richness in the shadows, and further enables the very finest grain to be used. The result is certainly extremely satisfactory.

Among the patent applications of last week appear those of:—John William Ippers, 65, Chancery Lane, London, for improvements in photo-mechanical printing (26,695); of Klimsch and Co., Frankfurt, Germany, for improvements in the manufacture of photo-printing blocks (No. 27,158).

### MR. WALTER BARNETT IN AMERICA.

MR. H. WALTER BARNETT, of Knightsbridge, London, is at present the guest of J. C. Strauss, of St. Louis, and has an exhibit of his photographs at the Strauss Studio, Grand and Franklin Avenues, St. Louis, Mo.

This collection contains photographs of royal and titled English men and women, printed in mezzotint and on flexible mounts.

According to the "P" otographer, Mr. Barnett has departed from the English conventional photographs. He has produced something broad and daring, and yet he has faithfully portrayed the English type and character. He has given life and individuality to his sitters, which is not the accepted form of English photography.

"Americans lead in the art," said Mr. Barnett. "And it is because the people of America are eternally demanding something new. In England the people are conventional, and cling to established rules."

"Every Englishwoman wants a portrait representing her to have perfectly arched eyebrows, a Cupid's-bow mouth, a straight nose, and a slender form, whether she possesses them or not. If a photographer is successful this is the sort of photograph he must turn out. That is why all the photographs of Englishwomen look alike."

"In America women like to be made beautiful, yet they want independence and individuality, which gives to the photographer much liberty for bold, broad work."

"In my work I have refused to give these namby-pamby doll-like portraits, yet I have been forced to retain to a greater or less degree the conventional forms."

"I admire the daring and boldness of the high-class American photographers. They say Americans are lacking in the artistic sense, that they are purely commercial; but I cannot believe it. They must have the artistic sense, else they would not accept the characteristic work of their photographers. I look for the highest development of art in America."

From the catalogue of Mr. Barnett's exhibition, which reaches us from St. Louis—we see that the collection of exhibited photographs numbers 118, and includes a great many of leading members of the English aristocracy, "Personages of Prominence and Title in London Society"—is their designation on the catalogue, and the names alone are sufficient to bring a crowd of visitors to Mr. Strauss' studio.

### ROYAL PHOTOGRAPHERS.

THE "London Gazette" of January 2 gives the list of tradesmen who hold warrants for various Royal personages, and who thus have the right to use the Royal Arms. The photographers holding warrants of appointment to His Majesty King Edward VII. from the Keeper of the Privy Purse, with authority to use the Royal Arms, are:—J. B. Ciolino, Frankfurt; W. and D. Downey, London; J. F. Langhans, Prague; Arthur Marx, Frankfurt; Carl Pietzner, Vienna; Russell and Sons, London; and T. H. Voigt, Hamburg.

Those holding warrants of appointment to His Majesty from the Lord Chamberlain, are:—Hills and Saunders, Eton; Thomson and Sons, London.

The photographers who are permitted to style themselves, "By appointment to the late Queen Victoria" entitling them to use the Royal Arms, are:—W. Abernethy, Belfast; T. and R. Annan and Sons, Glasgow; Brown, Barnes and Bell, Liverpool; Chancellor and Sons, Dublin; W. H. Grove, London; Gunn and Stuart, London; A. L. Henderson, Ponders End, Middlesex; Hughes and Mullins, Ryde, Isle of Wight; H. N. King, London; Lettsome and Sons, Llangollen; London Stereoscopic and Photographic Co., Ltd., London; R. Milne, Ballater; A. and G. Taylor, London; R. Welch, Belfast; and G. W. Wilson and Co., Aberdeen.

The photographic firms who hold warrants of appointment from the Lord Chamberlain to Queen Alexandra, with authority to use the Royal Arms are:—W. and D. Downey, London; Kodak Ltd., London; Lafayette Ltd., London; and W. S. Stuart, Richmond.

### ONE WAY OF GETTING BUSINESS.

A PHOTOGRAPHIC studio in Bournemouth is attracting business by a novel competition, particulars of which we obtain from an advertisement in the Bournemouth "Observer."

The specialty of this firm is to produce photographs on postcards by a rapid process, orders being executed and delivered while customers wait. The price of a dozen is 3s., and of a half-dozen 1s. 9d. The competition which has been arranged is a very simple one. Competitors are invited to answer two simple questions:—

There will be four classes, A, B, C and D, and three prizes will be awarded in each—12 prizes in all.

Class A.—Prizes will be awarded to the three persons who give the most intelligent answers to these two questions:—

(1) Why are people photographed?

(2) Why should people be photographed?

Class B.—A coupon competition. Prizes to the three persons who collect the greatest number of coupons attached to receipts given for daily orders.

Class C.—Introduction competition. Prizes to the three persons who introduce the largest number of their friends to the studios.

Class D.—Collecting card competition. Prizes to the three persons who collect the greatest number of photographic postcards of this firm.

One person may compete in all four classes and may get four prizes.

Only those who have been photographed at the studios may enter the competition.

Photographs on postcards while you wait, 6 for 1s. 9d.; 3s. for 12. Special sizes:—Cabinets, 4s. 11d. per dozen; carte-de-visite, 3s. 11d. per dozen; enlargements, 4s. each.

If you cannot personally attend, send your photograph and it shall be reproduced and returned with copies, post paid, at the following prices (on receipt of postal order):—Postcard photographs: 6 for 1s. 9d.; 12 for 3s.; 24 for 5s.; 100 for 15s.. Cabinets, 4s. 11d. per dozen; carte-de-visite, 3s. 11d. per dozen; enlargements, 4s. each.

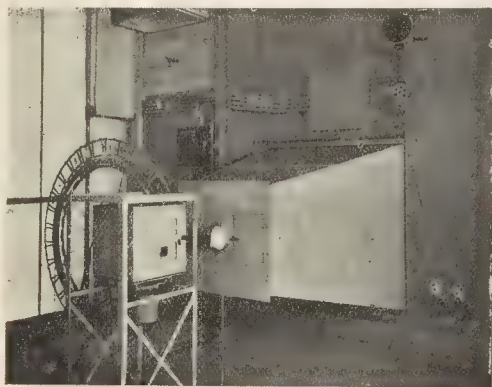


The competition is apparently a weekly one, and the names of successful competitors are announced in the local newspapers.

#### A LECTURE-ROOM PROJECTION INSTALLATION.

A DESCRIPTION is given in a recent issue of the "Scientific American" of an improved projection system, designed by Prof. Eric Gérard, of Ghent, Belgium. The necessity for darkening the auditorium and employing an assistant who is liable to give rise to trouble by confusing the pictures has often been found to be a serious drawback. The Gérard system permits the projection of lantern-slides in full light and without the aid of an assistant.

The projection screen is a sheet of plate glass, nearly 4 ft. square, ground by means of a sandblast to provide a rougher surface than glass etched in the usual manner with acids. To avoid the necessity of darkening the room, a sheet-iron casing is provided which connects the screen with the projection lantern, thus inclosing the light



beams and cutting off any side light. The projection lantern contains a continuous-current arc lamp with a regulator, adjusted for 15 amperes and located at a distance of about 7 feet from the screen. The beam of light obtained under these conditions is sufficiently strong to allow the projected image to be seen transparently through the ground glass throughout an auditorium containing 300 seats, while the room remains lighted up.

In order to dispense with the services of an assistant in bringing the slides successively before the lantern, all the slides to be used in a lecture are arranged beforehand at the periphery of a wheel resembling a bicycle wheel. By means of a special gearing the wheel is set rotating with a crank situated below the screen, so as to cause the slides successively to pass through the lantern. The wheel can be turned backward and forward at will, so that any given picture can be reproduced over again. A switch placed beside the controlling crank serves to light the projection lamp.

#### THE AIM IN ADVERTISING.

LOOKING over last year's volume page by page the other evening we were interested in noting the number of contributions which have appeared on the methods and aims of advertising for photographers. We expect to have some more to publish on this topic, which we believe the professional photographer will profit by keeping before him, not necessarily with the intention of spending money lavishly on advertising, but of seeing that what he does spend is wisely expended. On this point we find some paragraphs in the current issue of the "British Advertiser" worth quoting:—

A merchant selling goods is an individual who is accommodating and conveniencing the general public by putting the goods or material which he sells within easy and convenient reach.

This same merchant, through the medium of advertising, tells the buyers to just what extent he can serve and provide for them in his

particular line—better than others, and therefore to just what extent he is entitled to their patronage. If he is really better able to serve the public and can convince the people of the fact, he will certainly get the patronage.

And right here is the point: good advertising is nothing more or less than good arguments—the seller argues with the people concerning his goods through his advertisements. An argument may be ever so beautiful, but no argument was ever effective that was not logical and did not appeal to reason and common sense.

If you state a strong point in an advertisement, give a reason, tell why it is so; then it is shown to be the truth and appeals to the reason; an unsupported statement that a thing is so is not convincing.

When a man is writing an advertisement for some one else and about something that he does not know a great deal about he is of course anxious to impress the public with his literary ability, so he sits down and thinks and thinks until his brain is in a whirl trying to evolve something witty, apt or original, but if it should ever happen that this same man should start to write an advertisement for himself it would come "a dawning" on him that what he wanted was the real points of excellence simply and convincingly stated and that he didn't want some far-fetched idea or catchy phrase that really carried no argument.

Different articles differ immensely in their good and strong points possessed, but there is no article but has its best or strongest point, and there is always a reason why this point exists, and this is the thing that should be brought out in an advertisement.

The first thing is to bring out the point that makes the article of real value to the buyer. Then price is absolute there is no contradicting it, and it possesses the merit of truth when used in an argument or advertisement.

The common sense point of an advertisement, the appeal to the reason of the reader and the showing why in real reason the thing must be so, is the kind of advertising that brings returns and not the literary effort or the airy flight of fancy.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between December 27 and 30:—

**SHUTTERS.**—No. 26,951. Improvements in timing valves used for varying the speed of time exposures of photographic roller blind shutters. John Croft, 7, Edgbaston Terrace, William Street, Birmingham.

**CAMERAS.**—No. 27,004. Improvements in photographic cameras. William Speed Hayman, 9, Regent Street, London.

**PRINTING FRAMES.**—No. 27,071. Improvements in photographic printing frames. David Abraham Lowthome, 70, Chancery Lane, London.

**TIME DEVELOPMENT.**—No. 27,078. Apparatus for timing development of photographic plates. Mario Fortiori, 18, St. Ann's Terrace, Barnes, London.

**PHOTOGRAPHS.**—No. 27,088. Improved process and apparatus for the production of photographs. Friedrich Grubius Dischner, 55, Chancery Lane, London.

**SHUTTERS.**—No. 27,125. Improvements in the method of operating the time and instantaneous shutters of photographic cameras. Edward Benjamin Hazleton, 103, Fitzwilliam Street, Sheffield, Yorkshire.

**PLATE CARRIERS.**—No. 27,219. Improvements in slides and plate carriers for photographic cameras. Frederick MacKenzie and George Wishart, 65, Chancery Lane, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**CARTRIDGE TUBES.**—No. 8,971, 1905. The invention consists of a new description of tube to be used as a receptacle of chemicals. It consists in its simplest form of two small tubes of glass

celluloid or other suitable material closed at one end and joined together at their open ends by means of a cork or other stopper, which is provided with a narrow flange corresponding to the thickness of the tubes. After the tubes have been filled and then joined together, the joint is covered over and hermetically sealed by a strip of paper or other suitable flexible material and a suitable binding substance.

Fig. 1 of the drawing filed with the Provisional Specification illustrates a receptacle composed of two tubes *a* and *b* placed end

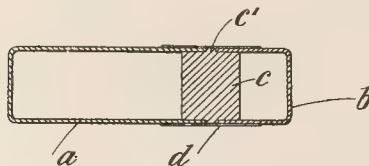


Fig. 1.

to end and closed by a cork *c* provided with a flange *c'*. *d* is a strip of paper, which may be simply gummed on one side and then applied over the joint, instead of which the joint may be first sealed with paraffin or other suitable material and then covered with a label.

Instead of forming two compartments as described, each holding a different chemical, the receptacle may form three or more compartments—that is to say, it may be composed of two outer tubes closed at one end and one or more intermediate tubes open at both ends, as indicated by Fig. 2.

Each intermediate tube is closed at the ends by a pair of stoppers, which connect the tube with the adjoining tubes, and

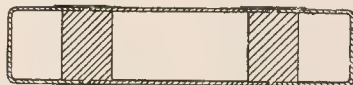


Fig. 2.

each flange or joint thus formed is covered over with a label or strip of paper or other suitable material.

Instead of providing the stopper near its centre with a flange or ridge, studs or pins may be inserted into its circumference, to serve as a stop or abutment to the tubes, and even plain cork stoppers (without any abutment) may be used, without departing from the invention. John J. Griffin and Sons, Ltd., and Thomas Pratt, 20-26, Sardinia Street, Lincoln's Inn Fields, London.

**STEREOSCOPIC CINEMATOPHGRAPHS.**—No. 4,423, 1905. The method of producing stereoscopic animated photographs for which protection is claimed consists of a combination of an instrument mounted on a pivot, a rotatable cam disc and stationary stop pieces adapted to abut against the cam disc.

One manner of carrying the invention into effect in connection with a cinematograph camera is shown diagrammatically in Figures 1 and 2, the complete instrument being pivotally mounted upon a suitable stand or support *b*. One convenient form of so mounting the instrument *a* is by means of a plate or bracket *c* secured with a stem or pivot pin *d* carried by the standard or support *b*.

Upon the spindle *e* of the operating handle *f* or some other rotatable part of the instrument there is fixed a wheel or disc *g* having a number of lateral cam-like projections formed around each side of it and adapted to engage or abut against stop pieces *h* fixed upon the aforesaid stand or support *b*. The stop pieces *h* are preferably provided with rollers to reduce friction and attrition. Rollers *i* are also provided for the support of the camera to facilitate the movement of the same.

On the rotation of the handle *f* in the usual manner to impart the required intermittent motion to the film, to effect the movements of the shutter and perform other ordinary functions, the aforesaid cam wheel or disc *g* is rotated, and during such rotation its lateral projections are brought into engagement with the fixed stop pieces *h* arranged on its opposite sides as aforesaid. As the cam projections push past the stops a sufficient force is

imposed on the instrument and the pivotal bracket on which it is mounted, to rock or reciprocate the same. The movement is arranged so that the views taken shall, as with a stereoscope, respectively correspond with the different views seen by the two

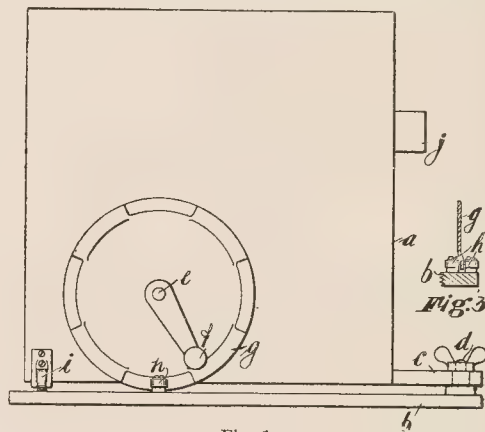


Fig. 1.

eyes of an observer. In the production of a series of pictures on a film, the instrument takes views alternately as seen by the

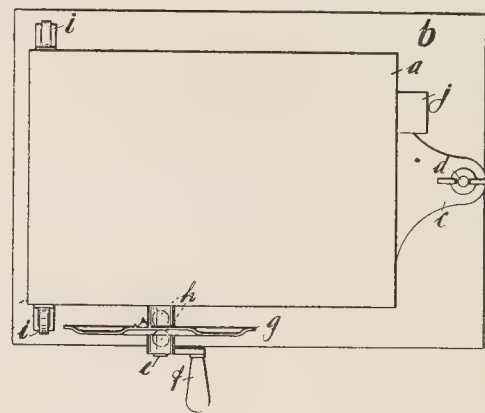


Fig. 2.

right eye and left eye of an observer. Each view is distinct and independent, but in its display, by means of an ordinary cinemato-

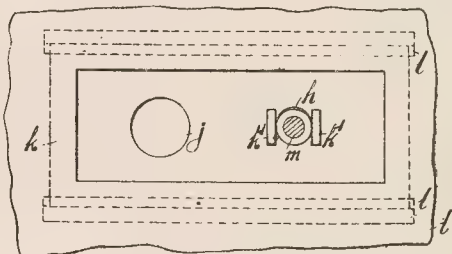


Fig. 4.

graph or projecting instrument, the rapid movements giving the well-known animated or life effects also serve to give the stereoscopic effect of solidity.

Instead of imparting a vibratory or reciprocatory movement



to the complete instrument, such movement may be given only to the lens of the cinematograph camera, or the like. In this modification the lens *j* is mounted upon a plate *k* (Figures 4 and 5) which is capable of sliding within suitable guides as *l* on the frame or standard *l*. The plate *k* may, if desired, be pivotally mounted upon the standard *l*. The required reciprocatory or rocking motion is imparted to the plate *k* by means of a cam *h*

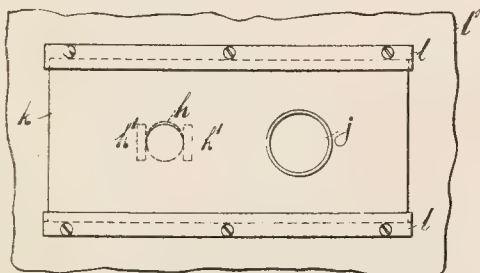


Fig. 5.

mounted upon a spindle *m* rotated from the handle of the instrument. The said cam *h* is adapted to engage projections *h*<sup>1</sup> of the plate *k* or a aperture formed therein. By the slight reciprocatory movement of the lens during the operation of the instrument the same result is obtained. Harry Hamilton Moon, Park-field, Park Road, Moseley, Birmingham.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—  
Photographic Cameras, No. 24,803. La "Vega," Société Anonyme de Photographie et d'Optique.

#### FORTHCOMING EXHIBITIONS.

- January, 1906.—Shettleston Camera Club. Hon. Secretary, Wm. Kitson, Hawthorne Villa, Shettleston.  
January, 1906.—The Dover Institute Photographic Society. Hon. Secretary, H. Plowright, 47, Maison Dieu Road, Dover.  
January, 1906.—Brierley Hill Camera Club. Hon. Secretary, J. Thomas, William Street, Brierley Hill.  
January 11-13, 1906.—Boston Camera Club. Hon. Secretaries, H. M. Hames and R. W. Halliday, 65, West Street, Boston.  
January 13-February 3, 1906.—The Third Scottish National Salon at Dundee. Hon. Secretary, V. C. Baird, Broughty Ferry. Entries close December 30, 1905.  
January 25-27, 1906.—South Essex Camera Club. Hon. Secretary, Thomas Michell, 180, Browning Road, Manor Park, E.  
January 31, 1906.—Tring Camera Club. Hon. Secretary, J. Owen Raymond, Frogmore Road, Tring.  
February, 1906.—Windsor Camera Club. Hon. Secretary, Thomas J. Cartland, Thames Side, Windsor.  
February, 1906.—Cardiff Windsor A.P.S. Hon. Secretary, W. A. Woodward, 187, Mackintosh Place, Cardiff.  
February-March, 1906.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.  
February 3-10.—Cape Town Photographic Society International Exhibition. Entries close January 13, 1906.  
February 3-February 25, 1906.—Marseilles Fourth International Salon. M. Astrer, Sec. Gen., 11, Rue de la Grande-Armée, Marseilles.  
February 6-9, 1906.—Guisbrough Fine Art and Industrial Society. Hon. Secretary, George Page, 34, Westgate, Guisbrough, Yorks.  
February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.  
February 20-21, 1906.—Royal Albert Institute, Windsor. J. W. Gooch, Hon. Secretary.  
Feb. 22-24, 1906.—Bowes Park and District. Hon. Sec., H. C. Bird, 91, Whittington Road, Bowes Park, N.  
February 24—March 10, 1906.—Edinburgh Photographic Society. Hon. Secretary, J. S. McCulloch, 3A, N. St. David Street, Edinburgh.

February 24 to March 31, 1906.—Birmingham Photographic Society. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.

March, 1906.—Leicester and Leicestershire Photographic Society. Hon. Sec., W. B. Woodland, 18, Beckingham Road, Leicester.

March, 1906.—Rugby Photographic Society. Hon. Secretary, R. N. Myers, 13, Bridget Street, Rugby.

March, 1906.—Photographic Society of Ireland. Hon. Secretary, H. V. Yeo, 194, Clonliffe Road, Drumcondra, Dublin.

March, 1906.—St. Helens Camera Club. Hon. Secretary, John Glover, 14, Ormskirk Street, St. Helens.

March 3-10, 1906.—South London Photographic Society. Hon. Sec., H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 7-8, 1906.—Doncaster Camera Club. Hon. Secretary, T. Haigh Connor, 39, Market Place, Doncaster.

March 12-15, 1906.—Cripplegate Photographic Society.—Secretary, Fred. Leeks, 8, Barford Street, Islington, N.

March 13-14, 1906.—G.E.R. Mechanics' Institute (Stratford). Hon. Secretary, A. Woolford, 16, Grove Green Road, Leytonstone, E.

March 14-17, 1906.—Nottingham Camera Club. Hon. Secretary, S. W. Barlow Yines, Market Chambers, South Parade, Nottingham.

March 19-24, 1906.—Sunderland Photographic Association. Hon. Sec., William E. Kieffer, Stirling Street, Sunderland.

March 27, 1906.—Brentford Photographic Society. Entries close March 27. Secretary, Oliver Gluyas, 89, Windmill Road, Brentford, Middlesex.

March 31 to April 10.—Salon of the Photo Club of Nice.—Address the Secrétaire-Général, 20, Rue St. Francois de Paule, Nice.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op. C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.

April 18 to 20.—Southend-on-Sea exhibition. Hon. Sec., J. Archer, 24, Ashburnham Road.

April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

## New Books.

"Intensifying and Reducing Negatives." (No. 74 of "The Photo Miniature.") London: Dawbarn and Ward, 6d.

This number is likely to be valuable and welcome, as it aims at bringing our knowledge of processes of intensification up-to-date, and deals very fully with the more important and reliable methods while relegating those of a more doubtful nature to quite a second place. The old methods which receive most prominent attention are mercury and ferrous oxalate, and silver intensification. This is just as it should be, for it is difficult to find any others approaching these two for reliability. The new methods of intensification by re-development receive very careful attention, and the editor remarks with reference to them, "Unless we are mistaken, these re-development methods will eventually replace the earlier and more cumbersome processes." In referring to the chromium process one or two unfortunate slips are made on page 57. Potassium chromate is repeatedly referred to, whereas we believe the writer intended to mention the bichromate in each case. Also there is a mistaken suggestion to the effect that the developer reduces the chromium compound to a black chromic substance. This substance is actually light brown, and though the redeveloped image is black if the process is only repeated once or twice, yet after many repetitions the brown substance accumulates to such an extent that the whole image becomes brown.

The writer, Mr. Thorne Baker, attributes the frilling occasionally

met with to the use of the acid bath in warm weather. We should rather attribute it to following the acid bath with an alkaline developer containing caustic soda. With a neutral or acid developer, such as amidol, frilling never occurs, and dilute hydrochloric acid alone has little tendency to produce frilling in any case.

A valuable feature of this chromium process (not referred in the book) is that it may be applied to a plate directly after fixation, as the presence of hypo in the films is of no consequence. This advantage it shares with the iodine processes, as mentioned by Mr. Thorne Baker on page 59.

Among the new processes dealt with we find a permanganate process, another with copper chloride, and one with iodine. The chromium process being undoubtedly the most important is very completely dealt with, and the author has quoted largely from the original papers published upon the subject. He has, in fact, wisely adopted this course throughout the book; hence we have the chromium process as described by Mr. J. S. Teape, and the chromium and iodine processes as described by Messrs. Piper and Carnegie. The mercury and ferrous oxalate method is described with full details by Mr. Chapman Jones, and the silver intensifier by Mr. A. J. Jarman, and by Mr. H. W. Bennett. Reduction methods take very little space. In describing the permanganate reducer the sulphuric acid has been left out, and therefore the instructions given are not likely to be very effective. The addition of 20 minims of acid to the stock solution will possibly put matters right.

"The Optical Lantern for Projection and Enlarging" (No. 28 of "The Practical Photographer.") London: Hodder and Stoughton, 1s.

This should be a useful handbook for the lanternist. The most valuable part of it is, perhaps, that relative to the use of electricity for illumination purposes, yet the practical advice is much sounder than the optical theory which is dealt with here and there. It is curious that so many erroneous ideas should prevail with regard to lantern optics, but it appears to be an unfortunate subject that suffers greatly from its friends. Among the old familiar errors that appear in this book, one is that the light source must be at the principal focus of the condenser to secure even illumination. Another is that a long focus projector gives a less brightly illuminated image than a short focus projector, "other conditions being the same," because the distance between lens and screen is greater; a very familiar example of the misapplication of the law of inverse squares.

Then, again, we are told that "the ordinary distance of the light from the condenser is two inches, but as the size of the disc decreases, it may be as far away as three inches. This applies to all forms of illuminant." Possibly "decreases" is here a simple misprint for "increases."

With regard to the use of the incandescent mantle many questionable statements are made. We are told that "the larger the source of light the more it blurs the definition"; that "the back of the mantle is of no use"; and that "only about half-an-inch of the mantle is used for projection."

A simple method of finding the focal length of an objective is given on pages 42 and 43, but as the method is not strictly accurate it is useless to work out the result to hundredths of an inch, as the writers have done. An approximate method can only give an approximate result.

The chapter by the editor on "Easy Introduction to Lantern Optics" treats optical questions in a much more accurate fashion, and forms quite a good elementary treatise.

The review of pictorial work is devoted to Charles H. L. Emanuel.

"Willing's Press Guide." The 33rd annual issue reaches our table from James Willing, Junr., Ltd., 125, Strand, and we notice that the established arrangement is adhered to in so much that the volume is as convenient a reference to the British Press as any three times the size. We should point out to the compilers that in their desire to be encyclopædic they include in the class list of periodicals "Journ. and Trans. of the Photographic Society," "Journal of the Royal Photographic Society," and "The Photographic Journal," as three separate entries, without any indication that they are one and the same publication. This is the only criticism we have to pass on the list of photographic periodical literature, which is other-

wise accurate and complete. The price of the "Guide" is 1s., and we would recommend its purchase to those persons who occasionally worry us to tell them which are the papers likely to buy their photographs (undescribed) for reproduction.

## New Materials.

Leto Toners. Sold by the Leto Photo-Materials Company (1905), Ltd., Rangoon Street, London, E.C.

These ready-made toning solutions for bromide and gaslight prints may be said to represent the operations of obtaining coloured tones on these papers reduced to the simplest proportions. The toning baths act, in every case, in one solution, which is made by mixing in equal parts two of the four liquid preparations and adding some water. Less trouble than this can scarcely be demanded, even in these days of leaving the photographer to do nothing but pour his solutions into his dishes. The prints tone evenly and quickly in the baths, and we have been pleased with the colours obtained. On a matt paper the effects are distinctly suggestive of those of carbon, and though we are strongly of the opinion that a photographer will be acting foolishly in representing the prints to be allied to carbon by the use of such words as "carbonet," yet the prints themselves will quite satisfy many who prefer a warm tone and a matt surface. The blue tones require a print considerably lighter than would be considered right; but the other solutions work best with a print of normal depth, or one if anything a little on the deep side. The results we have obtained are commendably free from stain, being quite clear in the high-lights. As an additional aid to the retention of this brilliance, and for the sake of permanency also, the makers advise varnishing the prints with Zapon varnish, a small phial of which accompanies each box of the solutions. The varnish is applied simply by placing a little of it on the dried print, and, with a small pad of cotton, rubbing it quickly and evenly over the surface, which is then rubbed dry with a pad of clean cotton wool. The prints should be mounted with the precaution to use a paste of little penetrative power, and should not be soaked before applying the paste. The price of the toners is 1s. per set, for either red or brown, blue or green tones. The Zapon varnish can also be obtained separately at 6d. per bottle.

RECEIVED.—Edwards' special transparency plates, as made by Mr. B. J. Edwards (B. J. Edwards and Co., Ealing Dean, London, W.). We shall report on these plates as soon as we have had an opportunity of using them.

## CATALOGUES AND TRADE NOTICES

MESSRS. JOHN DONE AND Co., New Barnet, send us the new issue of their price list of printing, enlarging, etc., a copy which they will send on application. Professional photographers should apply for the special professional list, which is despatched on receipt of trade card. From their thirty-three years' experience in the business Messrs. Done can offer very excellent work in all branches.

MESSRS. W. WATSON AND SONS notify us that they are now supplying the patent "Antinous" release for use on the "Spida" camera, and in the course of a fortnight will be able to supply also a release suitable for the "Verascope." The prices of these releases, which will be the usual 2 feet in length, will be 3s. and 4s. respectively.

MESSRS. GOLD, SMITH AND Co., of Salford, Manchester, have taken the whole of the premises at 44, Chapel Street, at which address they are holding an exhibition of accessories, backgrounds, etc., until January 20. Admission is by appointment—card obtainable on application.

CINEMATOGRAPH Fire.—Towards the close of a biographic entertainment at Merthyr last week, flames suddenly ascended from the operator's film, burning 150 yards of it. The front door was knocked off its hinges, and all the spectators, including 200 children, were got safely out of the building.



# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

Jan.	Name of Society.	Subject.
12.....	Sutton Photographic Club .....	"Photography as a Pastime." Mr. Hector Maclean, F.R.P.S.
12.....	Aberdeen Amat. Photo. Assn. ....	"Highways and Byways." Mr. McKiligan.
12.....	(Leicester Lit. and Philo. Society ..	"Toning Bromide Prints." Demonstrated. A Member. "Exposure Meters, Masks, and Masking." Photography Prize Slides, 1905.
12.....	Colne Camera Club .....	Opening Date of Salon, which remains open until February 3.
13.....	Glasgow Southern Photo. Assn. ....	"Marine Photography." Mr. W. Findlay.
13.....	Aberdeen Photo Art Club .....	Annual General Meeting. Election of Officers and Council.
13.....	Bowes Park and Dis. Ph. Soc. ....	"Bromide Printing, and Thirty Minutes in Sunset Land." Mr. J. H. Avery.
15.....	Oxford Camera Club .....	Lantern Slides. Mr. Dugald Taylor.
15.....	Motherwell Y.M.I. Cam. Club. ....	"The Photographic Lens." Mr. C. P. Goerz.
15.....	Wandsworth Camera Club .....	"Gun-Bichromate Printing." Mr. J. Page Croft.
15.....	Rugby Photographic Society .....	Photography Prize Slides, 1905.
15.....	Stafford Photographic Society .....	"Westminster Abbey. Its Monuments and Tombs." Illustrated. Mr. E. W. Harvey Piper.
15.....	Southampton Camera Club .....	"Things." Mr. C. E. Collings.
15.....	Scarborough and Dis. Ph. Soc. ....	Visit to the Walthamstow Photographic Society, with Lantern Slides.
15.....	G.E.E. Mechanics' Institution .....	"Rotograph Bromide and Rotox Gas Light Papers." The Rotary Photographic Co.
15.....	South London Photo. Society .....	"How to Make Lantern Slides." Mr. Frank Nicholson.
15.....	Dewsbury Photo. Society .....	"Winchester Cathedral." Mr. S. G. Kimber.
16.....	Royal Photographic Soc. ....	"Commercial Photography." Mr. S. A. Buckley.
16.....	St. Helens Camera Club .....	"Mounts and Mounting." Mr. L. Dickinson.
16.....	Halifax Camera Club .....	"Gun Ozotype." Mr. J. F. Copley.
16.....	Holmfirth Photographic Soc. ....	"The After Treatment of the Negative." Mr. E. W. Taylor.
16.....	Brentford Photo. Society .....	Competition.—Architecture.
16.....	Burton-on-Trent Nat. Hls. Soc. ....	"Toning of Bromide Prints and Lantern Slides, the Intensification and Reduction of Negatives by 'Tabloid' Photographic Chemicals." Demonstrated. Mr. W. Watmough.
16.....	Worthing Camera Club .....	"Bromide Enlarging." Mr. H. Crossley.
16.....	Otley & Dis. Cam. & Art Soc. ....	"A Tour Round an Old Garden." Mr. Alex. Keighley.
16.....	Birmingham Photo. Society. ....	Annual General Meeting. New Lantern Slides by Mr. Godfrey Bingley.
16.....	Leeds Photographic Society .....	"Marine Photography." Mr. F. J. Mortimer.
16.....	Gloucestershire Photo. Society ..	"Home-Made Postcards." Mr. R. W. Chapman.
16.....	Darlington Camera Club .....	"Life and Work of George Tinworth."
16.....	Jersey Photographic Society .....	"Artistic Photography." Mr. Lawson.
16.....	Nelson Photographic Society .....	Amateur Photographer Competition Prize Slides.
16.....	Sheffield Photographic Society ..	"What Can be Done with a Hand Camera." Mr. C. P. Goerz.
16.....	Manchester Amat. Photo. Soc. ....	"Carbon Printing." The Autotype Company.
16.....	Gateshead Camera Club .....	"Exposure and Development." Mr. S. H. Bentley.
17.....	North Middlesex Photo. Soc. ....	"Mounts and Mounting." Mr. W. H. McLauchlan.
17.....	Coventry Photo. Club .....	"Practical Enlarging." Mr. J. F. Wilde.
17.....	Everton Camera Club .....	"Chemicals Used in Photography." Mr. B. A. Burrell, F.I.C.
17.....	Huddersfield Nat. and Ph. Soc. ....	"Stereoscopic Photography." Mr. C. P. Goerz.
17.....	Tunbridge Wells Ama. Ph. Assn. ....	"In Search of a Shadow." Miss Gertrude Bacon.
17.....	Bromley Camera Club .....	"Printing Out Papers." Demonstrated. Mr. W. Yewdall.
17.....	Leeds Camera Club .....	"Notes and Experiences on Architectural Photography." Mr. E. R. Bull.
17.....	Catford & Forest Hill Ph. Soc. ....	"Some Results Obtained by Photomicrography." Dr. Rodman.
18.....	Richmond Camera Club .....	Poets Slides, "Stories Without Words."
18.....	Leek and District Photo. Soc. ....	"Bromide Toning and Thirty Minutes in Sunset Land." Mr. J. H. Avery.
18.....	London and Prov. Photo. Assn. ....	Annual Meeting.
18.....	Liverpool Amateur Ph. Assn. ....	"Gun-Bichromate." Demonstrated. Mr. J. F. Seaman.
18.....	Harrogate Camera Club .....	"The Principles of Composition in Pictorial Art." Mr. J. Somerscales.
18.....	Hull Photographic Society .....	"A Cycle Tour in Brittany," and "Animal Studies at Home." Mr. A. Taylor.
18.....	Darwen Photographic Assn. ....	"Wanderings in the West Riding." Illustrated. Mr. Wm. Holmes.
18.....	Pudsey and District Photo. Soc. ....	

## MEETINGS OF SOCIETIES FOR NEXT WEEK (Continued.)

Jan.	Name of Society.	Subject.
18.....	Bolt Court School of Ph. Eng. ....	"The Use of Bichromate Salts in Photography." Mr. E. W. Foxlee.
18.....	Chelsea and District Photo. Soc. ....	"Holidays in Ireland." Messrs. Brown and Hurdman.
18.....	Southport Photographic Soc. ....	"A Visit to Grindelwald with a Photograph at Lucerne." Dr. H. L. Hawskley.
18.....	Sheffield Friends' Sch. Ph. Soc. ....	"Titles and Mounds." Mr. Zeph Carr.

## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held January 9, Major-General Waterhouse, I.A., President, in the chair. The Chairman announced that the Council had awarded the Progress Medal for the year 1906 to Dr. J. C. Janssen, of Paris, for his work in astronomical photography, for his researches in reversal, and for his other photographic work. An account of Dr. Janssen's work is published on another page. A paper by Mr. James C. Kingdon on "The Latent Image" was then read by the Secretary. The author said that physical theories of the latent image had lately been held in greater favour by scientific men. The molecule of the silver halide was thought to suffer a disturbance though not a disruption. Reference was made to the paper by Professor J. Joly before the Photographic Society of Ireland last year, and printed in the *BRITISH JOURNAL ALMANAC* for 1905. In this paper Professor Joly dwelt on the work of Dewar at low temperatures as bearing upon the question of the constitution of the latent image. "The conclusion," said the author, "was that the action of light on the silver halides lay in the borderland between chemical and physical phenomena, and before it could be completely solved more knowledge was necessary of the manner in which the energy of the ether was transferred to the molecule. The author proceeded to represent the constitution of the silver halide as that of two atoms held together not by a rigid bond but by an elastic force. Any movement which caused the silver atom to swing about its position tended towards the disruption of the molecule, but the disruption need not take place, and the molecule might remain in a condition in which it was susceptible to development. In the subsequent discussion one speaker thought that the paper had confused rather than explained the subject, and he dismissed as insufficient the method mentioned by the author for recognising traces of hypobromous acid—namely, that of smell. Mr. A. J. Bull thought that the analogies of the latent image with other admitted physical phenomena were so many and striking that the onus of proof was upon those who supported a chemical theory. He pointed out that the phenomena of reversal had their counterpart in the action of light on a plate of pure metallic silver, a case in which a purely chemical theory was not admissible. A welcome change from the tone of highly involved speculation which the discussion had assumed was provided by the Rev. F. C. Lambert, M.A., who propounded a number of problems such as:—(1) If the action of light is, as has been said, a case of synchronism of the ether waves with the period of vibration of the silver halide, and assuming as must be the case, that the silver halide has but one period of vibration, though the light falling upon it may be of various different periods, how is it that when the halide is exposed to the spectrum the action of light is not confined to one narrow line? (2) What reasons were there against the supposition that the action of light which produced the latent image was like in kind to that which produced visible effects on the same sensitive material? No answers were forthcoming to these and other questions. The Chairman, in a few remarks, laid stress on the fact that the action of light, in producing a latent image, was to be looked for not only in the case of silver bromide, or silver emulsions, but in the case of almost every substance under the sun. The examination of a large number of substances showed that the action of light was distinct in most unsuspected cases. A vote of thanks was passed to the author of the paper, who was present, but did not reply to any of the discussion.

ULSTER Amateur Photographic Society.—Mr. Thomas N. Murray, who for the past five years has worked with ceaseless energy in the interests of the Ulster Society, is resigning the secretaryship, but will, we understand, still continue his support of the society.

THE members of the Norwich Ladies' Camera Club have arranged to hold a three days' exhibition, in the Thatched Assembly Rooms, All Saints' Green, in Easter week, in aid of the Jenny Lind Infirmary.

**LEEDS CAMERA CLUB.**—The annual meeting of the above society was held last week, when the secretary's report and treasurer's balance-sheet were presented. The membership, it was stated, now stood at 215, which was a slight decrease during the year. Officers for the ensuing year were elected as follows:—President, Mr. John MacKenzie; secretary, Mr. A. Dawson Berry, Marshall Avenue, Cross-gates; vice-president, Mr. C. B. Howdill; treasurer, Mr. W. Yewdall; lanternist, Mr. R. Turley.

THE Manchester Amateur Photographic Society are holding a whist drive on Wednesday, January 24, 1906, for furthering the social element amongst the members.

**CROYDON CAMERA CLUB.**—Miscellaneous novelties, chiefly home-made, were in evidence on the 3rd inst. Mr. Edgar exhibited several ingenious and simple cameras of his own design for taking four or more photographs on a single plate with one lens. In one an eyepiece of a cheap telescope formed the objective. This was about one and a half-inch focal length, worked sharply at  $f/6$ , and the resulting negatives permitted enlargements up to eight diameters without noticeable loss of definition. Mr. Terry showed a "Geka" filter sandwiched between two pieces of plate glass, placed slightly in advance of the focal plane. He had found it satisfactory in use. An opinion was expressed that the filter would be improved by cementing it to the glasses with Canada balsam. Mr. Sellors, amongst other items, showed a convenient camera support, devised by himself, to be used when copying. By means of a parallel motion, vertical adjustments could be made with ease. Mr. Harpur exhibited a hand-camera which had accompanied him into the pellucid waters of a Dutch canal. A few repairs (to the camera) were necessary, and it now worked better than ever. From his account of the contretemps it would appear to be injudicious to take up a point of vantage with one foot on a steamer, the other on the jetty, and eyes glued to the finder, unless one is quite sure the steamboat is not on the eve of departure. Many really clever contrivances evolved by Mr. Harpur's fertile brain were also explained, including some thoroughly practical, albeit wonderful and fearful looking, sky-shades. Mr. Bawcomb showed some beautiful crystal formations by means of the polariscope, and the hon. secretary (Mr. H. M. Bennett) the latest T.P. blind shutter, neat in appearance and efficient in construction, together with a number of novelties of the Altrincham Rubber Co., which aroused much interest. A quiet and peacefully minded member, who had a large pneumatic plate-holder, unexpectedly and forcibly applied to a head somewhat "thin on top," indignantly denied the President's (Mr. W. H. Smith's) assertion that the appliance would also serve as a vacuum cap for encouraging the growth of hair. From the mode of application, he apprehended that the reverse might indeed be the case.

**RYDE PHOTOGRAPHIC SOCIETY.**—A meeting of the above Society was held on January 3, Mr. M. Maybrick, President, in the chair. The rules drafted by the Special Committee appointed for that purpose were with slight alterations approved. Mr. Harold Senier, Hanley House, Ryde, was elected honorary secretary and treasurer, and the following gentlemen were elected on the Committee:—Messrs. P. Chiverton, A. E. Jupe, N. Newbold, C. L. Priestly, J. Purnell, and A. H. Starnes. Messrs. H. B. Fowler, R. Fox, G. H. Harrison, and E. Urwick were elected vice-presidents of the Society. At the next meeting, the date of which will be shortly announced, Mr. A. H. Starnes, F.R.P.S., will deliver a lecture on the "Marvels of Photography," with special reference to photography in colours, illustrated with a number of unique and interesting lantern slides. A large number of the residents of Ryde interested in photography have already been enrolled as members of the society; any others desirous of joining may do so without entrance fee, if they will communicate with the hon. secretary prior to January 31.

**SOUTHAMPTON CAMERA CLUB.**—The annual general meeting of this Club was held on Monday evening, the 8th inst., at the Philharmonic Hall, when an enthusiastic meeting of the members was presided over by the President, Mr. W. Burrough Hill. The Committee's annual

report recorded the fact that the year had been a fairly successful one. The membership had reached a total of 161, while the work of the members had met with recognition all over the country. The exhibition held in December had only lacked public support to make it a complete success; in other respects it had been entirely satisfactory. The Committee had extended an invitation to the Photographic Convention of the United Kingdom, and that Convention would be held at Southampton in July next. The Club's indebtedness to the local and photographic press was cordially expressed, and the report, together with the statement of accounts showing a net increase on the year's working resulting in a balance on the credit side of £53 6s. 11d., was unanimously adopted. In the election of officers the great kindness of the President, Mr. W. Burrough Hill, to the Club, and the great amount of hard work done by the Hon. Secretary, Mr. S. G. Kimber, found free acknowledgment, and these gentlemen were re-elected, Mr. Kimber as Secretary, for the eleventh year in succession. The other re-elections were:—Vice-Presidents, A. Horsley Hinton, G. A. Vials, and G. Vivian; Hon. Treasurer, W. H. Trigg; Hon. Lanternist, G. Vivian; Hon. Reporter, F. G. Ryder; Committee, Messrs. Henley, Weaver, Baker, Kay (W. R.), Kay (C. D.), Miles, Daw, Cook; while Messrs. Essex and Copeland were elected in place of Messrs. Goatcher and Cooper. Extreme interest was shown in the further discussion of the Club's affairs; and, among other more formal matters, it was decided that the age limit of membership should be reduced from 16 years to 14; that the limit of radius for Club membership, which stood at fifteen miles, should be altogether removed; and that the Club membership fee should be seven and sixpence instead of five shillings, but that country members outside a six miles-radius should be admitted at five shillings. A hearty vote of thanks to the President concluded a prolonged and enthusiastic meeting.

## Commercial & Legal Intelligence.

**A CASE FOR P.P.A. ARBITRATION.**—At the Magistrates' Clerk's Office, at Woodbridge, last Monday, E. W. Jordan, of Woodbridge, a photographer, was charged with threatening Charles Edward Field, also a photographer, on Saturday night. It appears that the parties are in business in Woodbridge as photographers, and coming to some dispute the prisoner threatened to strangle the complainant, and knocked him about.—The prisoner was remanded in custody.

**FREE PORTRAIT SIDELIGHTS.**—The case of James McBurnie, summoned by his employer, Alfred Margand (Crown Art Co., Seven Sisters Road), for embezzling money, came before the Cambridge Police Court again on Saturday last. The defendant did not appear, and at the request of the prosecution the case was adjourned for a week. A lengthy account of the case appeared in our issue of December 22 last.

**ALLEGED THEFT.**—Before Mr. J. S. Hawker, at Stonehouse Police Court last week, Charles Christian, of no fixed abode, was charged with stealing four New Year cards, the property of John Easden, photographer, 21, Union Street. Complainant stated that on Wednesday afternoon accused came into his shop and asked to be shown some New Year cards, for one of which he paid eightpence. He left the shop, but returned shortly after, and was shown more cards. He asked the assistant to read the inscriptions on the cards, and whilst this was being done he was seen to put some cards in his pocket. When taxed with it he took no notice at first, but on complainant threatening to send for a constable he took the cards out of his pocket and threw them on the counter. Prisoner was remanded.

**ALLEGED CANVASSING FRAUD.**—Joshua William Humphreys, photographer, of Blandford, has been committed for trial by the Warminster magistrates on a charge of getting money from tradesmen by promising to print picture postcards and not doing so. Mr. Hibberd, of the firm of Hibberd Bros., of Heytesbury, declared that some of the Heytesbury cards that were delivered were marked Sutton Veny and those of that place Heytesbury. The police stated that there were two or three bushels of letters in defendant's house.



## COMPANIES REGISTERED.

**ATKINSON BROTHERS (LIVERPOOL), (1905), LIMITED.**—Registered December 23. Capital, £500 in £1 shares. Object, to carry on the business of photographers, photographic material merchants, publishers, chemists, etc. No initial public issue. The first directors are not named. Qualification, £10.

**LYTH ENGRAVING COMPANY, LIMITED.**—Registered December 27. Capital, £1,000 in £5 shares. Object, to acquire the business of an engraver and commercial photographer carried on by W. Lyth at Lancaster Buildings, Barton Square, Manchester, as Rhodes and Lyth. No initial public issue. The first directors (to number not less than two nor more than five) are W. Lyth, F. W. Richardson, and Hannah Lyth. Qualification, £25. Registered office, Lancaster Buildings, Barton Square, Manchester.

**BLAKE AND MACKENZIE, LIMITED.**—Registered December 22. Capital, £35,000 in £1 shares (30,000 preference). Object: To carry on the business of wholesale stationers, lithographers, stereotypers, photographic printers, engravers, etc. No initial public issue. The first directors and managers (to number not less than two nor more than five) are W. Blake, J. A. Bartholomew, C. Murray, and A. Grice. Qualification, £100. Registered office: Willmer Buildings, 10, School Lane, Liverpool.

**ANIMATED PHOTOGRAPH COMPANY, LIMITED.**—Registered December 30. Capital, £100,000 in £1 shares. Object: To develop and promote the use of the cinematograph in home circles, and to carry on the business of photographers, makers of and dealers in amateur and other cinematograph and photographic apparatus, films, pictures, lights, and accessories, caterers for public and private entertainments, etc. The signatories are:—Shares: V. C. Doubleday, 37, Wallbrook, E.C. 1; G. H. Cantrey, Hotel Great Central, N.W., 1; J. S. Chatterton, 41, Fitzroy Street, W., 1; E. A. Walker, 172, New Bond Street, W., 1; H. N. Phillips, 104, Inderwick Road, Stroud Green, N., 1; A. Lindsey, 7, Linton Villas, Crescent Road, Wood Green, N., 1; E. March, 59, Burton Crescent, W.C., 1. No initial public issue. The number of directors is to be not less than two nor more than six. The first are H. N. Phillips and V. C. Doubleday. Qualification, one share. Remuneration (except managing director), £50 per annum for the chairman, and £40 each for the others, with 5 per cent. of the profits available for distribution divisible.

## News and Notes.

**PHOTOGRAPHING ALIENS.**—The "Gazette" has announced that by a new regulation under the Penal Servitude Act, signed and declared urgent by the Home Secretary, any alien confined in a prison with a view to an expulsion order being made under the new Aliens Act may be photographed and measured in the same way as a criminal prisoner.

**RADIO-ACTIVITY.**—On January 4 Professor F. Soddy, M.A., delivered his presidential address to the members of the Röntgen Society. He took as his subject the present position of radio-activity, and in opening dealt mainly with modern views with regard to electricity and the material characteristics of the electron and its special application to high frequency. He performed an experiment illustrating the passage of radium emanation through a tube containing phosphorescent material into liquid air and its subsequent diffusion in the form of a gas. After dealing with the marvellous powers possessed by radium, he referred to the constancy and the value of gold, which might possibly be due to the action of disintegration of a similar character to that which occurred in the case of radium.

**FIRE in Aberdeen.**—Last week the Aberdeen fire brigade received a summons to the shop, 187, Rosemount Place, occupied by Mr. J. H. Rennie, photographer, where there was a small outbreak of fire. Before the brigade arrived, however, the fire, which was of a very trifling nature, was extinguished by a fireman from the sub-fire station at Nile End. The fire originated in the window of the

shop by a fairy lamp becoming overheated, and igniting a piece of cloth in the window.

**ULSTER Amateur Photographic Society.**—The twenty-first annual meeting of this society was held in the clubrooms, the Museum College Square North, on Monday last.—The President (Mr. David Elliott), in opening the meeting, said it was again his pleasant duty to present the gold medal kindly given by the Lord Mayor (Right Hon. Sir Daniel Dixon, Bart., P.C., O.L., M.P.), which was won by Mr. W. D. Elliott, the judge of the prints being Mr. Charles F. Inston, of Liverpool, who placed Mr. Thomas Bryans second.—The Hon. Secretary (Mr. Thomas N. Murray), in presenting the annual report, said the president and committee, in presenting their annual report, at the close of the twenty-first year of the society, have again the pleasure of announcing a satisfactory year's work. The members on the books at the beginning of the year numbered eighty-five. There were thirteen new members elected during the year; lapses, resignations, etc., nineteen, leaving a total membership at the end of the year of seventy-nine. The general attendance of members and friends has been good, and more interest taken in the work of the society. By the courtesy of the Right Hon. the Lord Mayor (Sir Daniel Dixon, Bart., P.C., D.L., M.P.), a handsome gold medal was presented for competition amongst members. Two silver medals have been presented for competition—one by a friend, the other by Mr. Charles Mitford Martin. In conclusion, the Hon. Secretary thanked the members, one and all, for the courtesy shown him during the last five years, as he thinks it time a new secretary was appointed. The Lord Mayor's gold medal, won by Mr. D. W. Elliott; award made by Mr. Charles F. Inston, of Liverpool. The hon. treasurer's report was satisfactory. For 1905 the following were appointed as office-bearers:—President, S. W. Allworthy, M.D.; committee, Messrs. J. Campbell Carson, Thomas N. Murray, J. B. Anderson, William McLean, Hugh Cochrane, jun.; D. J. Hogg, Thomas Bryans, J. Malcomson; hon. treasurer and librarian, Mr. C. Mitford Martin; hon. secretary, Mr. R. McGeahy; hon. lanternist, Mr. H. Cochrane, jun. Samples of the new paper, platinochrom, were distributed. This is an easily-worked paper, giving beautiful results. The lantern slides sent in for competition were kindly judged by Messrs. McLean, McGeahy, and Sumner. H. Cochrane and D. J. Hogg equal first, John Malcomson and T. Bryans equal second. The new president gave an interesting address on the art of photography.

## Correspondence.

\* \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### A WAGES QUESTION.

To the Editors

Gentlemen,—I am pleased to learn that "Comyn" is still flourishing, to the confusion of those correspondents who in 1900 asserted that he was overpaid because the current wage was only £3 3s. I did not take that view of the case then, and have since had ample confirmation that the more expert an assistant becomes the higher the wage he can command. We see that "Comyn" had taken advantage of every means of improvement, and thus had made it profitable for his employer to pay him double the ordinary wage of an ordinary commercial operator. The same is true of every photographic worker. Even within the last month I know of a firm offering £3 3s. per week for a carbon printer who is expert enough to do their work. Yet the current wage of carbon printers is much below this. I agree with "Comyn" in thinking that operators and printers do not take sufficient pains to reach the highest level, and, consequently, cannot take any opening which offers. An employer recently told me that the number of really high-class operators could be counted on the fingers of one hand. Can we wonder then that such men should be paid £5 to £6 per week, instead of the usual £1 15s. or £2. Some years of observation, I am loath to admit, have convinced me that ambition and a desire to rise in the world are by no means common amongst assistants. The majority remain content to receive £1 or £2 a week, and having this do not strive to improve themselves, and so attain to a better position and higher wages. The faculty of

"getting on" is mainly a middle-class virtue, and I see no means of improving the wages of employees in general except by inducing them to raise their standard of living.—Yours sincerely,  
January 6, 1906.

JOHN A. RANDALL.

To the Editors.

Gentlemen,—The letter from "Comyn" in your last issue on the above question is extremely interesting, and must surely have made the mouths of others besides mine water.

I am perfectly willing to take up other work, if I get the chance; for instance, I can work all the iron-printing processes, lantern-slide making, enlarging, reducing to within 100th of an inch, and make three-colour negatives, but I still remain an operator at £4 per week. This means posing the sitter, taking the negative, developing, and superintending the printing room. I am pretty busy the whole year through.

What I should like to know, and it is an important point, is how I am to find time to take lessons in collotype and kindred subjects and yet earn the money that is required to find my family in food and clothing, to say nothing about schooling and boots for the smaller members of the same. It is true that I generally manage to finish work about 6 p.m., and if it were possible for me to attend lectures at Bolt Court, etc., after that I should be very pleased, but up to the present I have not been able to see my way clear to reach these estimable polytechnics and get back to work again at 9 a.m. the next morning. No doubt there are others in the same predicament.

But supposing we do avail ourselves, how are we to obtain situations wherein we may get £6 6s. plus 19s., with a legitimate hope of an even extra 10s. per week? Am I justified in throwing up a certainty for an uncertainty, and spending money in between whiles?—Yours faithfully,  
Edinburgh.

JAS. CROMBIE.

#### ANOTHER CELLULOID FATALITY.

To the Editors.

Gentlemen,—With reference to your remarks on the above subject on page 3 of last week's issue, it surely would only be fair to draw attention to the enormous amount of celluloid that is used by cinematograph and other film makers, and yet we have not yet heard of a fatality or explosion or fire amongst them.

Again, last year, although there was a fire at one of the German film factories it did not start through celluloid, although it spread to this department. One striking feature about this fire was that although there was a very large stock of thin rollable celluloid, which was stored in metal cases, there was no explosion. Some of the metal cases were fused and perforated, and the celluloid simply burnt with a brilliant white flame. Obviously then, as you say, "but there is celluloid and celluloid."

Whilst it behoves all of us to be careful, there is no reason for us to be frightened.

A CINEMATOGRAF OPERATOR.

London, E.C.

**ROYAL KODAK PHOTOGRAPHS.**—Since announcing the exhibition of photographs by Her Majesty Queen Alexandra and other members of the Royal Family, now open at the Kodak Galleries, 115, Oxford Street, W., we have paid a visit to the collection, which numbers altogether 65 pictures. Twenty-four of the photographs, which throughout are bromide enlargements from small negatives, are by the Queen, and the other Royal personages who have graciously placed their negatives at the disposal of the Kodak Company are H.R.H. Princess Victoria, H.R.H. Prince Leopold of Battenberg, H.R.H. Prince Alexander of Battenberg, H.R.H. Princess Henry of Battenberg, S.A.R. le Duc d'Orleans, and H.R.H. Princess Victoria Eugenie of Battenberg. The collection includes a number of very interesting pictures, which are equally noteworthy as specimens of enlargements on the various brands of Kodak bromide paper. Visitors to the gallery, too, will have an opportunity of witnessing semi-private demonstrations of development and other operations as offered by Kodak, Ltd. At the time of our visit a lady was asking a demonstrator of infinite patience the question:—"Is pyro hypo?"

## Answers to Correspondents.

\*.\* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

\*.\* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\*.\* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*

\*.\* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

#### PHOTOGRAPHS REGISTERED:—

L. Berry, 27, Chapel Street, Chorley, Lancashire. *Three Photographs of the Rt. Hon. Lord Balcarras, M.P.*

R. Burgess, 28, High Street, Congleton. *Two Photographs of Wm. Brocklehurst-Brocklehurst.*

Jakeman & Carver, High Town, Hereford. *Two Photographs of Mr. Percy A. Clive.*

W. A. Thomas, 45A, George Street, Hastings. *Photograph of Mr. and the Hon. Mrs. Freeman-Thomas. Photograph of Mr. Freeman-Thomas, M.P.*

**MATTEING P.O.P.**—Would you be so kind as to give me some method for taking the gloss off P.O.P. prints and glossy postcards. You will much oblige?—A Beginner.

Squeegee the prints to the finest ground glass, and strip off when dry in the way usual when glazing.

**RETOUCHING** (Reply to R. F.).—The prints are too heavy in tone, and hardly give you a fair chance of showing the touch, but from certain indications we should think your work of rather weak quality, especially if displayed on glossy paper and properly printed. Your finish is certainly open to great improvement. The lady in dark dress has had much of the character taken out of her face, although she would probably highly approve of the flattery—such is the vanity and bad taste of the average sitter. Study the modelling closer, and if sending again later on, kindly show your work on a glossy paper. State the time taken, and see that it is printed to a brighter and more pleasant tone than this batch.

**PRESS PHOTOGRAPHY.**—I shall feel much obliged if you would kindly inform me what to do to obtain an appointment on the staff of some paper as photographer. I have good experience and have made a special study of landscape work, and can write a good descriptive article.—M.

The only course is for you to address the various illustrated papers (see Willing's "Press Guide," 1s.), with specimens of your work, literary and photographic.

**A SUMMONS QUERY.**—I am much obliged for prompt reply to my query re summons. You leave me still in some doubt, however, as I am not sure whether your reply holds good only provided the order is given on a form upon which the announcement is made that "all accounts are payable in London," or whether this is a needless procedure. If some such statement is essential would it suffice that same appeared on the invoice sent on dispatch of goods?—F. PENNY.

It is not necessary to make the statement on accounts. Our last reply was worded without qualification.

**BOOK ON EMULSIONS.**—Will you let me know as to whether there is a book published which deals with various emulsions, as I want formulæ for P.O.P., bromide, gaslight, self-toning papers, and also for various plate processes. I have Abney's books, but was



wondering if there is a book dealing more fully, and specialising on emulsions with formulas, etc. There are a few in your Almanac, which are useful, but a more varied assortment would be of use to me.—C. L. K.

The only other book meeting your requirements is Dr. Eder's "Photographie Mitt Bron und Chlorsilber Gelatine" (in German). The publisher is W. Knapp, Halle a/S.

**AEROGRAPH WORK.**—I should be greatly obliged for your advice as to the best colours to use for working up bromide enlargements with the aerograph, especially the flesh tints. Can you recommend any work on the subject published at a moderate price?—G.

For the various shades and lines of flesh tints choose, viz., burnt carmine, madder carmine, or carmine alizarine, pink or rose madder, brown pink, madder brown; where the tints are needed, or for draperies, etc., mix with, or use singly (as necessary), yellow carmine, aurealin, ultramarine, cobalt blue, bistre, sepia, vandyke brown, olive green, sap green, and Payne's grey. The above are all fairly permanent colours, and transparent. Many others apparently suitable are not so, on account of their opacity, or fugitive nature. We know of no book published on the subject.

**R. MC.**—Use a good orthochromatic plate and a deep screen, and give a full exposure.

**COLLOTYPE.**—(1) Would you please let me know if the enclosed postcard of fireplace is a colotype? (2) If so, can you please tell me why so many colotype cards and views have a coarse grainy appearance as that of Pier Head, Liverpool (also enclosed); Is it anything to do with original negative?—C. WHITE.

(1) Yes. (2) The original must be suitable, and the one of the Pier Head is evidently very bad. You can get much better collotypes than these in this country.

**COLLOTYPE.**—I would like to get the addresses of several Continental colotype and colour printers. I suppose my best plan would be to get hold of a few Continental trade papers, but I don't know where to get them. If you can enlighten me in any way I shall be greatly obliged.—LEEDS.

Probably the German printing journals will contain some addresses. You will see the announcements of several good British colotype printers in our advertisement pages.

**ANXIOUS TO LEARN.**—Write to Mr. Jonathan Fallowfield, 146, Charing Cross Road, W.C., for his catalogue and instruction book.

**PLOUGHMAN AND OTHERS.**—In our next.

**F. GRIFFITHS.**—1. Mawson and Swan, Newcastle-on-Tyne, as makers of collodion; A. and M. Zimmermann for pyroxyline (cellodine). 2. "Wet Collodion," by Chas. W. Gamble, Is.

**PULLIGNY LENSES.**—Can you tell me how and where I can obtain "anachromatic" lenses such as those used by C. Puyo (calculated, I believe, by Pulligny) and mentioned in your "Almanac" on p. 732.

From H. Calmels, 150, Boulevard de Montparnasse, Paris.

**CAPITAL.**—We think your friends ask too much and you yourself offer too little; 10 per cent. is nearer the mark in putting out capital in such cases where the security is not great.

**INTENSIFICATION.**—1. Is potash ferrocyanide (or red prussiate of potash) a poison, and which is a fatal dose? To what extent is it dangerous for wounds on the hands, and what is the antidote? 2. Do you consider negatives or transparencies on gelatino-bromide or chloride intensified by bleaching with potash ferrocyanide, and redeveloped by amidol and not refixed, as being permanent? 3. When a negative on gelatino-bromide plate has been reduced by ammonia persulphate, what are the means of reinforcing the image? I make this latter query, as mercury bichloride is no longer suitable for a negative having passed through the ammonia persulphate baths.—XERO.

1. It is not a violent poison, and we have never found any ill-effects in handling it. Its danger lies in the fact that mixed with an acid, the highly poisonous prussic or hydrocyanic is formed. 2. We should prefer to give a momentary fixing, but we do not think the permanency will be appreciably impaired by its omission. 3. We cannot say. The action of intensifiers on plates reduced with persulphate is frequently

irregular. We should recommend you to try one of the silver intensifiers given on p. 957 of the "Almanac."

**LIFE-STUDY POSTCARDS.**—Last summer I sold a good many of the life-study postcards. They were exceedingly good gaslight or bromide prints. Can you tell me of any other firm or firms that issue similar photographic cards, as I should like a greater variety of the finest photographic studies, as I find they are greatly appreciated by the better-class customers?—OTHELLO.

We do not know of similar series. You could, no doubt, hear of such through a small advertisement in the "Journal," but you will not find anyone with such a large variety.

**OTHELLO.**—Probably you have not ascertained the working aperture quite accurately. A convenient method of doing so is as follows: Focus the camera on an infinitely distant object, and replace the focussing screen by a piece of cardboard with a pin-hole in the centre. Bring into the dark-room, and place a lighted candle behind the hole. A disc will be formed on the front surface of the lens, which disc is the true diameter of the working aperture. Dividing the focus of the lens by the diameter of this disc will give you the true number. A convenient way of obtaining the disc is to place a circle of bromide paper in the lens cap, and use an inch or two of magnesium ribbon instead of a candle as the light. The bromide paper is then developed.

FROM the report just issued we see that the sales of the Service Photographic Society during 1905 were nearly double those of the previous twelve months. During the year additional premises have been obtained facing directly on High Holborn.

THE South London Photographic Society will hold its 17th annual exhibition in the Camberwell Baths from March 5 to 10. Apparatus, which is always a feature of the exhibition, should be in evidence at the show, as we see that a single article can be shown on a general stand at the price of 1s. 6d. per square foot. Trade enlargers can also be accommodated with screens for the display of their work. Prices of these and other offers are contained in a special circular, now obtainable from Mr. Edward Pudy, 260, Southampton Street, Camberwell, S.E.

A CORRESPONDENT writes: "I should esteem it a favour if you could give me the address of the maker of 'Hall's pine gum' in your next issue of the B.J." [We cannot say. Perhaps the vendor will communicate with the querist through ourselves.]

A CORRECTION.—In our notice last week of Messrs. Epstein's new 20 by 16 frames we gave the price of 45s. per dozen as retail; it should have been wholesale.

"WILSON'S Photographic Magazine," our American contemporary which in the States looks after the interests of professional photographers, is losing from its editorial chair Mr. W. I. Scandlin, who for some year or two past has been responsible for its production. Mr. Scandlin's place is being taken by Mr. Tom Tennant, a brother of John A. Tennant, of "The Photo-Miniature."

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## The British Journal of Photography.

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## SUMMARY.

An exhibition of colour-photography opens to the public to-day at the offices of the BRITISH JOURNAL OF PHOTOGRAPHY.

The pressure to which the silver salt is subjected in the film of emulsion is one factor in theories of the latent image which appears to be largely neglected by writers on the subject. (P. 42.)

Proposed alterations in the copyright law have been drafted by the Artistic Copyright Society. An examination of the Bill shows it to be so loosely worded that it must inevitably break down in practical legislation. (P. 44.)

Ultra-violet light as a means of obtaining increased resolving power in photo-micrography is attracting a good deal of interest amongst microscopists. (P. 45.)

Mr. R. J. Wallace has published some further tests of orthochromatic plates, charted from measurements of negatives exposed in accordance with the method printed in the B.J. for October 27 last. (P. 50.)

Relief effects in photographs by a combination of positives and negatives are among the patents of the week. (P. 52.)

A duplex method of cinematograph has been patented, one projection system being covered whilst another is in action. (P. 53.)

The third annual exhibition of the Scottish Salon is now being held in Dundee. A full notice of the professional work appears on p. 53.

A correspondent contributes an account of his methods of preparing lantern slides for the announcement of election results, as a postscript to his suggestion that the photographer should make a bid for business of this kind at a time when political agitation is robbing him of his ordinary custom. (P. 57.)

## EX CATHEDRA.

**An Exhibition of Colour Photography.** The collection of examples of colour photography representative of the present practice on glass and paper, to which we alluded last week, is to-day opened to the public at these offices at 24, Wellington Street, Strand, and will remain open until March 3. The exhibition, to which admission is free upon presentation of card, may be visited between the hours of 10.30 and 4.30—on Saturdays 10.30 to 12.30—and it is hoped that many ladies and gentlemen will be glad to take the opportunity of inspecting side by side the work of a number of well-known exponents of three-colour or other processes. A catalogue has been prepared in which brief technical particulars of the exhibits are printed, and while a copy will be presented to every visitor, intimation is hereby made that applications by post for a copy cannot be entertained.

## The Binocular Microscope and Stereoscopic Effect.

The question whether a true stereoscopic effect is obtained in the binocular microscope came up at a well-known photographic society a short time ago, and it appears that the discussion terminated, as such discussions generally do, without a decisive conclusion being arrived at. The real facts of the case appear to be as follows:—A binocular microscope may be so adjusted as to give a pseudoscopic, or a stereoscopic, effect; or so as to give what is practically a monocular effect. But, in the case of a binocular of the ordinary kind with only one objective, the stereoscopic effect produced is not that of a stereoscopic view of the object under the objective. It is simply a stereoscopic view of the three dimensional or "solid" real image formed by the objective, which image is invariably of a different form from that of the object. Take, for example, the case of a cubic object. The "solid" image formed by the objective is not a cube but a truncated pyramid, and the stereoscopic view obtained is one of the pyramidal image, not one of the cubic object. To obtain a true stereoscopic view of the actual object two objectives are necessary, as well as two eye-pieces, and the Greenough binocular appears to be the only instrument so fitted.

**Abbe's Papers on the Binocular Microscope.** Those who wish for further information on the subject (which is one of importance to all interested in stereoscopy) should refer to two papers by Professor

E. Abbe in the "Journal of the Royal Microscopical Society." One is entitled "The Conditions of Orthoscopic and Pseudoscopic Effect in the Binocular Microscope," and can be found in Vol. 1, 1881, p. 203; and the other is called "The Mode of Vision with Objectives of Wide Aperture," and is in the "Journal" for 1884, p. 20. In



the latter volume, at page 486, Dr. Carpenter opposes Abbe's statements, but there can be no doubt in the mind of anyone who studies the subject for himself as to the correctness of Abbe's views. Very unfortunately, Dr. Carpenter's erroneous theories with regard to the action of the binocular have survived, being put forward in considerable detail in the ninth edition of the "Encyclopædia Britannica," and it is quite possible that some of those who joined in the recent discussion have been misled by what may easily appear to be a most recent and authoritative explanation. Dr. Carpenter's paper in the "Journal of the R.M.S." is, however, one that should be carefully studied, for it contains some most valuable hypotheses with regard to what may be called the "Suggestion of Relief," which is a factor in the production of stereoscopic effect that is too often neglected.

#### The Latent Image.

In the recent discussion at the R.P.S. on Mr. J. C. Kingdon's paper on the Latent Image, (reported in our last issue) no mention was made of the characteristic curve of the plate, though it appears most probable that a study of this curve should afford evidence bearing on the subject of the discussion. For example, it is difficult to explain the concavity of the lower part of the curve, unless we assume that the silver salt has a certain power of self-recovery from a physical strain imposed upon it by the light. It is equally difficult to explain why the concave curve eventually becomes an approximately straight line unless we assume the gradual growth of a regularly progressive permanent effect not liable to self-recovery, which effect is, perhaps, more likely to be due to a chemical than to a simply physical change. As regards the upper part of the curve, the change from a straight line to a convex curve must be due simply to reversal (provided the film is of sufficient thickness to absorb and use up all the light that it receives), and while such reversal effects may in general be either of a physical or chemical nature, it seems natural to assume that they are most likely to be of the latter nature when conditions favourable to chemical change exist. In the case of the gelatine plate the presence of a bromide absorbent is undoubtedly such a condition.

#### Physico-Chemical Theories.

The true explanation of the latent image will probably recognise the existence of both physical and chemical changes, the former being perhaps solely effective in the lowest tones, while both occur in the intermediate tones. Chemical change alone may, perhaps, be responsible for the effects produced by extreme over-exposure. Dr. Eder's experiments, recorded in our issues of December 1 and 8, 1905, must distinctly suggest that different effects are produced in the low and high tones, even though the author himself seems to favour the idea of chemical change throughout. Those who favour the physical theory alone, and also those who pin their faith to a purely chemical theory, invariably seem to lose sight of the facts that chemical change must be preceded by a physical change, and that physical changes will speedily become chemical under favourable conditions. Those, also, who endeavour to either prove or disprove the existence of chemical change by the evidence afforded by partially analogous experiments seem apt to forget that the product found in the photographic film is formed under peculiar conditions that do not prevail in experiments on simple films or masses of silver bromide, one of these peculiar conditions being the enormous pressure to which the silver salt must be subjected in the dried gelatine film. It may be that the chemical product of the light action is one that cannot

exist excepting under these peculiar conditions, in which case it is hopeless to attempt to produce it otherwise.

#### The Celluloid Fatality.

In our issue of the 5th inst. we gave a report, as it appeared in the newspapers, of a fatality in Southwark arising from the ignition and explosion of celluloid. We then said that as an inquest would have to be held, and as there were eye-witnesses to the accident, we should learn how it really happened, whether from ignition or spontaneous combustion (a charge sometimes made against this material), and whether there was an actual explosion, as alleged. At the inquest, held one day last week, the evidence showed that, although the place was lighted by electric lights, the man who was killed was using a candle at the time. That, of course, dispels the idea of spontaneous combustion. It appears that the deceased was engaged in stacking sheets of celluloid in racks, and it was said there were 150 rolls of it in the basement of the premises where the mishap occurred, as well as 50lb. weight of celluloid umbrella rings. In his evidence, Colonel Fox, chief of the London Salvage Corps, said he had examined the premises, and considered it iniquitous that celluloid should have been stored in such a place, and it was criminal to take a light near it. This witness also said that celluloid was being used for many purposes, and he had lately noticed that it was employed for ladies' boot heels. What would happen if a lady wearing such heels were to put her feet in the fender or step upon a match he could not think. A large proportion of the mishaps with this material arise from those who employ it not knowing its dangerous character. Few ladies, we imagine, who wear imitation tortoiseshell combs in their hair are aware of the highly inflammable nature of the material of which they are made, or they would not purchase them. Some time ago we were in the warehouse of a firm of shipping agents when a large quantity of sheet celluloid was being packed for export. Gas was burning close to where the packing was being done, and neither the men who were handling it nor their employers had any idea of its dangerous character.

#### Use of the Royal Arms.

In last week's JOURNAL was published the list of photographers who are entitled to use the Royal Arms in their businesses. It is illegal for anyone whose name is not on the list to use the Royal Arms on their mounts, letter paper, show cases, or anything else. If anyone does so he renders himself liable to a fine of twenty pounds. We know that some persons are under the impression that if they have supplied photographs, or any article, to members of the Royal Family, or the King himself even, they are at liberty to put up the Royal Arms, and have them on their stationery, etc. This is entirely a mistake. To use them they must possess the Royal Warrant of Appointment, or they will render themselves liable to the above fine. Not only is it illegal to use the Royal Arms without the warrant to do so, but it is equally illegal to use any colourable imitation of them. While on this subject, we may mention that it is illegal to call a thing patent, or, in the case of trade marks or designs, registered, if no patent has been granted or registration effected. The fine for this is five pounds. Even if a provisional protection has been granted it is illegal to apply the term patent to it, and anyone who does so subjects himself to a five pounds fine.

#### The Evil of Low Prices.

A letter from a correspondent on another page states the case against the "free" or "invitation" sitting in terms which we can entirely endorse. The policy of allowing the public to think that

a photograph is a thing which can be made for nothing is one so far-reaching in its evil effects that no effort should be spared to resist its encroachments. We may be told that a free sitting is not a free sitting after all, and of course everybody knows that the customer has got to pay for his invitation some time or other. In which case we ask: Is it worth while to go this roundabout way of acquiring business at the risk of cheapening photography of all kinds in so doing? The bane of professional business at the present time is the notion of cheapness which the public has had drummed into it by the price-cutters and those who, under the guise of compliment, create the impression that it is worth while doing photography for nothing on the chance of possible orders. The public does not discriminate between good and bad or between special photographic work which is costly to do and that which can, in fact, be turned out at a low price. Thus it is that we get cases such as one before us, in which a well-to-do customer who had had some oil paintings copied cavils at a charge of 10s. per negative and print, and bases his idea of a fair price on the cut rate of three cabinets at a cheap studio, and on the fact that some photographers will take a portrait gratuitously. The free sitting has a good deal to answer for in the present depreciation of photographers' prices.

\* \* \*

**The Sale of a Formula.** A case which came before a county-court in the Midlands last week should be noted for its application in cases which are not uncommon in the photographic trade. A firm of enamellers purchased a formula from a chemist whom they were to pay £126. About one-fifth of this sum was disbursed at the time of purchase, and the chemist was now claiming the balance still owing to him. The defendant stated that he had embarked in the business on the advice of the plaintiff, who had estimated the works cost at £300. The cost, however, had proved to be nearly £3,000, and as the defendant had been unable to make anything of the formula, he had called in an enameller who employed his own prescriptions. He was bound by his agreement with the plaintiff not to show the formulæ to anyone, or obtain an opinion of them. The jury, however, found a verdict for the plaintiff, and the case may thus serve as an object lesson to persons who may have photographic formulæ offered to them to satisfy themselves (1) that the formulæ will do what is claimed for them, and (2) that they are actually information which is not public property. The first may be done by employing an expert to report on preparations made by the vendor under test conditions, and the second by insisting that the formulæ be submitted in confidence to someone well acquainted with the literature and practice of the process and above suspicion of making use of the trust reposed in him. These are conditions which we should recommend to those entering into negotiations with unknown parties. In several instances which have come under our notice the payments of experts' fees at a preliminary stage would have saved the purchaser much disappointment and monetary loss.

\* \* \*

**An International Exhibition of Photography.** As we intimated in a brief paragraph a week or two ago, an international exhibition of photography is to be held in Paris this summer in the Grand Palais of the Champs Elysées. An influential committee of patronage has been formed in France, including representatives of many of the important scientific and educational bodies, whilst the whole of the arrangements are under the direction of M. L. Gastine, the editor of our con-

temporary, "La Photographie Française." The scheme of the exhibition is a most ambitious one, and we can extend to M. Gastine in advance all our sympathy in the enormous task he has set himself. Meanwhile we may accede to M. Gastine's wish in making it known that it is the desire of the executive to preserve a strict impartiality in the organisation of the exhibition and to give to it a broad international character. It is pointed out that as Paris during the months of July and August, when the exhibition will be open, is the rendezvous of tourists from every part of the globe, the occasion is peculiarly favourable to showing all nationalities the latest advances in technical, artistic, scientific, and industrial photography.

\* \* \*

**A New Terror in London Streets.** Considerable alarm was occasioned on Friday night, last week, by an explosion which shattered some of the windows of Messrs. Swan and Edgar's establishment in Piccadilly Circus. It appears that some photographers were employed by the "Daily Mirror" to obtain a flash-light photograph of the Circus by night, and the powder exploded with a loud report which was heard even so far away as St. James's Park. In its issue of Thursday, following, which contains an illustration of the Circus, the "Daily Mirror" says that the reports in the newspapers were greatly exaggerated, and adds that the accident arose in this way:—"The damp, however, had affected the flash-light preparation of gun-cotton and magnesium, with the result that when it was ignited an exceptionally powerful explosion occurred." Although the reports in the newspapers may have been exaggerated, the fact remains that there was a very loud report, one or more windows were smashed, and a portion of the balustrade was dislodged and fell, though, fortunately, no one was injured. One thing is certain, and that is that considerable alarm was suddenly created—and to what good? Even without any very loud report the brilliant flash of magnesium on gun-cotton is sufficient to frighten spirited or nervous horses and may lead to very serious street accidents. Our contemporary claims that the photograph obtained is "undoubtedly the finest and clearest flash-light ever taken in the rain." Possibly it may be, but the reproduction of it, as it appears in the paper, does not say much for it: the greater portion of it shows as a negative instead of a positive. But apart from the merits of such pictures, should they be attempted, seeing the risk of street accidents they may entail? A startled horse may take fright and cause serious damage and, possibly, loss of life in a crowded thoroughfare. The L.C.C. have put a check upon flash-lights used for advertising purposes, and it may perhaps do something in the matter of flash-light photography in the streets, if a repetition of such serious incidents takes place.

\* \* \*

#### **Fireproof Screens for Arc Lights.**

One of the problems the photographer has to solve in the use of artificial light for portraiture is the danger of fire. Quite recently two cases have come under our notice which clearly indicate the risk. In the first instance, some silk near an arc portrait lamp became ignited by a piece of incandescent carbon, with the result that the lamp itself was considerably damaged. In the second case, a piece of glowing carbon fell upon a tracing linen diffuser, and lay there for nearly a minute before it could be removed. The tracing linen became scorched, and ultimately commenced to smoulder, but never burst into flame. In all probability a considerable quantity of gelatine is employed to render the linen translucent, and this is not an inflammable substance. Silk



and muslin near to a powerful lamp necessarily become in time "as dry as tinder," and will ignite from a spark almost. It is well to know that while second to nothing as a diffusing medium, ordinary tracing linen is perhaps the safest material that can be employed. There are a variety of asbestos cloths which may be used where the heat is great above or at the side of lamps, but these are not, of course, translucent. If fabrics are in proximity they may be soaked in a solution of alum or tungstate of soda and dried, when they become practically non-inflammable. The great practical utility of the electric arc lamp and its increasing use in portraiture render it well to avoid any prejudice which might be engendered were one or two serious accidents by fire to take place. The enclosed type of arc lamp is no doubt safer than the open arc, as it is almost impossible for a broken piece of carbon to fall out of the lamp.

\* \* \*

**The Word "Aerograph."** When Mr. Burdick lectured at the Society of Arts a few weeks ago one member of the audience asked for the etymology of the word applied to his ingenious instrument. It appeared that in America aerography is wireless telegraphy, a solecism against which Sir Henry Trueman Wood protested with some heat. Of course Signor Marconi's invention has nothing to do with the air, and is not drawing in any sense. We see that the "Globe," which is usually punctilious in matters of etymology, makes use of the word in the American sense, and nobody seems to have informed it that "aerograph" was certainly coined by Mr. Burdick at the time he invented his instrument for drawing with an air-blast some ten years ago.

#### PROPOSED ALTERATIONS IN THE COPYRIGHT LAW.

DURING the long period when the Committee of the Artistic Copyright Society were engaged in struggling with the perplexities of the law of copyright a report was issued by the Society appealing for patience on the ground of the magnitude of the task. We were told, of labours protracted into the hours of night, and other proofs of energy and perseverance. Considering the terrific nature of the effort, the result, the Bill which we print in full on pp. 47-49, bears singularly little evidence of careful consideration. In its intentions, the Bill, so far as photography is concerned, is an elaborate provision for making the conditions of copyright so difficult to comply with that, in the vast majority of cases, if the Bill were to become law, the natural owner of copyright in a photograph would inadvertently lose his rights. If the change were for the benefit of the community, or because photographers were unduly favoured, it could be borne philosophically, but it is not so. Scarcely an attempt has been made to disguise the object to be attained. That the illustrated press, and others commercially using photographs in a similar way, may obtain them without payment is the object. In fact, to enrich one class by legalising the plunder of another class.

It is perhaps fortunate that the Bill is as badly conceived and drafted as it is. The fact will at least cause it to receive careful reconsideration before any attempt to make it law, and during the reconsideration it will perhaps dawn upon some of those who have the matter to attend to, and who represent the painters' class, including black and white draughtsmen and the like, that in betraying the photographer they have unsuspectingly betrayed their own class; and any attempt to rectify the effect of this want of foresight must inevitably be in the nature of a more just recognition of the rights of photographers.

The Bill as it stands bristles with inconsistencies and ambiguities. The difficulty of drafting a Bill dealing with such a complex matter so that extraordinary occurrences may be provided for must, of course, be acknowledged and recognition accorded to the inevitableness of human fallibility overlooking minute details; but, allowing for reasonable lapses, the Bill should be able to bear the application of cases of every-day experience without breaking down or leading to ambiguities only to be cleared up by a judge's decision. Such a proviso as "Every assignment of copyright . . . other than . . . by testamentary disposition . . . shall be in writing" never ought to have been written at all, much less printed. In the two subsections which define the rights of the proprietor of copyright (Section 2, a and b) everything is included in (b) that is included in (a) that is of the slightest consequence, and (a) is merely unnecessary verbiage. Under Section 14 to forge the signature of a painter on a painting is forgery and punishable, as is the forgery of a signature on a document, but for similarly forging the signature of an engraver on an engraving from a picture or of a photographer on a photograph there is no remedy. It is not an offence under the Bill. The word "proprietor" is not used once in the Bill in such a way that a question could be raised as to its meaning, yet there is a clause professing to constitute a definition. It is a definition that does not define, and, as a matter of fact, literally, it allows under some circumstances for the contention that someone who has parted with the ownership of the copyright is the proprietor; but the clause is a particularly interesting one, apart from being an example of what to avoid in drafting a Bill, in supplementing evidence afforded elsewhere that the construction of the Bill was based on a misconception, and that the blunder originally made has never been discovered or rectified.

The Act of 1862 does not presuppose that the author must be the original proprietor of copyright in his work. It provides that he may be, but there is a qualification definitely stated under which he is not. In the case of his executing the work for a valuable consideration he does not retain the copyright. Copyright is not formally defined. In constructing the Bill under discussion the original proprietorship of the copyright in the author has been assumed. It is definitely stated in Section 1, although in Section 5 a condition is stated in which the author is not the original proprietor, and in Section 6 a provision is made under which he may not be the original proprietor. This discrepancy would be of little consequence if its only effect were to provide food for academical discussion, but it is a much more serious matter. The implication that authorship and copyright have necessarily some connection leads to some very curious results. The word "author," which has one meaning only, the creator of the work, in the Act of 1862, is used in the Bill in at least three senses:—In its ordinary sense, as the creator of the work; as the possessor of an abstract right, not alienated by parting with the copyright and transmittable to his successors; and as the owner of the copyright, whether he actually be the proprietor thereof or not. It is in the last connection that the most serious situations arise, and the extraordinary confusion that has been created in the attempt to depart from the simple method in the Act now in force of treating all classes of work alike will be equally exemplified in the same illustrations.

Section 22 provides that, before sale, copies of a work must be marked. In the case of the reproduction of an original work of fine art which has copyright under this Act with the author's name and the words "author's copyright."

Let us assume an ordinary case, and attempt to apply the provision. A publisher buys a painting of its author, with copyright. He contracts with an engraver for a plate with copyright, the assignments of copyright in each case being duly made. Each print from the plate has to be marked with the author's name and the words "author's copyright." Which author?—the author of the painting or the author of the engraving? And why "author's copyright," when neither author owns the copyright? And, further, what would happen if the publisher absolutely ignored the provision and sent his prints out unmarked altogether? Nothing! The case is unprovided for.

Let us take another case of the Bill breaking down. The same conditions as before, except that the publisher omitted

to obtain an assignment of copyright from the engraver. According to the letter of the Bill, if the publisher issued any impressions of that plate he would be liable to the engraver for infringement of his copyright. Section 6 is a two-edged sword which cuts on both sides. Sub-section (b) of Section 22 is quite as loosely worded as sub-section (a). It runs thus: In the case of the reproduction of any other work (each copy shall be marked).

We must leave a further consideration of the provisions of the Bill as they most closely affect photographers until another issue, but we have said enough to show that the Bill contains enough contradictions to give rise to endless discussions, and to stamp it at once as impossible of adoption in its present form.

## PHOTO-MICROGRAPHY WITH ULTRA-VIOLET RAYS.

AN interesting development in photo-micrography has been attracting considerable attention in the scientific world. The feature of the innovation is the substitution of the invisible ultra-violet rays in place of the ordinary white or blue light for "illuminating" the object. It has long been known that the resolving power of microscopic objectives is limited by the numerical aperture of the lens and the wave lengths of the rays used for illumination. The theoretical limit of resolution for an objective of 1.30 N.A., the object being observed by ordinary white light with wave lengths of  $.560 \mu$  is about 117.750 lines to the inch; with blue light, and consequently lesser wave lengths ( $.480 \mu$ ) a lens of the same numerical aperture might theoretically resolve a test plate of 135.850 lines per inch.

In order to utilise the increased power of resolution arising from the use of light of short wave lengths, a special apparatus designed by A. Köhler has been constructed at the Zeiss optical works which brings into action ultra-violet light with wave lengths of about  $.280 \mu$ .

As these rays are invisible to the eye the photographic plate is a *sine qua non* for this apparatus, and consequently it is constructed solely for photographic purposes. The first idea that presents itself in connection with this method of procedure concerns the all important question of focussing. As the rays are invisible, ordinary methods are useless. The difficulty is surmounted by the use of screens made of uranium glass which possesses the property of rendering the ultra-violet rays fluorescent. The object is first carefully focussed by means of a special piece of apparatus termed by the constructors an artificial eye, fitted with a screen of uranium glass, the image being viewed on the uranium screen, the artificial eye is then removed and the camera brought into position.

As the illumination from ultra-violet light could not be sufficient to give a distinct image on a uranium-glass camera-screen, all the focussing must be done with the artificial eye, which is so arranged that when the image is focussed by its aid an image is also focussed at a distance of 30 cms., this 30 cms. representing the camera extension used. When the artificial eye is swung on one side the image is focussed on the glass screen when the camera is brought into position, the dry plate afterwards being merely placed in the camera and the exposure made.

The ultra-violet rays are obtained by means of an induction coil with cadmium or magnesium electrodes, the latter being perhaps the most convenient metal. The electrodes should be separated by a short spark gap of about one third of an inch, as a short broad spark is necessary for the best results. It would be an interesting experiment to try the effect of a modern enclosed arc lamp for the source of illumination. The lamp is

largely used by process firms at the present time and is extremely rich in ultra-violet rays, the arc lamp would certainly be more convenient for use than an induction coil, but it is a doubtful question if it would yield sufficient ultra-violet light for the purpose.

The light from the magnesium electrodes passes through a quartz prism which throws the spectrum beneath the stage of the microscope, the ultra-violet band is received on a totally reflecting quartz prism by which it is deflected into the quartz substage condenser, and thence on the object to be photographed. A few preliminary trials are required with a screen of uranium glass before the ultra-violet light can be manipulated with the best effect on the lens field.

A vertical camera fixed on a pillar so that it can be easily swung out of the way when not in use is a material assistance in the manipulations. With this form of camera immediately the image is focussed on the eyepiece screen the camera can be swung into position and the plate exposed.

At the December meeting of the Royal Microscopical Society a number of photo-micrographs taken by the aid of ultra-violet rays were exhibited and afforded ample evidence of the value of the method. The photographs represented a variety of subjects, including the inevitable diatoms. The photograph that gave perhaps the best demonstration of the advantage to be gained by the use of ultra-violet light was a photograph of the shell of the diatom *Amphipleura Pellucida*. The photograph not only exhibited the lines on the shell (which in this diatom are equal to about 95,000 to the inch), but the lines were clearly resolved into rows of dots or points. The writer had seen some years ago a photograph of *A. Pellucida* taken by an ordinary objective and white light, in which the rows of dots were visible, but as they were only faintly discernible and merely a small portion of the shell which was in most accurate focus gave evidence of anything but continuous lines, the ultra-violet photograph was superior in every respect.

Ordinary microscopic objectives made of various kinds of glass are useless for ultra-violet work, and a special series of objectives and oculars composed entirely of quartz have been constructed. The objectives are of course all high powers of 6, 2.5, and 1.7 m.m. respectively. The two latter are immersion lenses. The 1.7 m.m. objective has a numerical aperture of 1.25, which is equal to about 2.5 when compared with a lens employed with white light illumination. For the immersion objectives cedar oil, which is practically the only medium now used for immersion objectives, is supplanted by glycerine and water for the quartz lenses.

A feature of the new method is the improvement manifested in the photographs of preparations in which the tissues have not been differentiated by staining. With white light many histological specimens will give little or no detail except the



sections have been suitably stained, but with the ultra-violet light the structure is often demonstrated in photographs obtained from unstained tissue.

### A DESCRIPTION OF THE

Supplementing what is said by our contributor, we may quote from the current number of the "Revue des Sciences Photographique," where an account is given of Dr. Koehler's instrument.

Fused quartz not showing double refraction, is therefore valuable for the construction of microscopic lenses, and, thanks to Dr. von Rohr, Zeiss has constructed an objective of N.A. 1.25 to 1.30. These objectives are corrected for spherical aberration, so as to satisfy the sine condition of "ny'sin u = n'y'sin u" for wave length  $275\text{ }\mu\mu$ ; they give this cadmium spectral line absolutely sharp. The light used being thus absolutely monochromatic, any correction for chromatic aberration is quite unnecessary. These objectives are called "monochromats." and Zeiss has constructed them as dry objectives with a N.A. of 0.35 and immersion objectives of N.A. 0.85, equivalent to 1.70 and 1.25, equivalent to 2.5. The immersion liquid is a mixture of pure glycerine and distilled water. The eye-pieces are either Huyghen's or Ramsden's, made of rock crystal, and the magnification is from 5 to 20 times, and they can be used for subjective examination or photography. The condenser, which has a N.A. of 1.30, is a glycerine immersion system, formed of four rock crystal lenses, the two upper lenses of which may be either alternately or totally replaced by an apianatic combination, which thus enables one to alter the focus and the N.A. of the condenser.

As the eye cannot see light on a short wave length, it is necessary to use some medium or special optical arrangement for subjective observation. The best thing for this purpose is a "finder" devised by Koehler, which may be compared to an artificial hypermetropic eye, of about three dioptries, sensitive to the ultra-violet. The refractive media of this are composed of two quartz lenses, and its retina is a screen of uranium glass, mounted in contact with a prism. The fluorescent image which is formed on this screen is examined by means of a powerful eye-piece, provided with a diaphragm, which is permanently connected with the finder. This finder, placed behind the eye-piece in a slightly inclined position, enables one to see the whole of the fluorescent image.

The slides on which the specimens are mounted should be made of thin quartz, and the cover glasses must of course be of the same material.

J. I. Figg.

### KOEHLER APPARATUS.

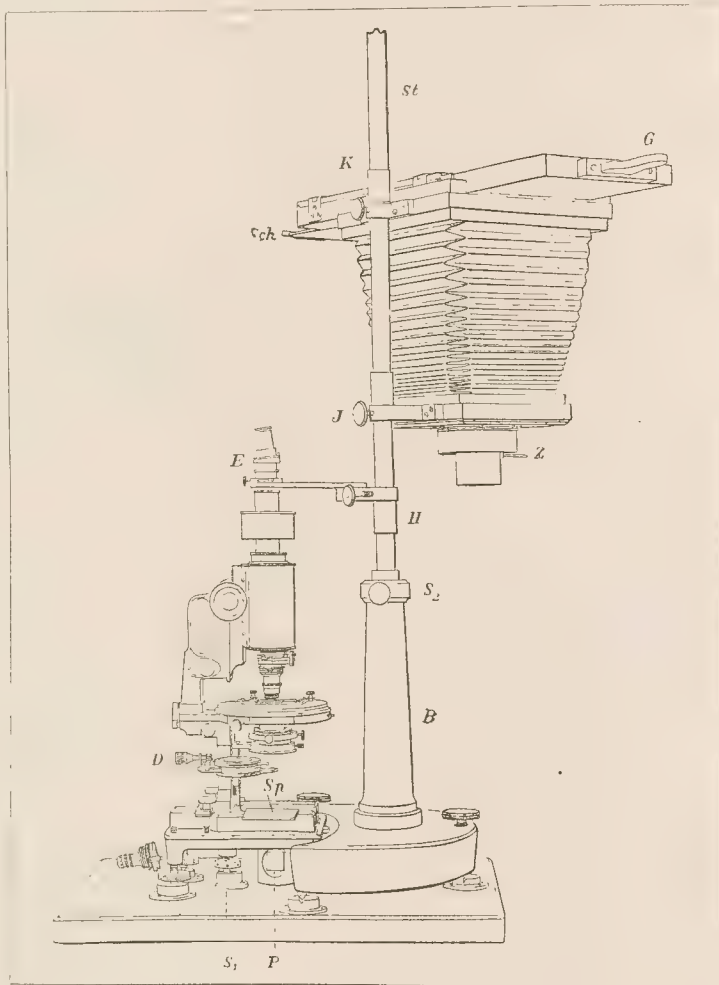
The advantage of the prism cemented to the uranium glass requires explanation. Under the influence of the ultra-violet rays most objects become fluorescent, and certain parts of them then emit light, and the result is that an image of these parts is produced according to the law of direct image formation and not according to that of secondary image formation of illuminated microscopic objects as

studied by Abbe. In the latter case the image of the object is duplicated, and this upsets the fluorescent image, and by the use of the prism the two images are differentiated, and one intercepted by the diaphragm of the eye-piece. On the other hand for certain work it is advisable to utilise the whole of the fluorescence.

The study of the minute structure of objects by the aid of the microscope is obviously best effected by the aid of the photographic plate. The finder is then merely useful to find the focal plane, which is then replaced by the dark slide, and this plane is then about 30cm. tube length. The amplification given by the monochromats and the quartz eye-pieces varies from 200 to 3,600, according to the tube length and camera extension of 24 to 34cm.

The light used must be absolutely monochromatic, and that which answers to this condition is produced by the spark between two cadmium wires, of 2mm. diameter, actuated by a Leyden jar of 0.002 microfarads, charged by an induction coil of 12cm. spark. A special spectroscope

devised by Koehler is used to isolate the particular wave length used, namely,  $275\text{ }\mu\mu$  (No. 17, of Moscart). This spectroscope consists of a collimator which parallelises the rays, two quartz prisms and a quartz telescope, which gives at its focal plane an image ten times the size of the spark. A total reflection prism of rock crystal placed below the microscope transmits to the Abbe condenser the image of the spark formed by the collimator. The adjustable diaphragm plate of the condenser is provided with a screen of uranium glass, which is used to define the focal plane of the image of the spark projected by the condenser.



Koehler's Apparatus, showing the camera turned back for ocular inspection.

The new method of investigation by means of the ultra-violet rays of  $\lambda 275$  certainly presents many advantages; in the first place the resolving power is doubled. The opacity of certain parts of the tissues to the ultra-violet rays produces practically an optical differentiative similar to that produced by stains. Examinations by

$\lambda 275$  enables us either to affirm the results obtained by our usual visual methods of examination, or to check them or to find out new facts. Ultra-violet light renders fluorescent certain parts of the tissues, which then emitting a light of their own, thus makes it possible to use achromats or apochromats of lower N.A.—that is to say, of dry systems.

## A PROPOSED COPYRIGHT BILL.

We now give the full text of the Bill which has been drafted by the Artistic Copyright Society. The salient points of the Bill were printed in our issue of December 22 last, but for a proper consideration of the very complicated and involved wording of the provisions it is necessary for the complete text of the Bill to be before the reader. Our comments on certain important proposals in the Bill will be found on another page.

DRAFT—Subject to Revision.

### A BILL INTITLED AN ACT TO CONSOLIDATE AND AMEND THE LAW RELATING TO COPYRIGHT IN ARTISTIC WORKS.

Be it enacted by the King's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

#### PART I.

##### NATURE AND DURATION OF RIGHT.

1. The author, being a British subject, of any work of fine art, photograph or cast from nature, made after the passing of this Act in any country whatsoever, and the author, whether a British subject or not, of any work of fine art, photograph or cast from nature, made after the passing of this Act in any part of the British Dominions shall have throughout the British Dominions copyright as defined in this Act.

2. The copyright in any work the subject of this Act shall consist in the exclusive right of the author or other proprietor for time being to do or permit to be done, or cause to be done, any of the following acts, viz.:—

- (a) To make for sale, distribution, exhibition or hire any copy of such work as defined by this Act;
- (b) To sell, distribute, exhibit or let for hire, or offer, or keep for sale, distribution, exhibition or hire of any such copy;
- (c) To import into or export from any part of the British Dominions any such copy.
- (d) And all copies made or dealt with in infringement of the said exclusive right shall be unlawful copies within the meaning of this Act.

3. The copyright conferred by this Act shall endure for the following terms:—

- (a) In the case of an original work of fine art, for the life of the author and until the expiration of thirty years after the end of the year in which he died.
- (b) In the case of a work of fine art, made by one person from any work of fine art designed by another, of a cast from nature, and of a photograph, for a term commencing on the completion of such work, cast, or photograph, and continuing until the expiration of thirty years after the end of the year in which the same shall have been completed.

4. Every assignment of copyright under this Act, other than an assignment by operation or devolution of law or testamentary disposition, and every license respecting the same, shall be in writing signed by the assignor or licensor.

5. (1.) In case any work, the subject of copyright under this Act, shall be a portrait made on the request of any person, for pecuniary consideration, the copyright in such portrait shall, on payment of the consideration and in the absence of agreement in writing to the contrary, belong to such person. But this shall not extend to a work of sculpture intended for a place or building of a public nature.

(2.) For the purposes of this section any work shall be considered a portrait whose principal object is the likeness in any form of art of any specified person.

6. Except as in this Act provided, the right of first publication,

and the copyright in any work the subject of this Act shall remain in the author, whether such work be sold or disposed of by such author or not, unless the right to publish the work or the copyright therein be expressly assigned or disposed of in writing by him; or pass by operation, or devolution of law, or testamentary disposition.

7. In the case of an artist sending a sketch or drawing to an editor for publication, the act of sending this sketch or drawing, and its acceptance and payment therefor is to be taken as conveying the copyright from the artist to the proprietor of the publication.

8. (1.) If any work the subject of copyright under this Act forms part of any scene, the copying of such work, merely as forming part of such scene, shall not be deemed to be any infringement of the copyright in such work, unless the special purpose for which the scene is represented is the copying of such work.

(2.) Notwithstanding anything in this Act contained, sketches, studies, models and casts, used in executing any original work of fine art may, in the absence of agreement in writing to the contrary, be used or dealt with by the author of such work, without infringing the copyright in such work, provided that he does not thereby repeat or imitate the main design or any essential feature of the work

#### PART II.

##### INFRINGEMENTS AND REMEDIES.

9. If any person shall infringe the copyright in any work the subject of this Act, by doing, or causing to be done, any act the exclusive right to do or permit which is by this Act reserved to the proprietor of the copyright in such work, without the consent in writing of such proprietor, such person shall be liable to:—

- (a) An injunction to restrain such infringement.
- (b) Damages, or at the option of the party suing, an account of profits.
- (c) Penalties of an amount to be fixed by the jury hearing the case, or if there is no jury, by the judge, not exceeding ten pounds for each offence. Provided always that in the case of an infringement appearing in a newspaper, book or similar publication, or in an advertisement thereof, a penalty of a lump sum may be substituted.
- (d) An order for delivery up on oath for forfeiture or destruction of all unlawful copies.

10. (1.) Any person having in his possession or control any unlawful copies of any work the subject of this Act, shall, upon demand in writing served upon him by the proprietor of the copyright, or any other party aggrieved, make to such proprietor, or other party, within forty-eight hours after service of the demand, full discovery of the name and address of the person from whom he obtained the unlawful copies, the number thereof, and the date when they were obtained, and of all invoices, accounts, and other documents relating thereto; and in default of such discovery may be summoned before a Court of Summary Jurisdiction, and ordered under a penalty of ten pounds to give such discovery within a reasonable time to be appointed by the Court.

(2.) Any failure to give such discovery shall be deemed *prima facie* evidence, in any proceeding for penalties or otherwise under this Act, that the person so failing had reasonable ground to suspect that the copies so dealt with by him, were unlawful copies within the meaning of this Act.

11. Any Court of Summary Jurisdiction, on the application of the proprietor of the copyright in any work the subject of this Act, on being satisfied that there is reasonable ground to suspect that unlawful copies of any such work are to be found in any house, premises, or other place within its jurisdiction, shall grant a warrant to any constable to search for such suspected unlawful copies in such house,



premises, or other place, between sunrise and sunset, and to seize and bring before the Court any such suspected unlawful copies, and the Court on proof that such copies are unlawful copies within the meaning of this Act, shall order them to be destroyed or delivered up as forfeited to the proprietor of the copyright.

12. (1.) If any person in any street or highway or elsewhere than at a house or shop, shall hawk, carry about, sell, or offer for sale any copy suspected to be an unlawful copy of any work, the subject of this Act, every such suspected unlawful copy shall be summarily seized by any constable, without warrant, on the request in writing of the apparent owner of the copyright in such work and at his risk.

(2.) On seizure of any such copies, they shall be conveyed by the constable seizing them before a Court of Summary Jurisdiction, and the Court on proof that such copies are unlawful copies within the meaning of this Act, shall order them to be destroyed or delivered up as forfeited to the proprietor of the copyright.

(3.) An order for destruction under this and the preceding section may, if the Court think fit, be made *ex parte*, and, pending the making of an order, the copies seized shall be detained by the Court.

13. All unlawful copies of any work, the subject of copyright under this Act, imported into any part of the British Dominions, shall be detained and confiscated by the officers of His Majesty's Customs on receipt by them of a notice in writing, duly verified, from the apparent owner of the copyright in such work, declaring his title to and the period of duration of the copyright, together with a description, photograph, sketch, or copy of such work.

14. (1.) If any person fraudulently signs or otherwise affixes or causes to be signed or affixed upon any work of fine art, any name, initials, monogram, or distinctive mark so as to give reasonable ground for belief, contrary to the actual fact, that such work is an original work of fine art, executed by an author either then alive, or who died within thirty years preceding the acts complained of, such person shall be guilty of forgery and punishable as for the forgery of a signature on a document.

(2.) If any person commits any of the following offences:—

- (a) Fraudulently sells, distributes, exhibits, lets for hire, or offers or keeps for sale, distribution, exhibition, or hire, any work of fine art so falsely signed or marked as aforesaid or permits, or causes to be done any of the said acts.
- (b) Fraudulently sells, distributes, exhibits, lets for hire, or offers or keeps for sale, distribution, exhibition, or hire, any work or the copy of any work the subject of this Act, representing, contrary to the fact, that such work or copy was executed by, or from the work of, an author then alive, or who died within thirty years preceding the acts complained of, or causes to be done any of the said acts,

he shall be guilty of an indictable misdemeanour punishable by imprisonment for a term not exceeding two years, and he shall (without prejudice to any other remedy) be liable to a penalty not exceeding one hundred pounds, to be paid to the person aggrieved.

(3.) The provisions of Sections 10, 11, and 12 of this Act shall apply to such false or fraudulent works or copies in the same way as if they had been unlawful copies within the meaning of the Act.

15. (1.) When the author of any original work of fine art, the subject of copyright under this Act, shall have sold or otherwise parted with the possession of such work, no material alteration shall afterwards be made in such work by addition or otherwise except with the consent in writing of the author, unless the author's signature or mark be removed from the work.

(2.) Neither shall it be lawful during the continuance of the copyright (except with the consent in writing of the author) to sell, exhibit, let for hire, or offer for sale, exhibition, or hire any altered original work of fine art or copy thereof or altered copy of an original work of fine art as or for the unaltered work or copy thereof or copy of the unaltered work of such author.

(3.) Any person who shall knowingly commit or cause to be committed any infringement of the above provisions shall be liable to the like penalty as is by the last section provided for the issue of a false or fraudulent work or copy, such penalty to be payable to the author of the original work, without prejudice to any other remedies of such author, or any other person aggrieved.

16. (1.) In any action for infringement the person sued must deliver

with his defence or at any subsequent time which the Court may appoint, particulars of any objections on which he relies in support thereof; and, if one of the grounds of objection is want of originality or of title in the person suing, he must state the name and address of the person whom he alleges to be the true author of the work or proprietor of the copyright, and the title and date of any alleged previous work or publication.

(2.) On the trial of the action, in the absence of such objections, the title of the person suing shall be taken as admitted, and no evidence shall (except by special leave of Court) be admitted in proof of any alleged objection of which particulars have not been so delivered; but any particulars delivered may be from time to time amended on such conditions as to costs and otherwise as the Court shall think fit.

17. No person shall be excused from answering any question upon examination as a witness, or from making any discovery either in answer to interrogatories or of documents, on the ground that such answer or discovery may render him liable to the penalties imposed by this Act. Provided always that no answers or discovery which any person shall be compelled by this Act to make, shall be admissible in evidence against him in support of any criminal proceedings.

18. (1.) All penalties and fines which shall be incurred under this Act may be recovered, and all unlawful copies and other things which may be liable to forfeiture or destruction under this Act may be dealt with either by action against the party offending, or by proceedings before a Court of Summary Jurisdiction in that part of the British Dominions where the offender is found, or the act complained of has been committed, or where the unlawful copies or other things are.

(2.) All remedies conferred by this Act shall be cumulative, but the Court or jury shall have a discretion as to awarding penalties, in addition to damages, in any case where the defendant shall prove due compliance with any demand for discovery served on him as provided by Section 10 of this Act.

(3.) The costs of all proceedings under this Act in which an infringement shall be proved, shall, unless the Court shall otherwise direct, be taxed as between solicitor and client so as to give the person aggrieved a full indemnity for all his expenses.

(4.) All false, fraudulent or unlawful works, or copies to which any of the Sections 13, 14, or 15 apply, shall be liable to destruction, or may be ordered to be delivered up on oath as forfeited to the person aggrieved.

(5.) Where any works or copies become liable to seizure, forfeiture, destruction or confiscation under this Act, such liability shall extend to and include all plates, blocks, negatives, moulds, or other similar things from which any of such works or copies were or may be produced.

### PART III.

#### REGISTRATION AND MARKING.

(19.) (1.) There shall be kept at the Hall of the Stationers' Company by the officer appointed by the said Company for the purposes of the Copyright Act, 1842, a book entitled "The Register of Owners of Copyright in original works of Fine Art" wherein may be registered the proprietorship of the Copyright in any original work of Fine Art the subject of this Act, including such works first made in the United States of America by a citizen thereof, and any assignments thereof, and any assignment so entered shall be effectual in law without being subject to any stamp or duty, and shall be of the same force and effect as it had been made by deed.

(2.) Application for registration and the entries in the register made thereon shall be in the forms and contain the particulars set out in the First Schedule hereto, with such modifications as the Stationers' Company may from time to time prescribe.

(3.) There shall not be entered in any such register any notice of any trust, express, implied or constructive.

(4.) The said officer shall make and keep full indexes of all entries made under this Act, arranged alphabetically so as to show (a) the title or description of the work, (b) the name of the author, and (c) the name of the proprietor, with references to the place in the register where the full particulars of registration may be found.

(5.) The said officer shall have power, upon written application being made to him by any registered proprietor, and on his being

satisfied of the existence of any inaccuracy in the registration (without prejudice to any pending proceedings), to make any correction in the name, address or description of the author or publisher, or of such proprietor, or in any other matter as stated in the original application for registration.

20. The registration of a person as proprietor of the copyright in any original work of Fine Art shall be *prima facie* evidence of his ownership of the copyright.

21. Save as herein provided the several enactments contained in Sections 11, 12, 13 and 14 of the Copyright Act, 1842, shall apply to registration under this Act in the same manner as if such enactments were here repeated at length so far as the same are applicable, except that the fee for making any entry or giving any certificate shall be the sum of one shilling only.

22. (1.) Before delivery on sale, or for hire or exhibition of any copies of a work the subject of copyright under this Act, the persons publishing such copies shall cause every such copy to be marked as follows:—

(a) In the case of a reproduction of an original work of fine art which has copyright under this Act with the author's name and the words "Author's copyright,"

(b) In the case of a reproduction of any other work with the name of the proprietor of the copyright and the year of completion of the work, together with a notification that the said work is copyright. And if he fails to do so, no action shall be sustainable nor any penalty be recoverable by the proprietor in respect of any copies of such work made in good faith by other persons, unless such proprietor shows that he took proper steps to secure the marking of all copies issued by him.

(2.) Any person who shall falsely mark or cause to be falsely marked any copy of a work requiring to be marked under the previous sub-section shall be guilty of an indictable misdemeanour, and shall in addition be liable at the suit of any party aggrieved to a penalty not exceeding ten pounds for every such offence.

#### PART IV.

##### SUPPLEMENTARY PROVISIONS AND DEFINITIONS.

23. (1.) The copyright existing in any work of fine art, photograph, or cast from nature by virtue of any enactment in force immediately before the commencement of this Act, shall endure for the term limited by such enactment, or for the term fixed by this Act with respect to such works first made after the commencement of this Act, whichever is the longer.

(2.) The provisions as to registration or marking of copies of such existing works, and the remedies for infringement of copyright therein, and otherwise shall be the same as for works completed after the commencement of this Act.

(3.) The registration of any original work of Fine Art first made in the United States of America by a citizen thereof, if effected within twelve months after the first recording of the copyright in the said United States, shall confer the same rights on the proprietor as if the said work had been first made in the United Kingdom.

(4.) Nothing in this section shall diminish or prejudice any rights or interests subsisting at the commencement of this Act.

24. The Acts specified in the second Schedule to this Act are hereby repealed, provided that the copyright in any existing work registered in pursuance of any enactment hereby repealed shall be deemed to be registered in pursuance of this Act.

25. Subject to the modifications contained in Section 6 hereof nothing in this Act shall affect the right of any person at common law to prevent the publication of an unpublished work, and until publication the person entitled to the right of first publication shall have all the remedies for infringement given to proprietors of copyright by this Act.

26. A licensee shall have all the remedies for infringement possessed by a proprietor of copyright under this Act in so far as his interest shall extend but no further or otherwise.

27. Nothing in this Act shall confer copyright in any profane, libellous or indecent work.

28. An agent duly authorised in writing may do for an author or proprietor of copyright, any act required or authorised by this Act

to be done by him, and every act so done shall be as effectual for all purposes of this Act as if done personally by such author or proprietor.

29. In and for the purpose of this Act, unless the context otherwise requires,

(1.) "Work of fine art" shall mean and include every painting or drawing, sculpture, and engraving, as hereinafter defined, and any other like work of fine art, and shall include any design of an artistic nature applicable or applied to any article of manufacture whether so applicable or applied in respect of the pattern, or the shape or configuration, or the ornament thereof.

(2.) "Painting or drawing" means any painting or drawing in any medium or material, executed by hand and not by printing or any mechanical or chemical process.

(3.) "Sculpture" means any statue, sculpture, model, or cast (other than a cast from nature), carved or made in any material either in the round, in relief, or in intaglio by any process.

(4.) "Engraving" means any work executed by hand and not by photography, or any mechanical means, upon any material whence prints or impressions of such work may be taken or multiplied, immediately or mediately by any process, and includes any prints or proofs so taken.

(5.) "Original work of fine art" shall mean a work of fine art made by a person from or according to his own original design.

(6.) "Photograph" shall mean and include every work produced by any photographic process upon any material whence prints or copies of such work may be taken or multiplied definitely or indefinitely, and shall include any such work though developed or finished by hand, or by any mechanical means.

(7.) "Cast from nature" shall mean and include all moulds of natural objects or parts of such objects and all casts made from such moulds.

(8.) "Proprietor" shall mean and include the author of the work and his representatives, and any person acquiring from him or them the copyright in the work, and any person in whom the property in such copyright shall subsist, or on whom the same shall devolve, shall be considered the proprietor thereof.

(9.) "Author" shall in relation to a photograph mean the person who shall himself (not being an employe or assistant) have taken the original photographic negative or positive and prints or copies therefrom, or in the case of a person who employs another person to do the work and who gives pecuniary consideration for work done, such employer shall be considered the author of the work.

(10.) "Copy" shall, subject to the provisions of this Act, mean any representation or reproduction of a work, or any part thereof, or the design thereof, in the same or in any other form, and in any material and in any size; and shall include:—

(a) A reproduction of a work by using or applying it either in the pattern, or in the shape or configuration, or in the ornamentation of any article of manufacture.

(b) A reproduction of any other work of fine art or photograph by a sculpture, or of a sculpture by any other work of fine art or photograph; and

(c) A representation of any work by a living picture, or by any other means whereby the design of the work is reproduced.

30. All actions and other proceedings for any penalties under this Act shall be commenced within 12 calendar months after the discovery of the offence or shall be of no effect.

31. (1.) This Act may be cited as "The Artistic Copyright Act, 1906."

(2.) The expression "The Copyright Acts," wherever it occurs in the International Copyright Act, 1886, or any Order in Council to be construed as part thereof, shall be deemed to include this Act.

32. This Act shall come into operation on the First of January, One thousand nine hundred and seven.

The necessary Schedules to follow.

"TABLOID" Demonstrations.—Messrs. Burroughs, Wellcome, and Co., have fitted up a studio and demonstration room at their chief offices, Snow Hill Buildings, Holborn Viaduct, E.C., and are now prepared to give the attention of their staff to personal inquiries from those experiencing any difficulties in the use of "Tabloid" chemicals.



## A SECOND NOTE ON "ORTHOCHROMATIC" PLATES.

[The following note, which is sent to us by the author from the Yerkes Observatory, as a reprint from the "Astro-Physical Journal," continues the charting of tests obtained by the method described in the previous paper by Mr. Wallace, which appeared in our issue of October 27 last.—Eds., B. J. P.]

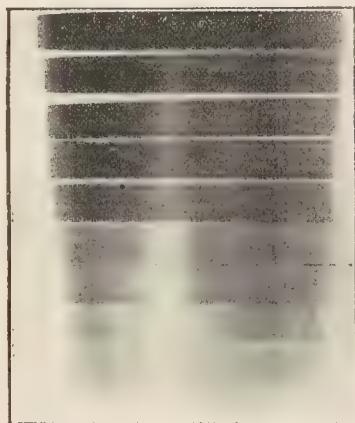


FIG. 1.

The "sensitiveness-curves" in Fig. 2 accompanying the present paper were plotted from negatives obtained under precisely similar conditions to those described in my "preliminary note" (B. J., October 27, 1905).

Light-Units  
300

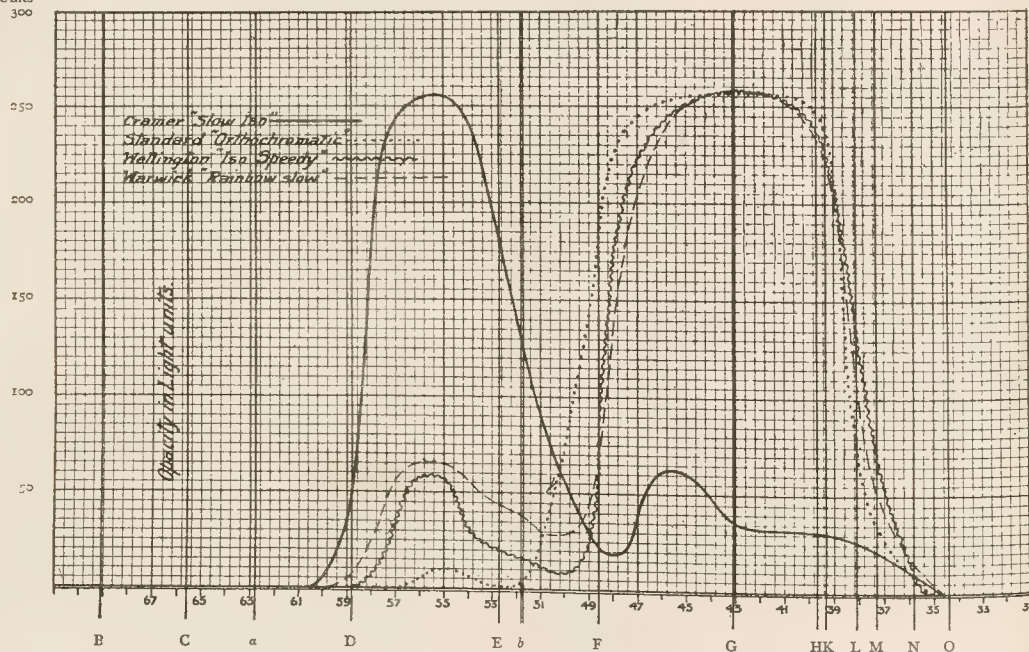


FIG. 2.—Sensitiveness-Curves in Light-Units.

In considering the series recording the selective sensitiveness of the Cramer "Slow Isochromatic" plate, an interesting condition was observed, which, in brief, amounts to a reversal of curve according to whether "under" or "normal" exposure be considered.

In the record of this plate (Fig. 1), it will be noted that beginning with the 5 seconds exposure, up to and including that of 30 seconds, the maximum sensitiveness lies decidedly in the violet about  $\lambda$  3900-4100. With the 1 minute exposure, however, the yellow-green sensitiveness is slightly in excess of the former, and gains in density

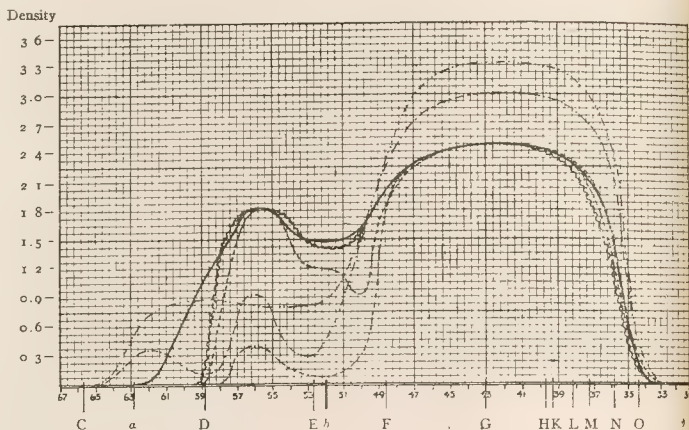


FIG. 3.—Density-Curves Corresponding to Plates Plotted in Fig. 2

very rapidly with increasing exposure, until at 8 minutes it is far ahead, and has then reached the point of greatest allowable opacity. In the meantime, the blue-violet has but slightly increased.

The dye incorporated in the emulsion during the preparation of

the plate stains it with a heavy greenish-orange hue, which shows a definite absorption band in the yellow-green from  $\lambda$  5400-5800; while in the violet the absorption is very strongly marked, shading off gradually in the blue. The sensitiveness-curve, for normal ex-

posure is therefore resultant from a combination of emulsion and "light-filter."

The light which falls upon the surface of the film ("under-exposure") affects first the blue-violet—the region of maximum sensitiveness; but, as it penetrates (by lengthened exposure) farther into the film, the violet and blue light is more and more absorbed, while the yellow and green is transmitted with but slight loss.

It will be noticed that these curves, Fig. 2 (B. J., October 27, 1905), and Fig. 2 (herewith), have been plotted with "opacity in light-units." This differs from the method of Hurter and Driffield, who measure opacity, but plot density. The investigations of these workers have proven that in a theoretically perfect negative the quantities of silver reduced at different points are proportional to the logarithm of the light producing them; the deposit of silver (density) representing the amount of chemical work accomplished by the light. By plotting these spectrum negatives as "opacity in light-units" the curves serve as an indication of the relative exposure for pure colour. At the same time they should also be plotted as densities, for, the transparency of the light being reduced by the density, such a curve is the measure of the printing value (Figs. 3 and 4).

As a check upon the opacity estimation of these curves, it was thought advisable to adopt some method of "proving" them. A density-curve was therefore selected (Cramer "Instantaneous Isochromatic") which had been plotted from the opacity-curve already published, and which should be, theoretically, exactly the inverse of the original.

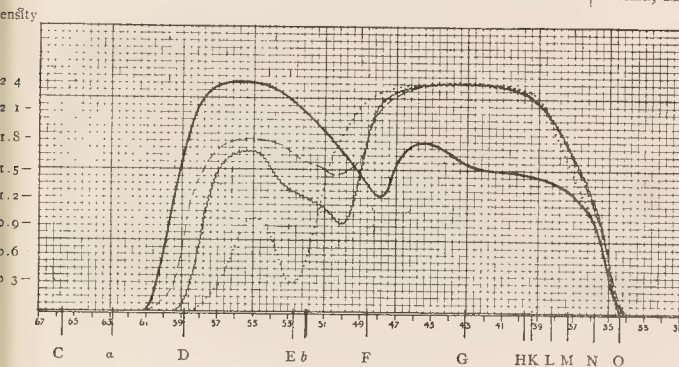


FIG. 4.—Density-Curves Corresponding to Plates Plotted in Fig. 2.

This was mounted upon a sheet of opaque paper and its area carefully cut out, then placed in a camera, and an image projected of a size comparable with the original negative. This last adjustment was readily effected by making pinholes through the paper mask at the positions of the Fraunhofer lines (abscissae) and focusing the bright images to size. By means of a plate swinging vertically the image of the curve was caused to impress itself with varying density, the pinholes being distinctly shown as slightly darker lines crossing the negative of the artificial spectrum thus obtained.

This negative was found to be closely comparable with the original spectrum negative, when due allowance was made for the effect of the Fraunhofer lines in the latter. Comparison prints are shown in Fig. 5, in which one-half of the height of the artificial spectrum has had the lines drawn in by hand, while the remaining half is untouched.

The result of the speed tests for the plates represented in this second note is (while still taking the Cramer "Instantaneous Isochromatic" as 1.0), as follows:—Standard "orthochromatic" = 0.75; Cramer "slow isochromatic" = 9.00; Warwick "Rainbow" (slow) = 2.00; Wellington "Iso speedy" = 1.17. Thus it would appear that the "slow isochromatic" has a speed of one-ninth that of the "instantaneous isochromatic."

ROBERT JAMES WALLACE.

MR. WOLFGANG ARNDT, the teacher of retouching notifies us that he has removed to 8, Carlton Vale, Maida Vale, N.W.

## THE SCOTTISH PHOTOGRAPHIC FEDERATION.

### ANNUAL MEETING.

Last Saturday the annual general meeting of the Scottish Photographic Federation was held in Dundee. Over thirty delegates and a goodly number of associates were present, presided over by Mr. G. D. Macdougald, F.I.C., President. The Secretary (Mr. John B. MacLachlan) presented the annual report which we print below.

The financial statement of the Treasurer (Mr. Arch. Campbell) showed a balance of £33 7s. 6d., compared with £29 3s. 3½d. in 1904. Both reports were unanimously approved.

It was agreed that in future the Council appoint the Board of Selection for the annual salon. Mr. R. Milne, Secretary of the Paisley Philosophical Institute (Photographic Section), submitted an invitation from that body to hold the 1907 Salon at Paisley. The invitation was unanimously accepted, and the inviters heartily thanked.

The reward of hard work on behalf of the Federation was acknowledged when the Portfolio Secretary (Mr. S. Stewart, F.I.C., Kirkcaldy Ph.S.), and the 1906 Salon Secretary (Mr. Vanessa C. Baird, Dundee and East of Scotland Ph.A.), were elected Vice-Presidents. The Secretary (Mr. John B. MacLachlan), treasurer (Mr. Arch. Campbell), and auditors (Messrs. J. A. Murdoch and R. C. Thomson), were unanimously re-elected. Thirteen delegates were nominated for the Council (nine vacancies), and the ballot revealed the following as elected:—Messrs. H. Coates, Perthshire Society of Natural Science (Ph. Section); R. Milne, Paisley Philosophical Institute (Ph. Section); Dan Dunlop, Motherwell Young Men's Institute C.C.; A. Richmond, M.D., Paisley; J. W. Ross, Brechin, Ph.A.; J. S. Bryce, Pais-

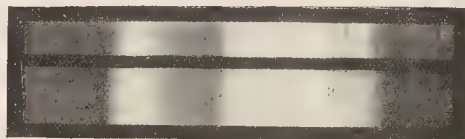


FIG. 5.

ley; D. Horn, Glasgow Southern Ph. A.; A. Symon, Wishaw Ph.A.; E. Darwin Wilmot, Edinburgh University C.C. The rules provide for the addition of not more than three associates, and Mr. James Patrick, Edinburgh, was unanimously appointed the first for that office. Heartly thanks were accorded Mr. Macdougald as chairman, and also for his labours on behalf of the Federation as President. At the Council meeting, Mr. A. W. Mill, President of the Shotts C.C., was unanimously appointed Portfolio Secretary.

The report (abridged) of the secretary, Mr. John B. MacLachlan, is as follows:—

I am happy to be able to report that the Federation still continues to progress; 1904 closed with a membership of 32 societies; in 1905 we have to record 38 societies combined in the Federation for the betterment of photography in Scotland. I might also mention, though it does not come within the scope of this report, other additions for this year, thus paving the way for a further increase. When we look back at the sixteen societies that combined to form the Federation three years ago next week (January 17), we have reason to be proud of the manner in which the Scottish societies have taken up the aims enunciated then, and not only the aims, but also the manner in which the members of the Council, through good report and ill, steadily set themselves to carry out the high ideals placed before them.

The Blue Book has now become a valued feature of the Federation; this year it was enlarged, and the increasing number of advertisements show that its value in this respect is becoming realised by those outside the Federation. It is the duty of all



associates to aid in making it yet more complete and helpful. It might be mentioned that it was found necessary to increase this year's issue to 2,500.

The portfolio, splendidly managed by Mr. Stewart, has already become a feature in the life of the federated societies. The "Macdougald Plaque" (gifted by our esteemed President), awarded for the best print in the portfolio, has been awarded to Mr. A. W. Hill, president of the Shotts Camera Club, who has gifted the winning print to the donor of the plaque.

The Salon at Glasgow was acclaimed by press and public as an artistic triumph, but, unfortunately, in spite of the labours of a devoted committee, allied to the enthusiastic covenor, and the indefatigable industry of their secretary, the financial result was not equally favourable, and we had to mourn a deficit. This, however, only tended to show how real was the interest in the Federation of its many friends—the guarantors made good the deficiency, and the funds of the Federation remained intact. The 1905 Salon does not come within the scope of this report, or I might say much, but no, the blushes of the Salon committee are spared.

All that has been said will show you that the Federation is prospering, and that it is alive to its original aim—the betterment of photography in Scotland. It behoves every associate to do his—or her—utmost to help forward the good cause by every means possible.

#### THE PHOTOGRAPHIC CONVENTION.

##### A WINTER RE-UNION.

The social evening announced some time ago to take place as a winter function of the Photographic Convention of the United Kingdom, was held on Friday last at the Galleries of the Royal Society of British Artists, in Suffolk Street, Pall Mall. In the absence of the President, Professor John Joly, F.R.S., a reception of the guests was held by the president-elect, Mr. E. J. Humphrey. Upwards of a hundred ladies and gentlemen were present, and some fifty cordial letters were received regretting that political and other engagements prevented attendance, and wishing the meeting every success. Among those present were Mr. and Mrs. Alfred Ellis, Miss Effie Ellis, Master Douglas Ellis, Mr. and Mrs. A. Corbett, Mr. A. Seaman and Miss Seaman, Mr. W. E. Dunmore, Mr. J. W. P. Rawlins, Mr. and Mrs. E. J. Humphrey, Mr. A. Holsley Hinton, Mr. A. W. Green, Mr. and Mrs. R. R. Beard, Mr. Hans Müller, Mr. H. Snowden Ward, Mr. E. J. Wall, Mr. F. J. Mortimer, Mr. and Mrs. Hedley M. Smith and Miss Alice Smith, Mr. and Mrs. Charles Winter, Mrs. and Miss Beaumont, and Miss Evelyn Beaumont, Mr. and Mrs. J. Seilor, Mr. George E. Brown, Mr. C. Phipps Lucas, Mr. and Mrs. Walter F. Potter, Mr. Frank Potter and Miss Olive Potter, Mr. and Mrs. Wilfred Emery, M. L. Gastine (Paris), Mr. Martin Jacolette, Mr. H. C. Pharoah, Mr. and Mrs. Robert Meynell, Mr. and Mrs. Robert Dixon and the Misses Dixon, Mr. and Mrs. W. H. White, Mr. A. W. Brooks, Mr. and Mrs. T. K. Grant, Herr E. J. Janssen, Mr. T. A. Scotton, Mr. and Mrs. Ralph Robinson, and the Misses Margot and Janet Robinson, Mr. G. W. Watson and Miss Watson, the Misses Muriel and Olive Gaze, Mr. Alec Simpson, Mr. James Hernaman, Mr. and Mrs. F. A. Bridge, Mr. and Mrs. J. W. Marchant, and the Misses Marchant, Mr. and Mrs. Sydney Keith, Mr. William Grove, Middles. Louise and Marie Ferraris, Mr. J. L. Wade, Mr. and Mrs. J. L. Wade, junr., Mr. W. Wade, Mr. P. R. Salmon, Mr. W. Stiles, Mr. Alexander Mackie, Mr. W. S. Killman, Mr. and Mrs. Battams, Mr. and Mrs. Fraser Black, M. Paul Berton, Mrs. McLean, Miss Gobell, Miss Hilda Harding, Miss Frenie Harding, Miss Margot Severn, Mr. J. A. Bovett, Dr. Harrison Orton, Mr. Dance, Mr. Ernest Marler, Mr. E. J. Walker.

The evening was interspersed with an attractive musical programme, arranged by the secretary of the Convention, Mr. F. A. Bridge.

At ten o'clock, a "little dance" was held, Mr. Alfred Ellis and Mr. Walter Potter acting as M.C.s. The whole proceedings, which throughout were of a most enjoyable character, were brought to a close by the singing of the National Anthem, and cheers for Mr. Walter Potter, from whom the suggestion of the evening had emanated.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."*

The following applications for patents were made between January 1 and 6:—

**PRINTING APPARATUS.**—No. 43. Improvements in photographic printing apparatus. Joseph Halden, 17, St. Ann's Square, Manchester.

**COLOUR PHOTOGRAPHY.**—No. 54. A process for the manufacture of a photographic printing paper with which several-coloured photographs can be produced from a single negative. Frank Athron, 11, Clifton Road, South Norwood, London.

**NOVEL EFFECTS.**—No. 91. Improvements in the art of photography and the production of novel and striking effects by photographic means. Hiram Codd, Joseph Deeks, 1, Queen Victoria Street, London.

**MACHINE COPYING.**—No. 235. Improvements in electrically operated photographic copying apparatus. Otto Lienekampf, 31, Bedford Street, Strand, London.

**CAMERAS.**—No. 405. Improvements in photographic cameras. The Thornton-Pickard Manufacturing Co., Ltd. George Arthur Pickard and Frank Slinger, 6, Bank Street, Manchester.

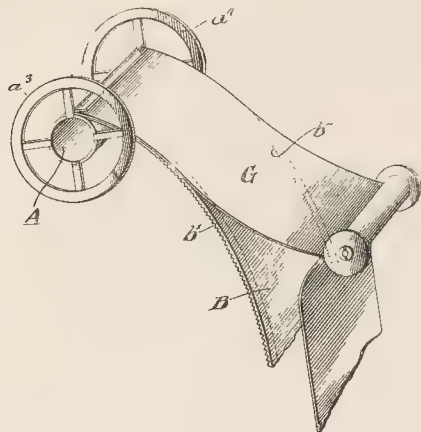
#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

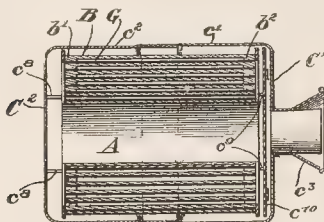
**RELIEF PHOTOGRAPHS.**—No. 5,559, 1905. The invention consists in the taking of a positive from the negative of the subject, the positive and negative being then superposed and a third photograph being taken of the pair thus superposed whilst their picture surfaces are displaced. This third copy is then transferred to stone or plate for printing in apparent relief. In the production of the third plate from the superposed negative and positive, the shifting of the negative and positive takes place, during exposure, by any micrometer screw arrangement. The copied picture on the third plate is not, however, employed as in the known processes for producing independent relief pictures with raised or sunken outline, but is used for the production of a printing block. This block is used for printing, and a picture is obtained therefrom which gives an appearance of light and shade effects as if in actual relief. To obtain delicate blended effects of light and shade upon the third plate, the first and second plates are laid one upon the other, so that the picture outlines are first coincidental, and the displacing of the one plate against the other is only effected during the exposure. The high appearance of the reliefs and the breadth of the shades also depends upon the degree of displacement of one plate with relation to the other. In similar manner, quite different reliefs can be produced having very fine light shades or strong coarse shades for instance, according as during the exposure the plates are shifted little or much. The most diverse appearances of relief or intaglio for prints can be obtained, according as the plates are brought with the film or plain glass surfaces together. As the time of exposure is as a rule fixed, so would the degree of displacement and naturally also the quickness of displacement be influenced. The transferring of the third pictures to a printing plate, stone or the like is effected as in the known processes of zincography and lithography. Pio Baruffi, 13, Via Gomberti, Bologna, Italy.

**DAYLIGHT DEVELOPMENT OF FILMS.**—No. 28,594. The invention consists of a long strip or band, which is provided with corrugations along each edge, and is wound on a cylinder to which it is attached. When wound, caps enclose the coil at each end, forming a light-tight case enclosing the film. The figures show a modified form of the instrument in which the coilable strip B need not be of any greater length than the photographic film G. Its projections  $b^1$ ,  $b^2$ , are shown as arranged on that side which will be the inner side when the strip is coiled, and the photographic film is laid against the outer side with the sensitized side outermost. The cylinder A may be provided with flanges  $a^3$ ,  $a^4$ , and

these will be advantageous as guides in rolling up the coillable strip and photographic film, in either form of the invention. The reel comprising the cylinder A may be kept in proper position lengthwise of the receptacle in which it is used by means of

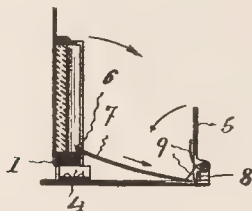


posts,  $c^8$ , attached to the cap  $C^2$ , and by posts  $c^9$ , attached to a light shield,  $c^{10}$ , which is fastened on the cap  $C^1$  by means of spurs or fingers extending from its periphery. In each form of the invention the cylinder on which the coillable strip and photographic film are wound, and all appurtenances of that cylinder,



are provided with a case. They form a reel and are closed to light without any provision for being operated from outside the case. H. H. Lake, for Charles Harris Shaw, 637, Putnam Avenue, Brooklyn, New York, U.S.A.

**DIRECT-VISION FINDER.**—No. 22,259. The claim is in regard to a finder of the direct-vision form in which the picture is viewed in a frame provided with cross-wires, a sight being used in the form of the usual upright bar behind the cross-wires. The invention consists in the automatic folding down of the sight when the frame is turned down after use. In the figure, 1 is the frame for the sighting cross which is fixed in its open and



closed position by a spring 4, and 5 is the sight. On the part 1 of the frame a pin 7 revolvable in lugs 6 is mounted the free end of which pin extends to the foot 8 of the sight. Now as soon as the frame is folded up the pin 7 is displaced to the extent of the arc of a circle described by its pivot and encounters the foot 8 of the sight, whereby this is caused to be folded down against the action of a spring 9 and then comes under the folded down sighting cross. Gustav Geiger, 16, Maximilian Platz, Munich, Germany.

**DUPLEX CINEMATOGRAPHY.**—No. 29,051. The claims are for a system of, and apparatus for, cinematographic projection, to which are employed a duplex projecting system and a pair of projecting lenses, the images from which are thrown upon coincident positions on the screen. There is an arrangement of shutters or their equivalents, so constructed that when the picture projected from one lens is fully exposed, the next picture in succession projected from the other lens is fully obscured, and when only a portion of one picture is exposed, the corresponding portion of the other picture is obscured and the remainder exposed; or alternatively there may be provided an arrangement of shutters or their equivalents so constructed that when the picture projected from one lens is fully exposed, the next picture in succession, projected from the other lens, is fully obscured, and while one picture is being gradually obscured, the next picture in succession is being gradually and in exactly the same ratio exposed, so that the totals of the portions of the pictures thrown or projected on the screen by the lenses amount to but never exceed one complete picture, and throughout the whole operation there will be a continuity of picture projected and there will be no decrease or obscuration of light whatever, and at all times during actual exposure the film containing the exposed picture or the films or parts thereof containing the exposed picture or the films or parts thereof containing the partially exposed pictures, will remain absolutely stationary and steady. The inventor does not confine himself to a duplex projecting system, as a triplex or multiplex system may under certain circumstances be found desirable. Robert Thorn Haines, Swanston Street, Melbourne, Victoria, Australia.

The following patent is open to inspection before acceptance under the Patents Act, 1901: Process and apparatus for the production of photographs. Dischner.

## Exhibitions.

### THE SCOTTISH SALON.

THE third annual exhibition of the Scottish Salon opened at the Victoria Art Galleries, Dundee, on January 13 last, and will remain open until February 3. The present Salon is noticeable for the strong representation made by the profession. It has frequently been said that the amateur is usurping the exhibitions, and that the professional is being quietly shelved. As the prominence given to the work of the professionals struck us, as well as the high quality of that work, it might well be treated of here, as that is a side of the Salon that in all probability will escape attention.

The work of the professional is hedged round by many conventions and many difficulties, unknown to the free amateur, who can work as he is inclined and follow where fancy leads—he has no crotchety clients to please, nor prints to have ready within a specified time. The photography of the man in the profession, guided and hemmed in as it is, is, therefore, mainly run on academic lines—he does not try the *outré* effects his more independent brother may; hence we may find much to please, but, as a rule, nothing to startle.

But first a word as to the Salon itself. The hall is specially built for art exhibitions, all lit from the roof, and on the walls (coloured dark terra-cotta) the committee have placed panels of jute in a natural brown tint, bordered by a wide strip of undressed and unstained wood. The effect is at first somewhat startling, but it gains on one; the broad border effectively separates the desert of wall space above from the picture screens, and, at the same time, from its "natural" blending with the natural colour of the fabric background, injures none of the pictures.

The large and influential attendance at the opening by Sheriff Campbell-Smith, LL.D., testified to the interest taken in the art. The Salon, offering, as it does, no prizes, has a special appeal to the man who has his living to make by his art, as all pictures hung are, as far as anything to the contrary is indicated, of equal merit, and one professional does not have the chagrin of receiving a bronze plaque, while his more humble brother down the street, with a less fashionable clientèle, is awarded a silver one.

The giants are there, the smaller man is also there; all combine to form a splendid show. J. Craig Annan, Glasgow, has three pic-



tures hung, including one new to exhibitions, a portrait of the actress "Ailsa Craig," a lesson in the treatment of drapery, the graceful flowing lines of the dress all leading upward to the artistic intellectual face. William Crooke, of Edinburgh, is represented by five examples of his powerful and characteristic portraiture. That of Miss Leslie St. John is a full-length figure of a lady in walking costume, which exhibits a very clever subordination of the surroundings to the features, though the reproduction in the catalogue gives a poor idea of the actual picture.

James Auld, Edinburgh, shows good satisfactory work. W. D. Brown, Lanark, departs from the beaten track a little, and shows an interior of a stable—hard a little, but wonderful, when the difficulties are considered. George L. A. Blair, Paisley, is mainly represented by landscape—he is the anomaly of a professional who is an enthusiast in gum-bichromate—his "Stormswept" is a specially strong bit of work. J. Bruce Cameron (Kirkintilloch) goes outside to the common things of life for subjects, his "The Water-cart" being honoured by reproduction in the catalogue. In Dan Dunlop (Motherwell), a professional secures the honour of having the largest number of pictures hung, his fifteen pictures out of the 302 giving him 5 per cent. of the whole exhibition—a truly marvellous percentage. His subjects range from portraiture, architecture, to flowers, and we were particularly struck with the delicacy of some of his flower studies. His seems to be a real case of a man's profession being his hobby, for on the walls we saw a picture which has gained awards, and was taken when on his honeymoon! Wm. Mitchell (Selkirk) is represented by one picture; John Moffat (Edinburgh) has two pictures; one of them, "The Dance," is probably the most popular picture in the hall. It is an object lesson on the satisfactory and artistic grouping of children. P. D. Nairn (Stirling) has three pictures, one especially attractive of sand-dunes. Andrew Paterson (Inverness) has five pictures hung, one being an example of dramatic portraiture. James Patrick, who, by the way, was honoured at the annual meeting by being elected the first associate member of council, includes in his contribution a really artistic portrait of an artist. John Patrick (Edinburgh) exhibits his powerful portrait of Carlyle, a picture that drew from the learned sheriff who opened the Salon high commendation. He had known and conversed with Carlyle, and he preferred Patrick's portrait to the celebrated painting by Whistler as giving a truer representation of the man. J. M. Silver and John Steele (of Brechin) are both represented by honest work. The name of Peter G. Terras (Markinch) in the catalogue calls to mind the delightful genre pictures associated with Terras (of Markinch), and we have an echo of these in "Tiddlewinks." J. M. Whitehead (of Alva) is one of our most distinguished workers, and one whose pictures always strengthen any exhibition. His work, while strongly artistic, never lacks technical perfection, such a perfection as is always associated with the heroes of olden days. "Until the day break and the shadows flee away" (reproduced in the catalogue) is a telling example of a sentiment completely and yet simply expressed; while the peaceful calm of "On the clear, winding Devon" is fittingly portrayed. E. Drummond Young (Edinburgh) only sends one example, but it is an excellent example of portraiture.

Nowhere in Scotland can such a comprehensive collection of the photographic work of the country be seen as at the Salon, and we would strongly advise all who have any interest in the improvement of their work—and the man who has not should quit it or die—to visit Dundee and study the work of the masters.

Fain would we treat of the many exhibits by amateurs, but space will not permit here.

The "foreigner" in this year's Salon is Mr. Fredk. H. Evans, whose versatility is represented by twenty-three photographs selected from his portraiture, figure studies, landscape, and architecture. The latter is in a liberal majority, though, much as we admire Mr. Evans's architectural photography, we would have wished for more of the landscape and seascape, of which, we think, he exhibits too little.

The Federation deserves every credit for organising and carrying through this artistic treat. The "Henry Coates Challenge Shield" was won by the Grangemouth Photographic Association, second place being taken by last year's winners, Paisley Philosophical Institute (Photographic section), and Aberdeen Photographic Art Club taking third place, while one of its members (James Clerihew)

entered the best individual slide in the whole competition. The associates' competition for the best set of three slides was won by Robert Marshall, the energetic secretary of Grangemouth Association, Robt. M. Steel, convener of the lantern section of the Paisley, coming second. The judges were Messrs. Ezra Clough, Bradford; Alex. Keighley, Keighley, and Godfrey, Bingley, Leeds; the arrangements being kindly carried out by Mr. Clough. The "Macdougald Plaque" (gold), presented by Mr. Macdougald, president, for the best print in the portfolio was gained by Mr. A. W. Hill, president of the Shotts Camera Club, with his print "The Bo'sun."

At the luncheon which followed Mr. Macdougald presided, the croupiers being Messrs. J. W. Eadie and D. Horn, vice-presidents. Mr. Eadie proposed the toast of "The Scottish Photographic Federation," and expressed the hope that the expansion of its membership would continue, and its usefulness increase. The secretary, in reply, pointed out that the year had opened well, three societies having already intimated federation. "The Salon Committee" was honoured on the call of Mr. Horn, who spoke of the immense amount of work entailed on the committee, and complimented them on the completeness of their arrangements. The Chairman, in reply, spoke of the unanimity with which they had worked together.

## New Books.

"The Modern Way in Picture-making." (London: Kodak, Limited, 4s.)

Strictly modern in its outlook on photography, this handsomely produced volume should stimulate as well as instruct the amateur photographer. It treats frankly of the Kodak system of film and plate photography, and devotes a number of pages to the manipulation of printing papers issued with the hall-mark of the Eastman Companies. Nevertheless, there are large sections which can be read with profit by any photographer to whatever goods he may pin his faith. Portraiture by flashlight is treated by Mr. W. S. Ritch, who accompanies his precept with a whole series of good examples of his work. Mr. Alfred Stieglitz writes on platinum printing and on simplicity in composition; Mr. Rudolf Eickemeyer jun., speaks of and illustrates his work in the photography of winter scenes; whilst a writer unknown to us (A. Radclyffe Dugmore) deals in like manner with natural history photography by means of a Kodak. We have also M. Demachy on "gum," and Mr. J. H. Sinclair on carbon—in all a goodly company of the authorities. There are other unsigned articles on enlarging, developing, and printing, and though the arrangement of the volume is somewhat unsystematic, the contents form a big budget of practical information which we can quite recommend to the amateur who wants not only advice on how to proceed but some example before him of what is a desirable result.

A GERMAN list of trade names has been issued from the office of our contemporary, "Die Photographische Industrie," as a guide to the sources of supply of articles marketed under fancy names. The list is arranged in alphabetical order of the names, and to each entry are appended the name of the supplying firm and an indication of the character of the article, thus: "Velocam. Ernemann, Dresden. Camera." We notice one or two entries of quite obsolete goods, and, curiously enough, the compilers have omitted the word Kodak, though they include other trade names of the Eastman Companies. The list may, however, be of occasional service to British members of the trade in locating the commercial source of manufactured articles.

## CATALOGUES AND TRADE NOTICES

THE annual stock-taking list of the Tella Camera Co., of 110, Shaftesbury Avenue, London, W., which has just reached us on publication, runs to thirty-six pages, and includes a great variety of apparatus brought together through the active operations of the Company in its special line, that of exchanging cameras, and other apparatus.

THE City Sale and Exchange, 81, Aldersgate Street, E.C., send us an extensive list of secondhand and shop-soiled goods, chiefly hand,

field and studio cameras and lenses, which are listed at low prices, and can also be obtained at on instalment terms.

AN annual clearance sale of cinematograph films is now being held by the Charles Urban Trading Company, 48, Rupert Street, W., by whom has been issued a long list of subjects, which are offered at prices of 2½d. and 3d. per foot. Of the new films of the Urban Company two notable ones are, "What is whiskey?" showing every phase of the manufacture from the barley field to the West End, and "The Sherborne Pageant," recently arranged by Louis N. Parker.

## News and Notes.

It is announced that the photographic business of Miss Kate Pragnall has been taken over by Miss Alice M. Stewart at the same address, Court Studio, 39, Brompton Square.

**PHOTOGRAPHIC Trade in South Africa.**—The "British South African Export Gazette," in commenting upon the exhibition now being held at Cape Town, names the figure of £70,000 as the value of photographic materials imported annually into South Africa.

**ELECTION Business.**—Events have proved the greatly increased use which has been made of photography in the present General Election. To quote the "Chronicle":—"No candidate's address is complete without his portrait, which is, naturally enough, made to look as attractive as possible. If the candidate is blessed with a beautiful wife he should have no hesitation in adding her picture as well, and some even go the length of throwing in the portrait of a son or daughter if young and pretty enough. The man who is asking for your suffrages generally employs a photographer nowadays to 'take' him when he is addressing the electors, and if the result gives a favourable impression of his eloquence he sends it to the illustrated papers."

Mr. S. B. HORD, who for some years past has been editing the "Photographic Times," and also the "American Annual of Photography," while also employed with the Folmer and Schwing Manufacturing Company, has just accepted a position as assistant to Mr. L. B. Jones, Advertising Manager of the Eastman Kodak Company in America.

**COLOURS for Picture Postcards.**—A correspondent of the "Pharmaceutical Journal" writes:—"Being personally acquainted with one of the largest producers of picture postcards in the South of England I can give every particular necessary for tinting monochrome or mezzotint cards; these, of course, must not be confounded with those produced by the "oleo" process. In the first place a camel hair pencil is only used for spotting, practically all the colouring being done with an "air brush," which is nothing more than a fine spray. The colours used by them are three in number, the simple primaries: "yellow," an aqueous solution of gamboge; "blue," an aqueous solution of indigo with oxalic or other acid; and "red," a solution of dragons' blood in methylated spirit—this is always used first. Aniline dyes are never employed, being too fugitive for exposure in a shop window.

**The Aerograph New Premises.**—Those interested in the modern developments of the method of colouring and decoration which are familiar to almost all photographers in the "Aerograph," should pay a visit to the new premises in which the Aerograph Company has established itself at 43, Holborn Viaduct, London, E.C. We had an opportunity last week of seeing in operation the latest machine process of colouring by the method which Mr. Burdick has recently brought to perfection and which his firm is now offering in competition with lithography and other crafts. For moderate editions the "Aerograph" system can compete very advantageously with litho or typographic three-colour in the production of coloured postcards, window bills and tickets, etc., and those interested will find it worth their while to examine the work in these and other departments which is now being produced.

SOME water colours of "Animal and Pastoral Subjects" by Mr. J. C. Dollman (who is down to lecture on "The Artistic in Painting and Photography" at the Society of Arts shortly) are to be seen at the galleries of the Fine Art Society. They have (says the

"Globe") a distinct charm as dainty transcriptions of nature treated with much acuteness of observation and with a very delicate feeling for subtleties of aerial colour. They are not wanting in variety; and though they attempt no aggressive departure from the older water colour tradition they have a pleasant individuality. The best of them are the subtle landscapes "Spring Sunshine" and "A Hazy Afternoon," the strong and breezy sketch, "Summer," and the twilight scene, "On the Road." There is also much dramatic power in the small figure subject, "Enoch Arden."

AMBER bottles for chemicals was the moral of a paper before the Sheffield Pharmaceutical and Chemical Society last week by Mr. F. A. Upsher Smith, who pointed out the beneficial effects of excluding the actinic rays of light from many bodies which are not commonly accused of notable sensitiveness to light. A list of these substances was given, and among other reasons for the adoption of the amber bottle for the storage of chemicals was the one that the amber glass is free from lead and therefore that certain solutions, such as those of ammonium acetate and citrate, are better preserved in such receptacles.

## Commercial & Legal Intelligence.

**LEGAL Photography.**—A case illustrating the advantage of the camera came before the Rye County Magistrates last week, when a cattle dealer was summoned for using a gun without a licence. A pigeon and starling shoot was held at Playden, and the defendant was one of the marksmen. From the evidence of the Inland Revenue officer, it appeared defendant had not a licence, and he denied being present at the meeting. The officer, however, or rather some person working in conjunction with him, had taken a "snapshot" of the party and this proved conclusively that the defendant was present. The result was that defendant subsequently admitted being present, and was mulcted in a fine of £1, and ordered to pay the costs.

**A POSTCARD Order.**—James William Humphreys, photographer, took his trial at the Wilts Quarter Sessions last week, for obtaining various sums of money from various persons, including Mr. Hibberd, of Heytesbury, by false pretences. In about sixteen weeks, prisoner received orders for 50,000 picture postcards, and took £113 2s. 9d. To appease the pressure of tradesmen, to get their orders executed, he sent small quantities of the cards, but they were so bad that they were promptly returned. He admitted that he had neither the apparatus nor the means of executing the orders. His "studio" was a small cottage at Blandford, with a small tin dark room behind. For the defence it was stated that orders were not given on the strength of the prisoner's statement, but in the first place, on the strength of a reference from a Salisbury firm, and secondly because people who were known to the plaintiffs had given the man orders. The jury returned a verdict of "not guilty" and acquitted the prisoner.

**A PALTRY Case of L.C.C. Interference.**—Mr. Paul Taylor had before him last week a summons by the London County Council against Hermann Ernst, a photographer, of 14, Finchley Road, for retaining a photographic show-case on the forecourt of his premises without having obtained the approval of the Council. It seemed that the Council discovered the existence of the show-case in June, 1903, and granted the defendant permission to retain it on condition that he removed it at the end of two years. He agreed, but when the two years expired he merely removed it to another position on the forecourt and placed it upon wheels. The Council asked that it should be removed. Mr. Paul Taylor, after examining a photograph of the premises, said the show-case seemed to him to be a distinct ornament to the place, and it relieved the monotony of the dull, ugly frontage. What, he asked, did the Council object to? Mr. Dimes replied that the London County Council took the view that structures of that kind were detrimental to the neighbourhood, and there was no knowing where they would cease if the Council did not exercise their control. Mr. Taylor: He is a photographer, and is not allowed to have a show-case on his own forecourt. Is it really suggested that that is a matter which ought to be prevented in a great city like London? It almost takes my breath away to hear such a thing. The summons was eventually adjourned sine die.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Jan.	Name of Society.	Subject.
19.....	Aberdeen Amat. Photo. Assn.	Lantern Exhibition. Mr. Bearsley.
19.....	Sutton Photographic Club .....	"Eclipse Photography." Mr. C. Thwaites.
19.....	Watford Photographic Society	"Orthochromatic Photography." Mr. E. Robins.
22.....	Scarborough and Dis. Ph. Soc.	Members' Night. "Intensification and Reduction of Negatives."
22.....	Acton and Chiswick Photo. Club	"Toning Bromides." Mr. J. H. Avery.
22.....	Dewsbury Photo. Society .....	Yorkshire Photographic Union Members' Portfolio.
22.....	Cripplegate Photo. Society .....	"Nine Thousand Miles in Five Weeks." Mr. R. Child Bayley.
22.....	South London Photo. Society ..	"Photographic Papers and Toning." Mr. H. B. Edmunds.
22.....	Bowes Park and Dis. Ph. Soc.....	"Lantern Slide Making." Mr. F. P. Bayne.
22.....	Southampton Camera Club .....	Photographic News Prize Slides.
22.....	Hastings and St. Leonards P.S.	"Something New." Demonstrated.
22.....	Wallasey Amat. Photo. Soc.	Members' Question Night.
22.....	Wildnes Photographic Society.....	Amateur Photographer Prize Slides.
22.....	Heaton & Dis. Camera Club.....	"Photographic Survey Work." Mr. G. D. Rose.
23.....	Royal Photographic Soc. ....	"Artificial Light in Portraiture." Demonstrated. Messrs. Houghtons, Ltd., and the Boardman Electrical Patents Co., Ltd.
23.....	Nelson Photographic Society ..	Colne Camera Club Visit Nelson Photographic Society.
23.....	Sheffield Photographic Society	"The Beginner in the Dark Room." Mr. J. W. Charlesworth.
23.....	Newcastle-on-Tyne Photo. Assn	Members' Enlarging Night.
23.....	L.C.C. Staff Camera Club .....	"Sulphide Toning of Bromide Papers."
23.....	Gloucestershire Photo. Society	Members' Lecturette.
23.....	Manchester Amat. Photo. Soc.	"Marine Photography." Mr. F. J. Mortimer.
23.....	Colne Camera Club .....	Visit to Nelson Photographic Society.
23.....	Birmingham Photo. Society. ...	"Lantern Slides." Demonstrated. Mr. S. L. Coulthurst.
23.....	Sunderland Camera Club .....	"Rambles with a Gamekeeper." (With Some Photographic Reminiscences.) Mr. Percy Mail.
23.....	Darlington Camera Club .....	"How to Make Enlarged Negatives." Dr. Martin.
23.....	Otley & Dis. Cam. & Art Soc.	"Velox and its New Applications." Mr. W. Sadler.
23.....	St. Helens Camera Club .....	Annual Meeting.
24.....	North Middlesex Photo. Soc. ...	"Photography with a Hand Camera." Mr. W. Thomas.
24.....	Coventry Photo. Club .....	"Tinting Development." Mr. M. W. Danks.
24.....	Edmonton and Dis. Photo. Soc.	"Flower Photography." Mr. A. J. Linford.
24.....	Halifax Camera Club .....	"Birdnesting with a Camera." Mr. Riley Fortune.
24.....	Leeds Camera Club .....	"Places and People in Westmorland." Illustrated. Mr. Percy Lund.
24.....	Everton Camera Club .....	"Photographic Lens Making." Messrs. Taylor, Taylor and Hobson.
24.....	G.E.R. Mechanics' Institution.....	Lantern Evening. Mr. A. Woolford.
24.....	Acton Photographic Society .....	"Pinhole Photography." Mr. H. G. Green.
24.....	Cricklewood Photo. Society .....	"Bromide Toning." Mr. J. H. Avery.
24.....	Liverpool Amateur Ph. Assn.....	"Yorkshire Minsters Ripon, York and Beverley." Mr. C. B. Howdill.
25.....	Hull Photographic Society .....	"Holidays—Photographically." Mr. W. H. Willatt.
25.....	Harrogate Camera Club .....	"Photo-Ceramics." Demonstrated. Mr. J. Skilbeck.
25.....	Darwen Photographic Assn.....	"The Toning of Bromide Prints." Mr. W. Duxbury.
25.....	Leek and District Photo. Soc.....	Trimming and Mounting Competition.
25.....	Tring Camera Club .....	Last Day for Delivery of Prints for Annual Exhibition.
25.....	Rodley, Farsley, & Calverley Dis.	"An Old Printing Process." Mr. F. W. Machen.
25.....	Woolwich Photographic Soc. ....	Open Night.
25.....	London and Prov. Photo. Assn	"Sketching with a Camera." Mr. W. R. Stretton.
25.....	Richmond Camera Club .....	"English and Continental Collotype Compared." Mr. F. R. Witthaus.
25.....	Bolt Court Sch. of Photo. Eng.	Exhibition in Town Hall.
25.....	outh Essex Camera Club .....	

**SUTTON PHOTOGRAPHIC CLUB.**—Mr. Hector Maclean, F.R.P.S., in his capacity as chairman of the Sutton Photographic Club, gave, at the Public Hall, Sutton, on January 12, a lecture on "Photography as a Pastime" as introduction to a course of free instruction lectures upon elementary photography which has been arranged by the club. Much merriment was caused by two owls which were successively shown—the first, of long proportions, wearing an expression of philosophic doubt, was dubbed "Balfour," while the second, of portly outline, with eyes wide open and beak eager for

the fray, seemed the very prototype of a birdland Campbell-Bannerman. In an interval Mr. A. P. Hoole was successful in showing on the screen, by means of a chemical tank, the development and fixing of a dry plate, the action of Farmer's reducer, and the changing of a brown uranium-toned slide into a blue one.

**ABERDEEN PHOTO-ART CLUB.**—At a meeting of the club last week an illustrated lecture on "Marine Photography" was given by Mr. W. Findlay, mostly in carbon. The majority of the pictures were taken in early morning. At the close of the lecture the president intimated that the club had secured the third place at the Scottish Federation Salon for a set of eighteen lantern slides, while one of its members, Mr. James Clerihew, stood first for the best slide sent in by societies in this competition.

**CROYDON CAMERA CLUB.**—Mr. H. Creighton-Beckett, on the 10th inst., gave a most interesting and highly instructive lantern lecture, illustrated by about 170 slides. Rarely indeed has such a magnificent set, judged either from a technical or pictorial point of view, been shown in the club-rooms, and it is a matter of regret that the excellent explanatory descriptions and expositions of what to do and what to avoid do not readily admit of condensation. Dealing with the kit, the lecturer advised the employment of the best lens the pocket could afford. He preferred the square form of camera, and for fine focussing utilised "the aerial image" by cementing microscopic cover glasses to the ground-glass screen. For general use, a half-plate camera was perhaps the best, as it gave a fair-sized direct picture, which could conveniently be enlarged or reduced. It was also useful to fit an extra reversing back, to take quarter-plate slides, either half or quarter plates being used, according to the importance or nature of the subject. The best all-round plate to employ was undoubtedly a slow one, generously coated and backed. Personally he did not favour exposing by meter, but based his exposures on past experience, a full note giving all necessary particulars being recorded in each case.

**BURTON-ON-TRENT NATURAL HISTORY AND ARCHEOLOGICAL SOCIETY (Photograph Section).**—At a meeting held on January 9 a demonstration was given by Mr. Ernest Abrahams on "The Reflex System of Hand Cameras," illustrated by the "Videx." The demonstrator pointed out the great advantage possessed by these cameras in focussing up to the moment of exposure. The image from the lens is reflected by a mirror at an angle of forty-five degrees in the body of the camera on to the focussing screen at the top of the camera, the image appearing the right way up and not, as usually, reversed. The button which releases the focal plane shutter automatically lifts up the mirror to the top of the camera, thus allowing the plate to be exposed. A number of excellent prints from negatives taken with the "Videx" by Mr. Abrahams himself were shown at the conclusion of the meeting.

**BOWES PARK PHOTOGRAPHIC SOCIETY.**—The annual general meeting was held on Monday last, when the following officers and council were elected—viz.: President—Mr. A. J. Craston; vice-presidents—Messrs. W. T. P. Cunningham and E. H. Young; treasurer—Mr. A. Bird; secretary—Mr. H. C. Bird; librarian—Mr. C. S. Carr; council—Messrs. W. H. Carpenter, E. H. Down, A. F. Hawes, F. C. Hornsey, H. Oliver, C. W. Peacock, and E. Tappenden. The council's report showed that the society was in a very flourishing condition, the membership now numbering 100. To commemorate his term of office, the late president (Mr. R. Core Gardner) has presented to the society a silver challenge bowl for competition amongst the members, to be won twice to become the property of any member.

**ROYAL PHOTOGRAPHIC SOCIETY.**—The following new Fellows have been elected by the council:—Dr. Hans Harting, Arthur Marshall, A.R.I.B.A., Thomas Lee Symms, Harry Oscar Klein, Walter Longley Bourke, Andrew James Fuller.

A HOUSE exhibition of the work of Alvin Langdon Coburn will be opened at the Royal Photographic Society, Russell Square, on Monday, February 5. The collection will include examples of all kinds of the photographic work—landscape, portraiture, etc.—with which Mr. Coburn has been associated in recent exhibitions, particularly that of the Photographic Salon.

## Correspondence.

\* \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.  
 \* \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE POSTCARD CULT. To the Editors.

Gentlemen,—Allow me to take exception to your reference to the picture postcard as "this modern scourge of middle-class society." I grant that there is a large proportion of poor and indifferent postcards on the market, but at the same time there is a vast number of beautifully printed cards of high artistic merit, the only thing "cheap" about them being the price. Postcards are now published from the best of paintings, and the greatest skill of the printer's art is lavished upon them, resulting in a production which is a genuine delight as well as proving a decided boon of an artistic educational advantage. The quality of the work has assured a position for the picture postcard, and a position which has been well earned. It only remains for postcard publishers to produce the best of work to retain that position, and I enclose for your acceptance a pack of local postcards showing the kind of card I publish.—Yours faithfully,  
 Southwold, January 13, 1906.

F. JENKINS.

[Our reference was not intended to refer in any way to the quality of the postcards on the market. We had in mind the social obligations which the postcard cult lays upon those moving in certain circles of society, not only in its levy of contributions to swell the albums of collectors, but in the enforced interest which the visitor to a house must be prepared to display in a long series of disconnected pictures. The cards sent by our correspondent are admirable examples of high quality in production.—Eds. B.J.P.]

### PHOTOGRAPHERS AND ELECTION RESULTS.

To the Editors.

Gentlemen,—It's an ill wind that blows nobody any good, and there is no reason why professional photographers should not take advantage of the present election to recoup themselves, even if in only a small way, for the temporary stagnation of business that it produces. In many towns the local paper or the election agents utilise the optical lantern for projecting portraits of the leading politicians, interspersed with hastily written statements of the results of the polling.

Now, there is no reason why professional photographers should not undertake this, for all know, or should know, how to manipulate a lantern, and if, besides, they prove that they can prepare in a minute or two written slides, there ought to be a chance for a little business.

It is, of course, out of the question to get the results set up in type and make a negative and project that, but by means of one or two well-known dodges any announcement can be prepared in less than five minutes.

In the first place, such announcements are usually shown on a screen hung up in a window. Now, as the results are seen by the populace through the screen it is essential that this be as transparent as possible. Tracing cloth, which is the best thing, may not be large enough; then the next best thing is white linen which has been well washed to free it from the dressing. The thinner this is the better; calico is too coarse.

There is one point which must not be overlooked—namely, to calculate out what should be the width of the slide so that the whole of the announcement may appear on the window screen. Attention is drawn to this because, as a rule, in such work one is hampered by want of working distance between lantern and screen, or else by the narrowness of the window.

There are two methods of making announcements: one in black on white ground, and the other the reverse—namely, white letters on black ground. A taking method is, of course, to use a science lantern and reversing prism and project the writing as it is done. This may possibly, however, be an unnecessary refinement.

If the idea is to show black letters and figures on a white ground, there is no difficulty in providing oneself with a dozen or two of squares of ground glass and using these—that is, of course, if but a few announcements are to be made and there is a chance of clearing the glasses in between the shows. Another method is to coat

$\frac{3}{4}$  squares of plain glass with a matt varnish, and the following is very satisfactory:—

Gum sandarac .....	10 grains.
Gum mastic .....	10 grains.
Ether .....	1 ounce.
Dissolve and add	
Benzole .....	96 minims.

This dries very rapidly, and a gross or two of plates may be prepared in advance. The announcement is written on this surface, and then it is flowed over, if thought desirable, with the following, which makes the ground perfectly transparent:—

Gum sandarac .....	15 grains.
Gum mastic .....	15 grains.
Ether .....	1 ounce.

This also dries very rapidly. There is, however, one precaution to take—namely, the great danger of an explosion through the contact of the fumes of ether with a naked light.

Now a hint as regards the writing medium. Do not be afraid to write thickly. Use a BBBB or BBBBBB lead pencil. If you want to use the colours of the local candidates, then use soft crayons well pointed, and have a good stock, so that when one breaks there is another ready.

If you want to project white letters on a black ground, a style which is easier to read, all that is requisite is the coating of  $\frac{3}{4}$  squares with a matt black varnish, which will take the needle or graver point well. Here, again, we must give the caution to avoid fine writing. Write boldly and thickly; never mind the criticism that your upstrokes and downstrokes are the same thickness. The crowd are more prone to try the thickness of each other's skulls than criticise your fine upstrokes, and the bolder you write the better and the further can the results be seen.

There are a lot of formulæ extant for making these black varnishes. The following, however, is simple.

Thick linseed oil .....	1 part.
Crushed peach black .....	4 parts.
Spirit of turpentine with 1 per cent. manganese resinate .....	5 parts.
Ether .....	15 parts

This varnish is applied like collodion, and dries in twenty-four hours. It is in the most satisfactory condition for writing on within forty-eight hours of coating, and is then removable in clean sharp lines.

Now, if you want to show coloured letters instead of white, make a fixed cover glass of bright ruby and bright cobalt blue glass, one-half the one and the other half the other. Bind these together firmly at the sides, then when the blues are on top you can use the blue to cover their number, and when the reds win simply reversing the cover glass shows the blues down under, and if you allow enough room so that the joint always falls between the lines of writing the result is effective.

It is, of course, quite easy to use strong spirituous solutions of aniline dyes and just paint over your white letters, but the solutions must be thickened with dextrine and be very strong, whereas by using coloured glasses there is nothing to paint on, nothing to dry, and with a little ingenuity the colours can be fitted to the announcements without more trouble than making the cover glass and reversing it according to whether the blue or red comes out on top. I hope your readers may find these few hints of use to them. Yours very truly,

MARSHALL BAIN.

January 12, 1906.

### SULPHIDE TONING OF SILVER PRINTS.

To the Editors.

Gentlemen,—The article under the above heading on page 28 of the last issue, by Mr. Jarman, contains some points which are, I think, open to strong criticism.

In the first place, the directions given to plunge the prints without washing into the hypo solution is more than likely—in fact, almost certain—to give rise to the very sulphurisation which the author apparently condemns, as any one can at once prove by treating a print in this way for a short time and then applying his nose to it, and he will be able to at once detect sulphuretted hydrogen or sulphurous acid, or both. The effect of these on the silver image is disastrous.

The combined bath given is also in prime condition to cause sulphurisation, as proved by the precipitation of the sulphur, for Lumière, Seyewetz, and Chicaudard and Valenta have proved that acids and alum in a combined bath give rise to a continuous evolu-



tion of sulphuretted hydrogen and sulphurous acid with the formation of acid sulphite of soda, and deposition of sulphur. I venture to say, therefore, that the "sulphide plus gold toning" is gold plus sulphurisation, notwithstanding the fact that the writer of the article has porcelains thus treated which are six years old. The conditions of a paper print and a porcelain are not the same as regards permanency, for no consideration is taken of the presence of the paper and baryta film.

True, sulphide toning is an old dodge, and when properly carried out perfectly reliable. I have practised it certainly for fifteen years, and the proper way to set about it is as follows:—Immerse the prints as they come from the frames in a 10 per cent. solution of common salt for five minutes, and then wash thoroughly in six changes of water at intervals of five minutes.

The purpose of this washing is to remove all acids from the film and paper, and it may be to some extent curtailed by making the salt bath alkaline with carbonate of soda. This will then neutralise any acid, and at the same time convert the soluble silver salts into chloride.

After this treatment the prints can be fixed, but the hypo solution should be fresh and not have been previously used. The prints should then be washed and again immersed in a fresh and second hypo bath so as to ensure total solution of the silver hyposulphites. Then they must be thoroughly washed, and are ready for the sulphide bath.

I find that the slower the action of this bath the better; it should take at least a quarter of an hour to reach a purple brown tone, beyond which it is impossible to proceed. Rapid toning causes the formation of a silver sulphide which is not the monosulphide, and yellow whites and half-tones and rapid fading are the result.

If actual gold and sulphide toning is required, then the proper salt to use is the aurous sulphide dissolved in ammonium sulphide, and with this an almost black image is obtained which consists of silver monosulphide plus gold. I have paper prints thus toned which are apparently as brilliant and as fresh as the day they were made.

Aurous sulphide is extremely easy to make, but it requires the use of a fume chamber, and it is prepared by passing sulphuretted hydrogen through a strong boiling solution of gold chloride, collecting and washing the precipitate and dissolving in ammonium sulphide. If some energetic dealer were to place such a solution on the market it ought to find a ready sale, for the tones given by it are excellent, and the prints certainly as permanent as any print can be, if they are properly treated.—Yours faithfully, R. E. CHESTERMAN, D.Sc.

#### ROYAL PHOTOGRAPHERS.

To the Editors.

Gentlemen,—In your list of "Royal Photographers," page 31, January 12, 1906, you have omitted to place my name. I hold a warrant from the Lord Chamberlain as "Fine Art Photographer" to His Majesty, and my name is duly entered in the "London Gazette" of January 2, page 16. I shall be obliged if you would kindly correct this in your next issue, and remain, yours faithfully, WILLIAM E. GRAY, F.R.P.S.

92, Queen's Road, Bayswater, W.

January 13, 1906.

[We regret the oversight of Mr. Gray's name in compiling the list from the numerous entries in the "Gazette."—Eds. B.J.P.]

#### A WAGES QUESTION.

To the Editors.

Gentlemen,—Various letters have appeared these last few weeks on the above question, the one of most note being that of "Comyn." I should like to say that I, like Mr. Crombie, do thoroughly understand the three-colour process, and I have even made negatives after the camera has been moved, and obtained perfect register. I also understand line-negative making by dry plate process, multiple negative making, and am thoroughly used to the photographing of all kinds of pattern work, machinery, etc., retouching, blocking-out, and use the knife on the negatives, and making the most of them for reproduction purposes; also slight knowledge of working-up the prints to obtain the proper tone value. I am also considered a very good portrait operator, understanding all printing processes. I have spent many years in professional houses. I have also had three years in process houses, but I am at present bound to accept less than Mr. Crombie's £4. I would certainly advise him to keep the berth he has

now got, for he would, like me, I am afraid, find a difficulty in getting another where his abilities would be of real value. I should very much like to obtain a berth in an engineering firm, as commercial photographer, but finding the vacancy is the real difficulty, most firms employing men who originally started as clerks, etc., and have obtained their present positions by gradually becoming expert workmen.—Yours faithfully, COMMERCIAL OPERATOR.

Birmingham, January 16, 1906.

#### THE CHROMIUM INTENSIFIER.

To the Editors.

Gentlemen,—I am afraid your criticism of No. 74 of the Photo-Miniature is misleading and inaccurate. Its reader is led to suppose, almost, that I wrote the whole number, whereas a small portion only was mine.

But your critic is a little wide of the mark to say that wherever potassium chromate was mentioned, the bichromate should have been mentioned in its place! The chromate is not an "unfortunate slip," and if your critic used it instead of the bichromate in the way I described, possibly he would get a black, and not light brown, image.—Yours, etc., T. THORNE BAKER.

16, Rutland Park Mansions, Willesden Green, N.W.,  
January 14, 1906.

[Mr. Thorne Baker's first complaint is hardly justified by reference to the review in question, for there appears to be no suggestion to the effect that he wrote the whole book. With regard to the use of potassium chromate, the suggestion that the writer meant the bichromate seemed to be warranted by the context, and also by the obvious fact (which must be known to Mr. Baker) that the use of the chromate instead of the bichromate is only a roundabout way of arriving at a solution that is of the same composition for all practical purposes. The use of chromate is very unusual, and the book gave no indication that Mr. Baker intended to describe an unfamiliar variation of an old process; on the contrary, it seemed to suggest that the chromium process described was the one previously referred to.]

Mr. Baker's theory that the chromium deposit is blackened by the developer is rather a surprising one, considering that no black chromium oxide compound is known to exist, excepting in a dehydrated state, and that a temperature of 200 deg. C. is required to produce that compound. An attempt to satisfy Mr. Baker's desire for an experimental test has led to the following result: A solution prepared with potassium chromate instead of the bichromate was used, and the brown compound produced by the action of the silver was not blackened by the action of the developer. In a gelatine film it was very little affected, and in a test tube experiment it was simply reduced to green chromic hydrate. These results are precisely the same as those obtained with the solution prepared from bichromate. The statement in the book to which exception was taken was to the effect that the developer reduces the chromium compound to a black chromic substance. The review pointed out that the substance is brown though the image is black, hence the reference in the above letter to the colour of the image is beside the mark.—Eds. B.J.P.]

#### THE INVENTOR OF THE ENAMEL PROCESS.

To the Editors.

Gentlemen,—Here are a few notes from "Process Engraving Notes and Queries" in the "Inland Printer," Chicago, for September, 1903, that give some information regarding the inventor of the enamel process for etching on copper, referred to by Mr. Dundas Todd in your issue of December 22 last. Mr. William G. Breuker, of Philadelphia, is the authority for the following:—"In the 'Photographic News' for November, 1881, is an article on M. Garnier's new method of photo-engraving. The peculiarity about it was the coating of a plate of copper, with a solution of sugar, bichromate and water, which coating, after being printed under a negative and developed, was burned in, as is done at the present time. About the year 1885, Charles E. Purton, an etcher employed by Crosscup and West, in Philadelphia, who had been using the albumen-ink method for making half-tone etchings from F. E. Ives' process negatives, modified the foregoing Garnier enamel method and used it successfully in producing relief copper half-tone etchings. To Mr. Purton belongs the credit of being the first to produce relief copper half-tone etchings. The end of the year 1888 Mr. Purton and two other employees left the firm to start the Electro Tint Engraving Co. Mr. Purton, having kept his enamel formula secret, left the old firm in a predicament. Their customers demanded etched copper plates, which, being turned out by the albu-

men-ink method, did not satisfy them. They wanted an enamel surface on the copper. Mr. Fowler, with Crosscup and West, solved the problem by using gum arabic, albumen, etc., sensitized with a bichromate as a sensitive coating, which, after development with water, was changed into an acid resisting surface by a high degree of heat, the same as described in the Garnier method. Gum arabic was used for a couple of years, when some experimenter found that liquid fish glue answered the purpose better than gum arabic. The first publication of a formula relating to the wet enamel process which I can find is in the 'Artist Printer,' beginning of 1892, in an article on the fish glue enamel method by W. H. Hyslop.—I remain, sincerely yours,

S. H. HORGAN,

Editor "Process Engraving Notes and Queries" in  
the "Inland Printer."

213, Franklin Street, Bloomfield, N.J., U.S.A.,  
January 2, 1906.

#### FREE SITTINGS To the Editors.

Gentlemen,—With the advent of the New Year would not half-an-hour in serious thought be well spent to face fair and square the unsatisfactory business of "free sittings" ("complimentary" sounds better and is more useful as a bait). Can a business of any class be built up and maintained by that unsavoury material?

Indeed, it is an open question whether any high-class right-thinking person would take it as a compliment to receive an invitation from a firm which systematically sends them out broadcast to all and sundry. Would they not be likely to look at the motive that prompted such an action, from a true business point of view? Some people have such an aggravating way of being able to see "just a little further than their nose."

"Why should Mr. So-and-So invite me to come to his studio for a "complimentary sitting" (as he terms it), pay heavy rent, and run a staff of assistants for the pleasurable gratification of taking my photograph whether I wish my vanity perpetuated or not?"

Such practices, I fear, have a tendency to lower the standard of a high-class establishment. To such one of two things must be plain. Either the business must be in a very bad way or be conducted upon lines of a questionable character. On the other hand, there are many who out of pure curiosity readily accept the "bait" and "do" the round of these "free" studios. When this has been accomplished the whole series of proofs are collected and classified, and for obvious reasons the majority are condemned. One set probably may be selected, and a small order given to the photographer "just to compensate him for all his trouble." The others have to write theirs off with other losses incidental to business speculations of that class.

I grant you there are exceptions. A nicely-worded invitation to a person likely to do one some good may with advantage be sent. Again, there are times when opportunities present themselves to suggest a complimentary sitting, but to send out offers broadcast, I say again, is not calculated to improve the tone of any really good class business.

What is the sequel to all this? Work hard to build up your business in a legitimate way. Give your sitters only that which is artistic and commendable, something better than your neighbour, and you will soon find your clients take this as the greatest compliment.—Yours faithfully,

CHAS. WYRALL.

Broad Lane, Hampton, Middlesex. January 13, 1906.

[We entirely endorse our correspondent's views. The cheapening of photography in the public estimation is a most fatal element in professional photography, and its growth is very greatly the result of the system of "free sittings." We refer to a case in point elsewhere.—Eds., B.J.P.]

#### A GOOD WORD FOR PRINTERS. To the Editors.

Gentlemen,—In reviewing a circular booklet in this week's JOURNAL, which I recognised as familiar, one important particular is omitted, or perhaps you did not know that the general get-up and artistic appearance was due to the printers, Messrs. Walter Pearce and Co., who not only printed well, but very promptly.

While writing may I congratulate you on the very interesting and up-to-date matter to be found in the JOURNAL? Not too much of the deeply scientific certainly makes a more useful and interesting paper to the average professional.—I am, yours truly,

A MIDLAND PROFESSIONAL.

January 13, 1906.

## Answers to Correspondents.

\**\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

\**\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\**\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*

\**\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

#### PHOTOGRAPHS REGISTERED:—

L. Berry, 27, Chapel Street, Chorley, Lancashire. *Photograph of Lady Balcarres.*  
J. H. Greenwood, North Valley Road, Colne, Lancashire. *Photograph (Flash-light) of the Colne Choral Society.*

The Journal Co., Ltd., 1, St. Mary Street, Carmarthen, S. Wales. *Photograph of Carmarthenshire War Memorial.*

F. S. Keigwin, 169, King's Road, Canton, Cardiff. *Photograph of the Right Rev. Dr. Hedley.*

T. H. Simons, 15, Victoria Road, Swindon, Wilts. *Photograph of John Massie.*  
Isaac Perckoff, 186, Commercial Road, London, E. *Two Photographs of Mischa Elman.*

C. Knight, 45, Queen's Road, Aldershot. *Photograph (Combination) of Types of the 5th Royal Irish Lancers. Photograph of the Rt. Hon. A. F. Jeffreys.*  
*Photograph of Mr. H. Verney.*

THE HALF-TONE PROCESS.—Will you please tell me how half-tone blocks and zinc type are made, and if there is a book on the subject?—J. H. KINSMAN,

We cannot tell you within the limits of this column. Better get a good book on the subject, such as "The Half-Tone Process," by Verfassor (Iliffe and Sons, 6s.).

STORING NEGATIVES.—1. What do you consider the best ways of arranging negatives, so that on receiving re-orders you can easily find any particular one. 2. Is the system of numbering the negative and writing the corresponding number on the back of mounts a reliable one?—OVERDENSE.

1. The most convenient method is to store the negatives in some form of file in which they rest vertically. There are a number of files of this kind on the market, but you cannot do better than obtain particulars of the so-called "Negasy's" system from Messrs. Houghtons, Limited, who have adapted vertical filing specially to photographers' requirements. 2. We consider the system as satisfactory as any, if an index is kept posted, in which the numbers corresponding to any given date or period are entered.

ARTIFICIAL LIGHT, "En Avant," and others. In our next.

COPYING A MINIATURE.—I have been asked by a friend to copy an old miniature which has a convex glass in front. He desires that the glass may not be removed for certain reasons, not necessary to mention. Is it possible to get rid of the reflections from the glass by putting the miniature in a sort of tunnel of tissue paper or otherwise? If so, what is the best form of tunnel to use? Any hints in your correspondence columns would be much appreciated.—KATHON.

The best result would undoubtedly be got if the glass were removed. Failing that, the lighting of the picture must be dodged. We would suggest that it be placed in front of a window, with the camera outside. Then, if any reflections are seen, the top light should be screened off with tissue paper till they are avoided. As a miniature is but a small thing, there is no reason why the reflections should not be avoided with a little dodging.



F. N. H.—As regards the lens, it is yours, as you paid for it; and you need not give it up. The one who now claims it has his remedy against the one to whom he supplied it. If you can prove wilful misrepresentation with regard to the business you may have cause of action. Your best way will be to consult a solicitor and put all the facts before him, and act on his advice.

GLAZING PRINTS.—I should be much obliged if you could tell me whether there is any practical way of glazing cards, such as the enclosed, so as to resemble a P.O.P. card, or a glossy bromide. I have seen them done in this way, but as there is no gelatine surface, I do not see how it can be done except by coating the face of the card with some varnish or other solution which would dry with a high polish.—M. DARTON.

The prints may be glazed with an aqueous solution of lac in the same way as collotypes are glazed. Boil together (till the lac is dissolved) bleached shellac, five parts; borax, one part; water, twenty parts. Filter and dilute with warm water according to the gloss desired. Float the prints on this and hang up to dry.

ELECTRIC LIGHT IN STUDIO.—I should be pleased if you would enlighten me on the following subject. I am just starting to use electric light in the studio for photographing; it is the Aristo arc lamp, 10,000 candle power. I should be pleased if you could inform me as to the best diffuser to use, and what colour. If you recommend calico, is there any solution to treat it with, so as to guard against it catching fire, as there is a great heat from the lamp.—ELECTRIC LIGHT.

If the lamp is mounted in the usual way, that is, in umbrella-shape reflector, with the small reflector to screen the arc,—no diffuser is required. The light then comes from what may be termed a white cloud. Calico or muslin may be rendered unflammable by soaking it in a strong solution of tungstate of soda. See under "Ex Cathedra."

LIVERPOOL.—You can take action against the second firm, but not against those who copied it before registration. The reference was a printer's error: it should read, "you would not be able."

PUZZLED PROFESSIONAL.—The prints look as though the paper had been fogged by previous exposure to light. If the developer is rightly compounded, this seems the only cause deducible from the facts as stated.

PUBLISHING A PICTURE.—Will you kindly inform me, through the correspondents' column, as to the best course to take to get a photogravure reproduction of a valued painting on to the market. The picture is a "Head of Christ," by Solomon, a beautifully-executed work. How would it be to submit it to a publisher who would publish and sell on commission? If so, could you give me the names of one or two houses open to this business?—F. MILLS.

We should say that the best way would be to submit proofs of your photogravure to some of the fine-art publishers, the addresses of whom you will find in the "London Post Office Directory." Unless the photogravure is of the highest class and of a good size, it will be of no use for you to submit the photogravure to any of the first-class publishers, such as Agnews, Graves, and the like, as they would not be at all likely to take it up.

PLOUGHMAN.—We should advise you to use your stigmatic, as this would have a flatter field than your other lenses, and would, therefore, work at a larger aperture. It would be necessary to use, of course, the 15 by 12 camera, and you could place the bromide paper in the dark slides, using, if necessary, to keep it flat a sheet of plate glass in front, and making allowance for this in focussing. As regards the illumination, you would probably find that a couple of lamps, one on each side of the negative, with a white reflector, bent into a curve, would give you more even illumination than the direct rays from a lamp, and, provided you obtained two fairly powerful lamps, the exposure would not be excessive. We shall be glad to help you further if we can.

RODINAL.—Will you kindly tell me of a preservative which can

be added to rodinal developer which will not affect its developing power. I want to stock it in a 15oz. bottle, but find it turns a dark crimson colour in about three days after the bottle is opened. Does it keep better in powder form, and how long?—ASSISTANT.

If the rodinal is made up in a concentrated form it will keep well; it is only when dilute that it changes colour rapidly, but this does not impair its developing powers much. Still, the addition of 2 oz. of sodium sulphite to the 15 oz. would help considerably. It certainly keeps better in the dry form, and if in a well-stoppered bottle will keep for months.

BURNISHING.—1. Yes. 2. Castile soap in powder 1 oz., water 2½oz., methylated spirit 17½oz., allow to stand for a week, and then filter. 3. Till they are surface dry. 4. As hot as the hand can comfortably bear. 5. Yes; practically the greatest pressure the better. 6. No, there is no such work. 7. Any mount-seller could supply the cardboard; white Bristol boards is what you want.

INTERESTED SUBSCRIBER.—We certainly should not say your negatives were over, but rather under, exposed. You state that you use  $f/11$  stop. This is an impossibility, because the single combination of your lens only works at  $f/12.5$ . You have probably ignored the fact that in using the single combination you are halving the aperture, and therefore the exposure should be increased fourfold! Some of your pinholes look like mechanical scratches on the film. Why do you not use the plates you have always been accustomed to? The negative you send speaks well for the keeping power of the plates, as they have been through a good deal. The only fault with your portrait is that the lighting is too general, and rather too much in front, and you have in consequence a want of roundness which you would get if you had a shadow side. If you like to send up sketch plan of your studio, and mark the north and indicate the curtains you are using, and a print, we may be able to help you further. In any case, you have carried development too far, and this negative would tend to give you a hard print.

The "St. Louis and Canadian Photographer" announces in its current issue that it has passed out of the hands of Mrs. Fitzgibbon-Clark, who feelingly bids farewell to its readers. The incoming editor is announced as Mr. Tony O. Babb, of whose catholicity, if we may use the term, such instances are afforded as his inclusion of "Household Hints." We are interested to note that sugar, added to the fat for basting meat gives a richer flavour, particularly to veal. Perhaps we cannot take the Canadian outlook, but we are unable to see the precise relevance in a photographic journal of the announcement that "a big fat woman always claims that her bones are small." There is the opportunity for Mr. Babb to edit his paper, we think.

The first annual exhibition of the Worthing Camera Club will be held at Bedford Hall, Worthing, on March 27 and 28. There will be the usual open and members' classes. Entry forms may be had shortly from the secretary, Mr. E. F. H. Crouch, 11, South Street, Worthing.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography.

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### SUMMARY.

A demonstration of cinematography in colours is to be given in London to-day (Friday). (P. 69.)

The unconventional in portraiture is recommended to the attention of professional photographers as an opportunity of new business. (P. 63.)

The exhibition of colour photography at THE BRITISH JOURNAL OF PHOTOGRAPHY has attracted much attention from the Press and public. A lengthy review of the exhibits appears on P. 64.

A variant of the gum process, possessing the advantage of visible printing, was demonstrated before the Wolverhampton Society by E. H. Griffin. (P. 67.)

The prospectus of the forthcoming international exhibition of photography in Paris has been published. (P. 68.)

A gelatine plate or film in which the developer is contained on the back and dissolves on the exposed plate being placed in water has been patented. (P. 70.)

A film package for the exposure and daylight-changing of flexible film, and a developing box, are among other patents of the week. (P. 70.)

The "Ideal" flash-lamp and the "Boardman" electric arc lamps (artificial lights for portraiture) were demonstrated at the R.P.S. on Tuesday. (P. 74.)

An *exposé* of the free enlargement dodge is being actively prosecuted by the Hull branch of the P.P.A. with the assistance of the Hull Press. (P. 75.)

An outline of process reproduction methods was given before the R. Helen's Society by Mr. S. A. Buckley in the course of a lecture on "Commercial Photography." (P. 76.)

Development by the Watkins time system. The report of a demonstration by Mr. P. Whitehouse before the Handsworth Society reported on P. 76.

### EX CATHEDRA.

#### Election Results in the Lantern.

During the last week or so the optical lantern has been largely used for the purpose of showing election results, and from sundry sources we learn that great difficulties have been met with owing to the enormous heat given out by the powerful arc lamps used. We have heard of several cases in which the slides have been destroyed almost as soon as they were dropped into the carrier, and of at least one case in which the carrier itself dropped into a heap of charcoal. It is needless to add that not a few condensers also came to grief. It is evident that for work of this sort the slides must be specially prepared to resist heat, while the operator must be specially skilled in the use of the arc lamp, and probably not a few "experienced" operators were surprised to find how little they really knew about it when they began to manipulate lamps of the most powerful type. We hear that in at least one instance typewritten lantern slides, prepared by a powder process, were used. It appears that the matter was typed in an adhesive ink on to sheet gelatine, and then dusted over. Presumably the gelatine was then bound up between glass plates to form a slide. The effect would no doubt be much better than that of an inscription scraped out on varnish, but we have not heard how the typewritten slides resisted the heat, though it appears that some varnished slides came to grief.

#### A Word to Assistants.

The correspondence in our columns on "getting on" raises some interesting points. It is curious, for instance, to note how the chronicle of a man's success immediately fills others with the desire to do the same kind of work. Thus a correspondent's mouth waters, and he obviously wonders how he can get such a situation as "Comyn" occupies. The point of "Comyn's" letter was that every worker should improve himself and increase his knowledge, even at some sacrifice, and that ultimately the information acquired will possess a value, and a cash value. We would suggest to workers in any branch of photography that the best method of getting on is to study the special conditions under which they are working, and the probable trend of things. This should render them efficient now and prepared for future developments. We should be sorry to write in such a way as to discourage the older and the married assistant from attempting to improve both himself and his position. He may and must do so, but there can be no doubt that it is for the man under 25 or 27 that the greatest opportunities exist. The young assistant may easily earn enough in 8 or 9 months to keep him for a year, thus enabling him to devote 3 or 4 months to the study of some further branch of his work. A rolling stone is said to gather no moss, yet we think that an operator who got a knowledge of French or German and then went into a Continental studio for a



year would be worth more than an equally capable man without his experience. America is so accessible that a knowledge of transatlantic methods might readily be added to other qualifications. The youth who finds that 25s. or 30s. a week will provide him with the ordinary comforts of life, and who makes no effort to get more by improving himself, will almost certainly find himself later on gradually squeezed downwards through the advent in the labour market of those better equipped than himself.

### Carbon-Process Discoveries.

At a recent meeting of one of the provincial societies an alleged new method of sensitising carbon tissue was described by Mr. J. W. Osborne, namely, the substitution of part of the water, used in making the solution of bichromate, by methylated spirit, and the application of the solution to the surface of the tissue with a brush. Most of the older carbon workers will very naturally wonder wherein lies the novelty of the method. Sensitising the tissue on the surface only was frequently advocated in the very earliest days of the carbon process, and the addition of a large proportion of alcohol to the sensitising solution has been very general in hot weather when there is a fear of the gelatinous coating partially dissolving and running off the paper. The immersion of the tissue, after sensitising, to abstract some of the water when it is desired to dry it quickly, particularly in hot weather, is very common. In our issue for December 22 last we had some comments on a patent for improvements in sensitising carbon tissue in such a way that it would dry rapidly. The improvement consisted in the addition of a large proportion of a volatile liquid to the aqueous solution of the bichromate: the solution being swabbed on with a tuft of cotton wool, or a brush. We then referred to this system of sensitising as being a very ancient one; it is therefore curious to see it so soon advanced as new. One of our contemporaries, in an editorial note on Mr. Osborne's paper, says: "Hitherto the best of our knowledge, this method has not been applied to the sensitising of carbon tissue, and thus forms both an interesting and valuable contribution to our knowledge and practice of the carbon process." Our contemporary goes on to suggest an improvement of Mr. Osborne's formula, by the substitution of bichromate of ammonium for bichromate of potash, and the addition of a certain proportion of carbonate of soda. Why the carbonate of soda is recommended is a little difficult to conceive, seeing that its addition converts an equivalent of the bichromate into the neutral chromate which gives a slower printing tissue. We may recall the classical experiments of Eder of some thirty years ago, in which it was shown that a solution of bichromate of ammonia would bear a larger addition of spirit without causing precipitation than would one of the potassium salt. But, as we said in the issue of December 22, if a comparatively large proportion of ammonia be added to a solution of bichromate of potash a very considerable quantity of spirit may be added without precipitation—even quite double the quantity of spirit to water may be employed. The great excess of ammonia does no harm at all, as it escapes as the tissue dries.

### The Election and Candidates' Portraits.

Probably, at no previous election has photography been so much in evidence as at the one which is practically over. It is doubtful if any voter throughout the kingdom has not received portraits of the local candidates. A friend has just remarked to us that photographers must have had a good time of it of late, seeing the use that has been made of portraits. Yet have they profited so much by it as they might have done? All the portraits of candidates that have come under our notice

have been printed from process blocks, and the photographers' names have not been mentioned on them. Before the advent of the process block portraits were used, though they were not thrown about broadcast, as at present. Then local photographers used to get good orders for prints, amounting to a good round sum. Now the candidate obtains a portrait of himself, it is then handed over to the printer of his addresses, who gets a block made, and there is an end of the matter so far as the photographer is concerned. Many photographers might, no doubt, have obtained the orders for the blocks, and also those for the circulars which they illustrated. Had they been sufficiently enterprising, they would have done a lucrative bit of business, for as a rule the printer's bill is not closely criticised at election times when the work is done by a local man. Moreover, he would see that he obtained some advertisement from the mention of his name, and that is a matter which he should have looked to in any case. Yet on not a single card that we have seen has there appeared an acknowledgment of the maker of the photograph.

### Progress in Colour Photography.

The exhibition which is now open at these offices may be said to represent the present state of colour photography, although it may not signalize any notable advance in current practice as it is known to those who have kept in touch with processes. Nevertheless, the examples of the bleach-out process of producing colours at one printing on the Szecepanik tissue as well as some specimens of one-exposure one-negative processes, should interest many who desire to see the practice of colour photography move towards a place in common photographic technique. We may also remind those who may not have kept in touch with what is imminent in photochromy that the next claimant for consideration is probably the Lumière starch-grain process by which a complete colour photograph of a scene or object is obtained at a single exposure on a single plate and in an ordinary camera. It is known that Messrs. Lumière have put down a special plant to manufacture the sensitive plates, and we shall probably not have to wait long before they will be ready to announce that the technical difficulties in the production of the plates have been completely overcome. An article describing the impression of a visit to the Lumière factory will appear in a forthcoming issue by M. Vidal, whom we have also persuaded to report on the recent process of M. Lippmann, which gives reasonable hope for the belief that by an application of the interference method copies may be made in the complementary colours from a coloured original, just as positive prints are taken from an ordinary negative at one printing. Such a system would be a necessity as soon as the Lumière process is available, and though M. Lippmann takes a very modest view of his experimental results, he has granted M. Vidal permission to communicate some notes in regard to them to readers of the "British Journal."

### Photographic Evidence.

In a law-suit in the High Courts, King's Bench Division, on Friday last, a special jury awarded a lady £500 as damages for an injured nose. From the evidence it seems that the lady was walking in the grounds of the Burlington Hotel, Dover, when she fell into an unprotected hole and was injured. Her nose was broken, and what was previously a handsome feature was permanently disfigured. In the evidence a photograph, taken before the accident, was produced to show that the lady was originally a very handsome woman. In the cross-examination of the plaintiff some questions were asked by counsel about the photographer, at Monte Carlo, who took the portrait, and whether he was not a very successful

artist. We think the fair plaintiff may congratulate herself on the reception accorded to this photographic evidence of the loss of her good looks, for it might have been shown that the retoucher's art enters so largely into the modern photograph that every woman is made at least fairly good-looking, if not really handsome. The nose, also, is the special care of the retoucher, and one rarely sees an ugly one in a lady's portrait. In this case, however, there was no question that the lady once possessed a very handsome nose—there were witnesses to testify to the fact—and hence the heavy damages. Yet photographs cannot invariably be taken as evidences of beauty, as witness many of the published portraits of actresses, some of which really bear very little likeness to the originals as seen in daily life.

#### **Objectionable Postcards.**

At the Thames Police-court, on Saturday last a shopkeeper was summoned for exhibiting in his window, and selling, improper postcards, which the magistrate characterised as filthy and vulgar in the extreme. The defendant was mulcted in a very substantial penalty and costs. It seems regrettable that the police authorities do not find out the producers of these indecent and vulgar things, and take proceedings against them for there is no question that some of the subjects exhibited and sold tend to bring the picture postcard, which is at present an important industry, into disrepute, as did similar objectionable pictures the stereoscope many years ago. It may not be generally known that any indecent print or photograph, if sent through the post, may be refused, or detained if detected in transit. The sender of it is liable to prosecution.

#### **UNCONVENTIONAL PORTRAITURE.**

ONE of the most hopeful signs of present-day photography is its great emancipation from absolute hide-bound traditions. Everyone knows the old joke of the sixties about a vase, a curtain, a table, and a pedestal as the inevitable and universal accessories. In those days the favourite pose for a man was a standing one, the legs crossed, and one elbow resting on the aforesaid pedestal. The victim was often provided with a "high hat," much more chimney-pot in shape than the present fashion, and this rested either on his head or in an inverted position on the pedestal. Ladies usually sat in a chair, the chair hidden by a mass of widespread skirts, and they either gazed placidly at the camera, or turned over the leaves of an album. As for the children, poor little mortals, they either stood on the chair clinging to its back or leant against it. We are apt to laugh at the old portraiture, but really we have advanced but slowly, and there are many men still in business who have got very little further than their predecessors of forty years ago, and in the actual matter of technique their work is worse. The fact is we have had too little individuality in photography; it has been too much of a trade and too little of an art. Photography really comes among the arts rather than among the trades, and no man can be successful at it unless he has that first essential to all artistic work, an enthusiasm in his profession. It has often been said that the influx of the amateur has benefited the profession artistically; people are apt to deal in superlatives, and people who say this exaggerate. There is no doubt that an amateur influence has been felt, as all influences must be felt, for good or for ill, but the great advance has been made by a conservative progression among photographers themselves. It is the men who get away from the conventional work, and at the same time keep to good photography and do their best on the art side, who leaven the whole mass of the profession, and more individual workers should be welcomed for the

general good they do. Even the man who perpetrates the most outré of impressionism is useful in stirring good photographers to exercise their ideas. Nothing is more essential to professional work than a well-appointed and well-lighted studio, and yet the usual sky-light, though a necessary, is not an unmitigated blessing. A man knows what results will be obtained by altering certain blinds, or placing certain reflectors, and he works in a groove with these "tools of trade," and would be lost if he were without them. The result has been that he has divided his sitters more or less into classes; one will make a good profile, another a good full length, a third a Rembrandt, and in striving after these classes he has omitted the essential of character; instead of adapting his means to the sitter's individuality, he has moulded the sitter to his stereotyped means of expression. It is not that the possibilities of studio work are limited to these methods, but that the results being easily obtained photographers have drifted into them. The late Adam Salomans, who was an old-fashioned worker but thoroughly sound and progressive, used to keep his work up to par by practising different lightings and poses for a fixed time every day; if anyone could be said to know the limit of possibilities it would be a veteran worker like Salomans, but he frankly felt that practice and study were necessary through life.

We were lately looking at some very effective work by a provincial photographer whom we had known as a successful photographer of children. On visiting his reception room we found that child pictures were not more in evidence than in any other well-appointed room, but we saw some very pretty and effective outdoor pictures, mostly of ladies. There was no incongruity about them; there was not a single outdoor lady in evening dress, and most of them were in walking costumes. He had had the idea of taking some of his sitters in his rather pleasant little garden, and commenced by asking suitable persons, after they had sat for the usual studio exposures, if they would allow him to try one or two negatives in the garden. The results were very successful. The top light was cut off by a shady tree, or in sunny weather sometimes by a parasol carried by the lady. He found that his sitters usually chose from among their proofs some of the outdoor work; they were just as pleased as ever with the retouched head and shoulders, with the delicate studio lighting, but they also liked the outdoor work, much of which did not even require the touch of a spotting brush, and the result was increased business for the photographer. Some successful amateur photographers, and by the word "successful" we mean men who have done sane commendable work, cornered by the fact that they have no top light studio, have developed methods of working in ordinary rooms. The old theory is that a studio window is necessary in order to get a sufficiency of light; the amateur usually begins by cutting off a large portion of his light, and using a concentrated light from one window only, and by this means he has obtained pictures which cannot be called better perhaps, but which are different from the usual studio work. Being divorced from the possibility of giving conventional sittings, he has turned his attempts towards portraying the characters of his sitters, and in this direction he has at times been very successful.

We do not advise that photographers should discard studio lighting, and turn to dining-room windows and other makeshifts; the studio light has wider possibilities than anything that the amateurs practise with, but a study of such light is interesting and helpful, and a photographer who practises unconventional portraiture of various styles will not only enlarge his horizon and improve his work, but may find that he develops a specialty which may become a paying side line.



## AN EXHIBITION OF COLOUR PHOTOGRAPHY.

THE first exhibition of examples of colour photography held in England was opened at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY on Friday last, January 19, and will remain open until March 3. The exhibition may be visited without charge between the hours of 10.30 and 4.30 (Saturdays, 10.30 to 12.30). The collection includes some 150 examples of colour photography in the form of prints and transparencies, with a number which may be described as "colour effects in photographs." The great majority of the exhibits are by the three-colour process, that is to say, the negatives are obtained in the usual way through three screens. The chief interest of the exhibition to the visitor lies in the examination of the results of printing from the three negatives by the different processes now available for the purpose. The catalogue which is presented to each visitor—it is not sent in response to application by post—identifies each exhibit with its method of production as far as the information supplied by the contributors renders possible, and it is therefore hoped that a visit to the collection will deeply interest those who make a study of the comparative value of the various processes as well as the less critically minded who may wish to see to what stage colour photography has now arrived.

At the time of writing, the small gallery in which the collection is arranged has been open only for four days, but some two hundred persons have placed their names in the visitors' book, and expressed themselves pleased to have accepted the invitation addressed to them personally, through our columns, or in the daily Press. Among those who have thus approved by their support the action taken by THE BRITISH JOURNAL OF PHOTOGRAPHY in organising the exhibition are: Mr. Chas. Sawyer, Mr. T. R. Dallmeyer, Mr. Geo. Scamell, Dr. O. Rosenhain, Mr. A. L. Burdick, Lieut.-Colonel Simpson, Mrs. F. W. H. Meyers, Mr. Alvin Langdon Coburn, Mr. George Bernard Shaw, Mr. C. J. Drac, Mr. T. S. Bruce, Mr. C. Welborne Piper, Mr. T. K. Grant, Mr. Henry Stevens, Mr. A. Horsley Hinton, Mr. J. D. Robertson, Mr. H. O. Klein, Mr. Austin Edwards, Mr. Chapman Jones.

### THE LONDON MORNING AND EVENING PRESS ON THE EXHIBITION.

The temptation to sensationalism which seems irresistible to lay journalists when they write of colour photography has been responsible for some of the statements which have been made in the Press in reference to the exhibition. The technics of three-colour and other processes is a theme which the most graphic writer must find beyond the powers of his pen, and thus the notices which have appeared in the daily Press have mostly been confined to statements of opinions and preferences. A few extracts are quoted here.

"The exhibition includes numerous interesting examples of the various applications of the three-colour process."—"Daily News."

"It will be seen that a colour-photograph never represents actual truth. It is a compromise between the operator's perception of the truth and his taste in colour tones. The visitor to the Wellington Street gallery can judge for himself which of these arbitrations of tint he prefers; a single spectator can only affirm an individual pre-

### A REVIEW OF THE EXHIBITION—BY E. J. WALL, F.R.P.S.

The exhibition of colour photography which is now open at the offices of the B.J. is, I believe, the first of its kind which has been arranged in England, and is of extreme interest to every professional and amateur, because the examples shown are only by those processes which can be used without any special machines or apparatus—that is, are in no way photo-mechanical—and are therefore applicable to the production of portraits by professionals and of ordinary or extraordinary subjects by amateurs.

The effect which a photograph in colours produces on an observer cannot by any possible means be gauged. It is a personal effect entirely, and there seems to be absolutely no law or rule by which one can estimate how such prints will be received. When monochrome prints are examined, whilst there may be diversity of opinion as regards the composition and technical rendering of a subject, there will be found a decided majority one way or the other; but this I have never met with when colour prints are in question. The following notes must therefore be considered purely as my impressions

The visitors have not been drawn from London only, for the entries include names from Birmingham, Ramsgate, Southport, Folkestone, Portsmouth, Bristol, Wellington, and Kimberley (South Africa), suggesting that the exhibition has already attracted widespread interest in photographic circles in all parts of the country, and that just in the present the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY are a rendezvous where one is most likely to meet with those interested in the latest developments in that most fascinating of all branches of photography, the reproduction of scenes and objects in their natural colours.

We may add a word of excuse in reply to several letters we have received from those who tell us they would have gladly contributed to the collection had they been notified of its projection. Not unnaturally they blame us for not publicly inviting exhibits. We would say in extenuation that the wall space at our disposal is not unlimited, and we were anxious not to ask for contributions which we could not hang. Moreover, we believed that we were in touch with all the people likely to have examples for exhibition. Lastly, as the opening of an exhibition of this kind was an experiment which we were making for the first time—for the first time in photographic journalism, in fact—we were reluctant to make any public announcement until we were satisfied that the response would be such as to justify our announcing an exhibition fairly representative of the present position and practice of colour photography. Events, we are glad to say, have fully confirmed our desires, and we must thank those who have been good enough to entrust their works to us in the public interest. Nevertheless, some available space still remains, and we therefore ask all workers in colour photography to note that we will add any *prints* which we may approve to the exhibition and indicate its author and process on the frame pending the issue of a second edition of the catalogue. Several such exhibits have already been added, but we beg particularly to say that this invitation applies only to prints: we have no further space for transparencies of exhibits requiring to be illuminated by transmitted light.

ference for the 'Autumn Landscapes' (57, 58) of Dr. Julius Moeller, as being nearest to his perception of the true and the admirable."—"Daily Graphic."

"The specimens on show in Wellington Street have all the merits and demerits of their class. What the exhibition does is to permit those interested in the subject to compare the achievements of different processes."—"Westminster Gazette."

"It is well worth seeing."—"Sunday Sun."

"The flower and fruit studies are remarkably fine."—"Daily Express."

"Miss S. A. Acland, F.R.P.S., working with the Sanger-Shepherd process, has produced (as a transparency) a notable portrait of her brother, Admiral Acland, and her scenes of Gibraltar also deserve attention."—"Morning Advertiser."

formed by a careful examination of the exhibits, modified, if you like, by personal experience.

The exhibits may practically be divided into two classes. The first relies on the three-colour principle, in which it is necessary by means of colour filters to split up the subject into the three constituent negatives, representing the red, the green, and blue-violet luminosities, from which negatives prints are made in yellow, red and blue.

#### The Principle of Three-Colour Printing.

This choice of printing colours frequently forms a stumbling-block to beginners, because they do not grasp why the negative, taken through a green screen, for instance, should be printed in red, but it becomes very easy to understand when the action of the filters is understood. For instance, putting the matter very roughly, the red screen cuts out all the blue, the green screen cuts out all the red, and the violet screen cuts out all the yellow. Therefore, in each case, the colour which is cut out does not act on the plate, and gives us more or less

bare glass. Now, every photographer knows that it is the shadows, or the bare glass parts of a negative, which print, and, therefore, if we expose any paper under the negative taken through the green screen, the print that we obtain represents all the red that was in the subject. By exactly the same reasoning it will be seen that a print from the negative taken through the violet screen will represent all the yellow in the subject, and that from the red screen negative represents all the blue. Therefore we must use red, yellow and blue as the printing colours under the green, violet and red screen negatives respectively.

The second class comprises prints which show "effects of colour," and for which one negative only is used. This I shall refer to later on when dealing with specific exhibits of this kind.

### Three-Colour Carbon Prints on Stripping Films.

The first six exhibits are produced by means of superimposed carbon prints produced by the stripping pigment tissue made by the Rotary Photographic Company. This consists of yellow, red and blue tissues, coated on extremely thin celluloid, which is placed in contact with the film of the negative, thus doing away with the necessity of double transfer, which would considerably complicate the accurate superposition of the constituent prints. The exhibits are very satisfactory, and show brilliancy without crudity of colouring, though Turner's "Temeraire" (No. 6) is a little dull-looking. No. 9, "Tulips," by W. E. Brewerton, also by the carbon process, is a signal success, and when compared with his other two exhibits, Nos. 7 and 8, strikes me particularly from the great transparency of the print. All Mr. Brewerton's exhibits are taken through the Sanger-Shepherd screens. No. 10 is also a carbon print, by M. Vidal, and is obviously a copy of a painting, and shows a brilliancy of colour, which is remarkable. Whilst in the absence of the original one cannot speak as to its correctness, it so obviously belongs to the French school as to be so. It is noticeable, too, for the great range of colouring shown.

### The Sanger-Shepherd Process on Paper.

Of all the portraits shown, I, personally, should give the palm to No. 11, which is by the Sanger-Shepherd process on paper. There is a softness of colouring and texture which is really very remarkable, partaking rather of the character of an oil-painting than a colour photograph. Presumably this is prepared by the imbibition process in which a gelatine relief is obtained, then stained with a suitable dye, squeezed into contact with a gelatinised paper, when the dye is absorbed by the damp gelatine from the relief, and by superposition the coloured print is obtained. It is obvious that paper need not necessarily be the support for the finished print, but that ivory celluloid, opal glass or fabric may be successfully used. Another modification of this process, which has already been outlined by the inventor is the use of a ferro-prussiate base for the blue impression, and this may prevent some advantage.

Since the exhibition was opened and the above notes written, another portrait by the Rotary Company's superimposed carbon tissues has been hung, and which, I think, divides the premier honour with No. 11. These two exhibits should be most carefully examined by all professional photographers, for they prove the possibility of obtaining life-like and artistic portraits in colours.

It may, of course, be advanced that the necessary exposures are very long. So they have been in the past, but I am now in possession of a set of colour filters with which the necessary exposure for the violet, green, and red are respectively 1, 2, 2, using a pinachrome bathed plate. Considering that the increase in exposure with the violet screen is four times it will be seen that the total increase in exposure is only 20 times, which makes three-colour work in the studio possible. The new screens are made by Meister Lucius and Brünig.

Nos. 12-17 are prints by Dr. B. Jumeaux' process, which, in the supplement briefly explanatory of the processes, is stated to be the formation of a blue bromide print by toning, obviously the formation of ferro-prussiate and the superposition thereon of red and blue stained films. There is to me in these a preponderance of red which is extremely irritating and obviously untrue. We are further told that the portrait of the King is "a two-colour result with red and yellow images." In the face of this statement it is a little difficult to understand the bright blue ribbon of the Order of the Garter which His Majesty is shown as wearing. This is, I think, the best of this lot.

### The "Pinatype" Prints.

The next process illustrated is that of pinatype, which is also an imbibition process. Ordinary transparencies are made from the three constituent negatives, and printed on to bichromated gelatine plates. The bichromate is washed out and the images stained and successively transferred to paper. These are decidedly good, and the range of subjects shown proves very satisfactorily the capabilities of the process. It is not a difficult one, and my trials with it have been satisfactory. There is one point upon which some doubt might exist. It is as to its permanency, but in conversation with Dr. König, the discoverer of the process, at the R.P.S. exhibition last autumn, I learnt that some specimens had been exposed to full daylight for many months without showing any change. This process differs from the Sanger-Shepherd in that the latter process requires a low relief in gelatine, obtained by dissolving in warm water the unacted upon bichromated gelatine, whilst in pinatype the print-plate is merely treated with cold water, and there is no gelatine dissolved, and the unhardened gelatine absorbs the dyes.

No. 23, "Vegetables," by E. R. Grills, on matt paper, is rendered particularly interesting, because with it is shown a companion pinatype print on glazed paper, and the superiority of the latter is at once apparent.

### Three-Colour by Dr. Grün.

The next series of prints are by Dr. Grün, and are apparently all by modified processes, which are not satisfactory. Nos. 24 and 25 show a want of coincidence of the individual images, and the rendering of the colours is unsatisfactory in most of them. Assuming that the article in "Penrose's Annual," by Dr. Grün, describes the process or basis of the processes used, the following is a summary of the same:—A blue-toned base is made on a gelatinised plate or glass, then sensitised with bichromate and printed under the green screen negative, the excess of colour removed by washing, and again resensitised with bichromate and printed under the blue screen negative. Dr. Grün admits many difficulties, and says that "the method gives results occasionally uncertain, but in about 25 per cent. perfect." If, therefore, we look upon these results as experiments, they are interesting, but if they are put forward as specimens of workable processes, and the 25 per cent. of successes, they do not give me a favourable impression; and the modifications of pinatype are not so successful as the mother process. Note especially the preponderance of green in 37 and 38.

In 31 and 36 we have the same accessories to a figure, and the rendering in these two prints is totally different. Note, please, particularly the curiously shaped and curiously coloured stool and flower pot. There is here, also, a non-coincidence of the images which strikes me as being due to the use of a lens which does not give the coloured images of all the same size. Obviously, this condition is very important in colour work of all kinds, and the reason why opticians now make lenses which are perfectly corrected for three-colour work; for although the images may be on one plane, they need not necessarily be of the same size when using an uncorrected lens.

### Three-Colour Prints by Various Processes.

Four exhibits, by Captain Lascelles Davidson, are described as on dyed celluloid films uncemented. Why the films should not be cemented I cannot quite see, unless the idea be to obtain greater transparency; but there must necessarily be a loss of light, and, I think, of colour-rendering through repeated reflection.

In three-colour work there are certain parts of nearly all subjects which at once show the failings of a process or the particular exposures. These are the rendering of a shadow and a uniformly coloured plane surface. Bearing this in mind, No. 45, a portrait by Mr. Otto Pfenninger, at once shows a failing in the shadow on the blouse, where there is a red tinge, and also a green right hand. It is, however, interesting, as being from negatives made at one exposure. The curious blackish brown patch in the left-hand corner of No. 41 I take to be water, but no one could possibly be certain of that.

Nos. 46, 47 and 48, exhibited by Dr. Heseckel, of Berlin, are by Selle's stripping carbon process, and are hung in much too close proximity to the other exhibits on the same wall, as they throw the latter into the shade completely.

### Gum and Carbon.

Nos. 49 and 50 should be examined in conjunction with 57, 58 and 59,



for they are all bi-gum prints in three colours, and the conclusion I arrive at is that to appreciate this process the results must be large. Fifty-seven and 58 show somewhat too great a brilliancy in red—at least judged from the standpoint of English autumn scenes.

When one considers, however, the difficulties of this process, one must admit that they are good. As is probably well known, a film of bichromated gum with the yellow pigment is first laid on the paper, exposed under the violet-filter negative and developed; then on the print thus obtained is coated bichromated gum, holding in suspension the red pigment, and this exposed under the green-filter negative and developed; and finally, another film of gum and the blue pigment is coated on the yellow plus red print, and exposed and developed.

The fruit studies from paintings shown by the Autotype Company, which, it is stated, are by double transfer of carbon tissues, registration being obtained by a thin temporary support, which allows the image to be seen from the reverse side, are again brilliant and, so far as one can judge without the originals, satisfactory in colouring.

Nos. 60, 61 and 62, by the Lumière superimposed carbon process, will at once strike anyone by the richness and the liquidity of the colouring. It is unnecessary to say much about these, except that they are, I believe, made by the superposition of stained gelatine reliefs, originally produced on thin celluloid.

### Multi-Coloured Prints at one Printing.

We now come to the Szczepanik prints, the instructions for which were given in full in the *B.J.* for January 12. From No. 56 it will be seen that in this tissue the three fugitive films are superimposed, whereas in the process, as worked by Wörel and Dr. Neuhaus, a mixture of three fugitive dyes in one film is used. In fact, the latter states that he can see no advantage in Szczepanik's method (*"Phot. Rundschau,"* 1904, p. 96). Wörel uses primrose, victoria blue and auramine, and sensitises with anethol, the principal constituent of anised oil. Neuhaus uses methylene blue, erythrosine and auramine, and increases sensitiveness by the use of ammonia and chloral hydrate or hydrogen peroxide, and does away with the reeking anethol.

This film approaches, as nearly as would seem possible, to Wiener's ideal chromo sensitive film, and this idea was also used by Cros in 1881, his fugitive colours being carthamine, phyllocyanine and turmeric.

Some may exclaim at the gaudiness of the colours in 52-4, but when one recalls the usual brilliancy of the colours in lithophanes, which may be more generally known as "Glacier" window decorations, then this very gaudiness will be accepted as correct.

The interest in these exhibits lies, of course, in the fact that the tissue or film is practically black, and when exposed under a coloured original the dyes bleach out, except under their own colour. That is to say, under the red of the original the green and blue constituents bleach out, under a green the red and blue bleach, and under blue the green and red bleach. Intermediate colours, such as orange or purple, are, of course, formed by a partial bleaching of two and a complete bleaching of one dye. Whilst up to the present the sensitiveness of these fugitive dye films is extremely low, we may hope, though not prophesy, that here we have the future process of colour photography in which we should obtain by exposure in the camera a photograph in natural colours.

### "Colour Effects" from Ordinary Negatives.

The remainder of the prints are aptly described as "colour effects from ordinary or orthochromatic negatives." The first of these processes is the "Multico" paper of Dr. Heseckel, of Berlin. The original paper was patented by Slavik (an Hungarian, I believe), and consisted of three or four pigmented tissues coated one on the top of the other. On the top was a bright blue, then came a green or yellow, and then a red. Since then various patents have been taken out, in which the use of as many as seven distinct layers of pigment tissue is claimed. Probably some of the readers of the *B.J.* will remember a print of daffodils exhibited by Mr. Birt Acres at one of the R.P.S. exhibitions, held in the old Pall Mall gallery, and a paper read by him before the R.P.S. This must be more than ten years ago, which, so far as I am aware, never saw daylight again, and he there outlined practically the same idea.

As to the value of the process, visitors to the exhibition may, to some extent, judge by noting No. 64, in which there is a bromide print and a multico print from the same negative side by side. That this method can ever give photographs in natural colours, as was

first claimed for it, I certainly deny, and this is readily proved by the following experiment. If we copy a coloured chart containing a full range of colours from red to blue with an ordinary plate, there is no question that the blue will be the densest part of the negative, and the yellow and red the thinnest. Now, if we print from this on "Multico" tissue we shall get some approximation to correctness of colouring, because the dense blue would let but little light through, and, consequently, only the top film of the tissue would be rendered insoluble, whilst the bare glass representing the red would let the light act right through the tissue to the paper and render the red insoluble. Therefore, in developing our print, which is done by the transfer process, as in ordinary carbon work, we should have red and blue properly represented.

Now, however, let us take a panchromatic plate, and with a colour screen so damp down the blue that the red and yellow may act to some extent in accordance with visual luminosity, and we shall have an absolute reversal of the negative densities, and therefore in printing the yellow would be shown as blue and the blue as red, or some other colour.

Notwithstanding this state of things some good results can be obtained for pure landscape work. More than a year ago I had to make a series of tests of this paper, and obtained some really pleasing things, but when dealing with portraits, and cattle and sheep studies, I obtained some effects which were ludicrous in the extreme. For instance, I obtained a portrait of a small child with a pale blue face, in a deeper blue frock, with green hair, holding a brick-red kitten. The latter in life had been, and still is, black. The child has not a blue face, nor green hair. Again, a group of cattle turned out green, speckled with blue; but, as I have said, for pure landscape work some good effects can be obtained, and to anyone who can "fake" either by brush or cotton wool, or a fine jet of water, very great alterations may be obtained in results, and it is quite possible that pictorial photographers might find this a good field for experiment.

### The "Mars Star" Process.

The four exhibits of the "Mars Star" process do not strike me favourably; that may be, and probably is my fault. They are obtained by bleaching ordinary bromide prints and applying a series of colouring solutions in turn without intermediate washing. I should prefer good bromide prints.

The last two prints are portraits by Mr. J. Burgess by a secret process from ordinary negatives, on which there is admittedly and obviously some hand-work. They are either by a carbon or Woodbury-type process if one may judge from the great relief that they show. Certainly the results are much more pleasing than some of the other exhibits which have been obtained by pure photography.

### Sanger-Shepherd and Lumière Transparencies.

We now come to the transparencies, the majority of which are by the Sanger-Shepherd process, in which a silver image transparency, obtained from the red filter negative, is converted into ferro-prussiate, and then the yellow and red impressions are superimposed. In the Lumière process the blue image is obtained by using diamine blue F, the red with erythrosine J and the yellow with chrysophenine G. For producing these transparencies and the red and yellow images of the Sanger-Shepherd process, an emulsion of silver bromide, though this plays but a secondary part, is coated on thin celluloid, and after sensitising with bichromate and drying is exposed through the celluloid and the prints developed in warm water, and then the bromide is dissolved out and the little picture in relief stained up by the proper dye bath, and either superimposed on the celluloid base, or this may be stripped. As a rule the best results are obtained by cementing the films together. The fine set of Lumière stereo slides will naturally attract, as they have done before, great attention.

It is somewhat invidious to pick out those examples which are the best, but those from Sir Wm. Abney's negatives are very fine, as are also those by Miss Acland, but whether it be the added effect of stereoscopy, those by M. Victor Selb are exceptionally good. There is a good chance to see the correctness of one exhibit, namely, 80, which is a reproduction by this process of a diffraction grating spectrum, shown by Mr. Thorne Baker, for close handy is Mr. Edgar Senior's spectrum by the Lippmann process, the only exhibit of this kind, and an extremely successful one. The comparison of the two is a very good object lesson, and I think that Mr. Baker's result is far too purple in the violet, there is no pure blue, and the red is too

brown, this last being caused obviously by insufficient red sensitivity of the plate used. The variety of the subjects shown in this process proves how widely it can be applied.

Particularly should be noted Dr. Norman's slides, 95-98, which received a medal at St. Louis, and Dr. Hutchinson's butterflies, 99-103, which received the only medal for colour work at the last R.P.S. Exhibition. These are all by the Sanger-Shepherd process.

### Snap Shots in Colour.

There are two extremely interesting exhibits by Captain Lascelles Davidson, the value of which, however, is somewhat discounted because there is no indication of how they have been obtained, but they prove that it is possible to take snap-shots in colours, although the results are not perfect. It is to be hoped that he will tell us how they are done.

### The Joly Methods—Old and New.

There are also two of the now defunct Joly process, in which the negative was taken through a screen ruled with alternate lines of green, red and violet, which gave a lined negative, and from this an ordinary transparency on a lantern plate was made, and then bound up with a viewing screen, which was also ruled with transparent coloured lines. It will be doubtless remembered that this was followed by the also short-lived McDonough-Joly process.

The main defects in both these processes was, so far as my opinion goes, the coarse rulings, which were painfully apparent when magnified by projection. For some months irritatingly vague paragraphs have appeared in American journals about a wonderful improvement in this process, which has been worked out by Powrie, of Chicago. We have been told that he could rule the coloured lines as close as 1,000 to the inch. These statements obviously required modification or a greater plasticity for belief than I possess, but in "Penrose's Annual" for this year, on p. 111, Mr. Powrie describes the production of his plates. Had I not rather exceeded the ordinary limits of an article I should condense this. Now, we can understand the lay and inspired articles, and the process certainly appears to me to be feasible. All I want is a few of the negative and transparency plates to play with.

From my own experiments with the Joly process I was convinced that there were possibilities in such a process, that is to say, one exposure, one negative, and one positive; but I could always, unfortunately, see the disadvantages. Still, they naturally lead one to

think of the new Lumière mosaic process, in which coloured starch grains are spread over the plates as screens, and the emulsion coated on top. *Eheu! longe expectate.*

The description of this process is to be found in brief in the "B.J. Almanac," 1906, page 862, and promises well, for the very defect of the Joly processes is done away with, for obviously if the colour is obtained merely by the use of stained potato starch fecules, there would be no "grain" apparent to the naked eye.

Special interest will be excited by the three negatives taken on Dr. Smith's multi-colour plate. This, as is well known, has on the top a blue sensitive film, then a red sensitive, and at the bottom of all a green sensitive emulsion (see "B.J.," Sept. 15, 1905, p. 722). No resulting print is shown from these negatives.

### Butler's Pre-dyeing Method.

Mr. E. T. Butler's results are taken presumably with his one-lens camera, which is figured on p. 856 of the "B.J. Almanac," and the results are obtained by his pre-dye films, that is to say, he dyes his positive films before bichromatising and exposing. His method was propounded at length in the "Photographic Journal," June, 1905, p. 199, and appears abstracted in the "Almanac," p. 864. Mr. Butler's argument is that he finds it easier to follow the development of the image when it contains the dye than when silver bromide is used in the film. To some extent this may be true, but I have never found any difficulty in following the course of development with a pure bromide film, or one might, on the other hand, use an inert dye such as cochineal red, as suggested by Lumière. I cannot help thinking that Mr. Butler's plan considerably limits not only the choice of dyes, but also introduces unnecessary complications, for, as he himself admits, the dyes must not only have the correct absorptions, but stand the action of bichromate *plus* light, be soluble enough to wash out and yet not soluble enough to run. In any case, his results are extremely interesting, though I must confess that they do not strike me as correct in colouring.

The value of the exhibition, taking it as a whole, lies in the fact that there is here brought together in one room specimens by nearly every colour process extant, produced by those whom one must assume from their writings, etc., to be experts, or who are recognised as authorities, and one may therefore judge them according to their works, or their works from their writings. No one should miss the opportunity afforded, for every exhibit will teach some lesson.

E. J. WALL.

## THE FOXLEE GUM PROCESS.

[The following report of a demonstration before the Wolverhampton Photographic Society is from notes specially prepared by the author, Mr. E. H. Griffin. In the introductory to the demonstration, Mr. Griffin highly eulogized the gum process for its immense latitude and facility of control, and instanced, as examples of its use in the most accomplished hands, the motor-car photograph, "Speed," by

I do not think it will be necessary to consider any more advantages of "gum" over other processes, since the value of any method of photographic printing must be judged by the amount of freedom it allows us to obtain the desired result.

There is no safe edge, no transfer, no actinometer, troubles, etc., as with carbon; no extreme susceptibility to damp as compared with platinotype; no greenish or brownish blacks, or grey high-lights that we are sometimes subjected to consequent upon the vagaries of a developer, in the bromide or gaslight process; no dodging or straining of the neck as is necessary to see a glazed P.O.P. print, owing to the ordeal of the burnisher or ferrotype plate giving to its surface a polish, of which a shoeblack might be justly proud.

It is true that the range of tone is somewhat limited in the single coat, but that objection has been removed by multiple coating. This consists of obtaining a primary print from our negative and printing so as to obtain a faint image, and afterwards re-coating and printing, until we have sufficient strength and range of tone to satisfy us. But as I have had very little experience in multiple coating I can only say that this, effectually, to my mind, dispels anything that may be advanced as being a disadvantage in gum bichromate considered from a pictorial standpoint.

M. Demachy, and the "Lingering Autumn" of Mr. David Blount. He then proceeded to consider the technical advantages of the process, and from this point we may give the substance of the demonstration in practically the words of the author. Some notes on this subject by Mr. E. W. Foxlee are held over for want of space, but will appear in our next issue.—Eds., "B.J.P."]

### The Foxlee Process.

There have been several methods of working introduced since what might be termed the revival of gum-bichromate printing has taken place (I believe it is an old process originally invented by Poncey some 20 or 30 years ago). Each advocate of his particular method has claimed superiority either in simplicity of working, or some other detail, over others. I think the earlier methods were to first sensitise your paper, dry, and then apply the pigmenting mixture and finally print, or else pigment your paper, in the first instance, dry, then sensitise and print. The latest system (and the one most generally used) is that in which both pigmenting and sensitising are performed in one operation, and although this possesses the advantage of a single operation over the former methods, I think it still leaves room for some improvement.

The process I now wish to submit is one which I think should claim the attention of all gum-bichromate workers, inasmuch as it may be relied upon from a technical standpoint, having its origin in Mr. E. W. Foxlee, an eminent authority on all matters relating to photographic chemistry. It also, in certain working details, supersedes the others. The process, says Mr. Foxlee, is the outcome of some rather exhaustive



investigations he made some few years back with reference to the behaviour of bichromated gelatine and other colloid bodies when exposed to light.

### Mariotype.

The method of working is based upon what is known in the carbon process as the continuing action of light. After dealing with experiments more particularly relating to a modification in carbon printing, which was demonstrated by the late A. Marion (the founder of the well-known house in Soho Square) to the London Photographic Society (now the Royal Photographic Society) some thirty or more years ago, which was that the action of light set up in one gelatine film that had been bichromated and exposed, could be continued in another gelatine film that had not been exposed at all, Mr. Foxlee says he made investigation to see if the same action would take place in a different colloid—such as gum.

He found somewhat to his surprise that it would, and some paper was coated with gelatine, sensitised on a slightly acidified solution of bichromate of potash, dried, and printed. It was then coated with pigmented gum, also acidified, and then hung up to dry. Upon development next day it showed that the action had been transmitted from the gelatine to the pigmented gum.

The presence of free bichromate, however, introduced an element of uncertainty, so other prints were made, the bichromate washed away and dried. They were then pigmented with an acidified gum solution and again dried, and when developed yielded very good results. Mr. Foxlee then goes on to describe his method of working, of which the following is my actual experience.

### Sizing and Sensitising.

The papers I have used have been Whatman, Nitchal, ordinary cartridge and Wheeler's antique boards. I have found the latter suit my purpose best. It is a very thick rough paper, and has the advantage of cheapness, only costing 1s. 6d. per dozen sheets, size 24 x 20. Either side may be used, but the right side has a somewhat smoother surface than the other. It is necessary to size the paper with gelatine first. The proportions I use are: Gelatine, 1 oz.; water, 20 ozs., in which to render the surface harder I put chrome alum, 1 grain to the ounce. The gelatine is first swelled in cold water (which takes about 1 hour), the water is then poured off, and the correct quantity of hot water added. When the gelatine is melted, the chrome alum previously dissolved in a small quantity of water is added in a thin stream, stirring meanwhile. I then pour a small pool of the solution on the paper, and work it thoroughly into the paper by means of a flat hog hair brush, until there is a fairly even coating obtained.

When the paper is dry it is ready for sensitising. Here we can adapt the strength of our sensitising solution to the character of our negative. A strong negative will require a strong sensitiser to decrease the contrast. A weak negative will be improved by using a weak sensitiser. I have found that for general use, a strength of about 1 oz. bichromate of potash dissolved in 40 ozs. of water is a good sensitiser for average negatives.

I pin my sized paper to a drawing board (protected from splashes of bichromate by a sheet of paper interposed), and pour a small quantity of the sensitising solution in the middle of the paper and work it about with a soft camel-hair brush of two or three inches in width until the paper has received an even colour all over. It is then set aside to dry. It will dry very quickly in a warm room, and when dry is ready for printing.

### Exposure, and Pigmenting the Print.

Exposure is about the same as required for platinotype. Just sufficient for slight detail in the high-lights. The image will be a light brown upon a yellow background. I then leave the print to soak in water, which I change two or three times, until the yellow stain has entirely disappeared and nothing remains on the paper but a faint positive. It is then dried, and can be pigmented straight away or kept for weeks. This is an advantage, for we may keep our prints until we have an accumulation of them, and when we are inclined, pigment them all at once.

The formula I use for pigmenting is as follows:—

#### STOCK SOLUTION OF GUM.

Turkey gum .....	4 ozs.
Cold water .....	10 ozs
Carbolic acid .....	6 or 8 drops

The gum is dissolved by making a small bag of linen or muslin, and placing the gum in this and suspending it in the cold water, by means of attaching the bag to a small stick and placing it crosswise over a jar. It may take two days to thoroughly dissolve. When dissolved it is ready for use.

The print is again pinned to the drawing board and coated as evenly as possible by means of a stiff flat hog hair brush—to smear the paper all over in the first place, and then with another hog-hair brush with much softer bristles, and less of them, to smooth out all irregularities.

This is the formula I use for coating the paper with pigmented gum:

#### PIGMENTING SOLUTION.

Stock solution of gum.....	5 drams
Glycerine .....	1 dram
Acetic acid (glaciale).....	2 drams
Pigment .....	8 to 10 grains

The pigment I use is dry colour, and can be obtained from any oil and colourman, in all shades. When the paper is coated (which should be as thinly as possible) it is dried. I then leave the print under a quantity of books for pressure for thirty to thirty-six hours. The print is then placed in a dish of cold water for development.

### Development

This is conducted in precisely the same way as the usual method. With a correctly exposed print, and one left for thirty-six hours between pigmenting and development, I have found that all the soluble pigment has left the paper in about one hour. We may assist development by brushing very lightly with a soft, camel-hair brush, but I have found it better to develop the print mechanically first, and dry, then work upon it with brushes afterwards, as the film is considerably tougher when it has been once dried.

Mr. Foxlee states that in place of gelatine, for the initial print, other substances may be employed, such as the starches tragacanth, and flour paste. I have tried starch and flour, but found nothing to equal gelatine and alum, as this gives a good hard surface to the paper and keeps the image from sinking into the paper, and having a lifeless appearance.

## AN INTERNATIONAL EXHIBITION OF PHOTOGRAPHY IN PARIS.

A GREAT international exhibition of photography is to be held in Paris this summer at the Petit Palais, in the Champs Elysées. The exhibition is announced to open on July 16 and to close on October 10. The whole of the arrangements are in the hands of M. L. Gastine, director of our contemporary, "La Photographie Française," and commissaire-organisateur of the photographic exhibition held in Paris in 1892. The full text of the scheme of the exhibition has been sent us by M. Gastine, and from it we see that an influential committee of patronage has been formed in France, including, among a number of well-known public persons, M. René Baschet (director of *L'Illustration*), M. Casimir-Perier (ex-President of the Republic), Colonel Laussédot, Prof. Gabriel Lippman, M. Emile Roux (director of the Institute Pasteur), and M. Trouillot (Minister of Commerce and of the Postal and Telegraphs Departments).

We translate the circular of the exhibition so far as it explains the general scheme upon which it will be designed. For the full particulars of the tariff charged for space in any of the groups, and for the facilities which the management can offer in the way of light and motive power, application should be made to M. Gastine at the Petit Palais. We would, however, say that a charge is made for all exhibits except those in the groups devoted to the history of photography (No. I.), scientific applications of photography (No. II.), and education (No. III.). The last day for receiving applications for space is fixed at February 25 next. We are given to understand that an English committee is being formed.

The exhibition will be divided into thirteen groups, comprising altogether sixty-three classes. The inclusiveness of the exhibition

will thus be evident from a brief itemised statement of this classification:—

#### GROUP I.—THE HISTORY OF PHOTOGRAPHY.

Class I.—Apparatus and processes. Positive prints and negatives.

#### GROUP II.—APPLICATIONS OF PHOTOGRAPHY TO SCIENCE.

Class II.—Stellar photography.

Class III.—Cinematography.

Class IV.—Geology.

Class V.—Natural history.

Class VI.—Medicine.

Class VII.—Meteorology.

Class VIII.—Photographic surveying (photogrammetry).

Class IX.—Micro-photography.

Class X.—Oceanography.

Class XI.—Chemistry and physics.

Class XII.—Radiography. Apparatus and materials for X-rays. Radiographs.

In this group the exhibition is assured of support from, and co-operation of, a large number of scientific institutions in France and other countries, including the Collège de France, the Museum of Natural History (Paris), the Paris National Observatory, the physiological station of the Parc du Princes, the Marey Institute, the Institute Pasteur, the Faculté de Médecine, the Sorbonne, the School of Pharmacy, the School of Mines, the Smithsonian Institute (Washington), the meteorological observatories of France, the anthropometric service in Paris, Colonel Laussedat and photogrammetric services in France and other countries, the School of Physics and Chemistry, the International Laboratory of Weights and Measures, and zoological institutes in France and other countries. Daily lectures and demonstrations by leading exhibitors are to be a feature of this group. In each class are to be included both instruments and results, and it is anticipated that a complete collection will be of the greatest service to science as well as to photography.

#### GROUP III.—EDUCATIONAL.

Class XIII.—Applications of photography to education and instruction. Apparatus and photographs, including a representation of the work done in France in distributing millions of photographs, and lantern slides for educational purposes, through special postal concessions granted by the Government.

Class XIV.—The teaching of photography. Methods, apparatus, and installations.

#### GROUP IV.—AMATEUR AND PICTORIAL PHOTOGRAPHY.

Class XV.—Pictorial photography by amateurs of the French and other schools, exhibited in sections, each devoted to one school and the work of individual photographers. Examples of apparatus and special processes, negatives, and prints.

Class XVI.—Societies and other bodies of amateur photographers.

Class XVII.—Individual amateurs.

Class XVIII.—Collections of documentary photographs. Photographic record and survey.

#### GROUP V.—PHOTOGRAPHIC PERIODICALS.

Class XIX.—Journals and other publications devoted to photography.

#### GROUP VI.—PROFESSIONAL PHOTOGRAPHY.

Class XX.—Photographic portraiture. Apparatus and photographs.

Class XXI.—Photographic work for amateurs.

Class XXII.—Foreign professional photography.

Class XXIII.—Photo-miniatures.

Class XXIV.—Photographic decorations.

Class XXV.—Photographic enamels.

Class XXVI.—Photography for artists

Class XXVII.—Photo-sculpture.

#### GROUP VII.—PHOTOGRAPHIC PUBLICATIONS.

Class XXVIII.—Photographic reproductions of works of art.

Class XXIX.—Collections of topographical and photographic views.

Class XXX.—Picture postcards.

#### GROUP VIII.—PHOTOGRAPHIC MATERIALS.

Class XXXI.—Plates, films, and papers. Public demonstration of manufacture.

Class XXXII.—Photographic manufactures.

#### GROUP IX.—APPARATUS AND ACCESSORIES.

Class XXXIII.—Cameras and accessories.

Class XXXIV.—Optical instruments.

Class XXXV.—Photographic accessories.

Class XXXVI.—Cinematographs and accessories.

Class XXXVII.—Apparatus and accessories for projection.

Class XXXVIII.—Stereoscopic photography.

Class XXXIX.—Apparatus for washing negatives and prints.

#### GROUP X.—PHOTO-MECHANICAL PROCESSES.

Class XL.—Line photo-etching.

Class XLI.—Half-tone etching.

Class XLII.—Collotype.

Class XLIII.—Photogravure.

Class XLIV.—Three-colour half-tone (printing in three colours).

Class XLV.—Rotary photographic printing.

#### GROUP XI.—INDUSTRIES RELATED TO PHOTOGRAPHY.

Class XLVI.—Chemical substances used in photography.

Class XLVII.—Raw materials for photographic manufacturers.

Class XLVIII.—Mechanical appliances used in photographic manufactures.

Class XLIX.—Leather dressing.

Class L.—Binding, albums, stationery, etc.

Class LI.—Picture framing.

Class LII.—Gilding, silvering, etc.

Class LIII.—Furniture and accessories for photographers.

Class LIV.—Measures, balances, etc.

Class LV.—Artificial light, and apparatus therefor.

Class LVI.—Heating apparatus.

Class LVII.—Motive power.

Class LVIII.—Regulators, chronometers.

Class LIX.—Tourists' requisites.

Class LX.—Means of transport.

#### GROUP XII.—PHOTOGRAPHIC ILLUSTRATIONS.

Class LXI.—Technical works on photography.

Class LXII.—Books and periodicals, illustrated by photography. Photographic illustration in the daily press.

Class LXIII.—Photographic illustrations in catalogues. Photographic posters in monochrome and colours.

#### GROUP XIII.—THE PHOTOGRAPHIC TRADE.

Class LXIV.—Photographic supplies.

Class LXV.—Dealers in photographs and post-cards.

THE Frey photo-litho colour process, which we reviewed on its first demonstration in London almost exactly a year ago, has been recently brought to our notice by a number of specimens produced by it which we should have liked to have exhibited among the examples of colour-photography now on view at these offices, but selected only from photographic, not photo-mechanical, processes. The process, we understand, is a bitumen one, but the beautiful colour effects are due to the firm's skilled practice of photo-lithographic printing. We hear that the process is being taken up by leading photographers desiring large editions of their works, and certainly for such purposes the process has much to recommend it. Inquiries respecting it will be answered by Messrs. W. G. Bruce and Co., 35, Surrey Street, Strand, W.C.

CINEMATOGRAPHY IN COLOURS.—Many rumours having been in circulation in regard to the projection of animated pictures in colours, a good deal of interest may be expected to be taken in a demonstration of cinematography in colours which will be given this, Friday, evening at the Royal Institution, London, before Lord Rayleigh and other scientific men. Captain Lascelles Davidson, who will undertake the demonstration of the method worked out by himself, is one of the exhibitors in the present exhibition of colour photography now open at these offices, where his "snap-shots in colour" have attracted a considerable amount of attention and speculation. The chief merit of his achievement, of the success of which the public will thus have an opportunity of judging, lies, we believe, in the means taken to secure the negative colour-records with the necessary rapidity. The projection methods will be familiar to those who have followed Captain Davidson's patents of recent dates.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo-Mechanical Notes."*

The following applications for patents were made between January 8 and 13:—

**X RAYS.**—No. 481. Improvements in devices for the measurement of X rays. W. Ironside Bruce and Edward Sanger Shepherd, 12, Heath Hurst Road, Hampstead, London.

**RELIEF PRINTING.**—No. 996. A method of printing from a surface in-relief. A. G. Bloxam, for the Neue Photographische Gesellschaft, Berlin, Germany.

### COMPLETE SPECIFICATIONS ACCEPTED.

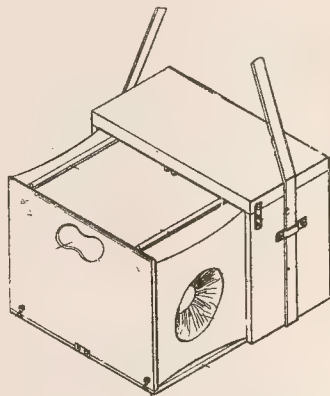
*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**WATER-DEVELOPING PLATES.**—No. 26,066, 1904. The invention consists of a photographic plate or film bearing on itself a dry developing mixture compounded with borax, and for development by the application of water only. The following chemical formula, containing borax as a preservative alkali, is the standard, and can be readily made into a paste, which can then be conveniently placed on the plate, film or other vehicle, viz.:—Metol, 2 grains; hydroquinone, 4 grains; potassium metabisulphite (powdered),  $\frac{1}{2}$  to 1 grain; borax, 10 to 20 grains; colloid, q. s.; glycerine, q. s. (optional for assisting solubility). The paste formed of the above ingredients may be manipulated with a paint brush or other device for making a layer or coating the same, on the back of the plate flat or roll films or backing paper, attached to them. When the plate or film requires developing, it is only necessary to place the same in water, when the chemicals will be dissolved and the picture will develop in the usual manner. By this device developer can be readily carried about and plates and films sold with the ordinary chemicals self-contained will be found to be most useful, especially in country places where the chemicals are difficult to obtain, but where water is always accessible. Each plate, or film, or band of the same may contain the necessary quantity of developer for the surface to be developed. The additional thickness formed by the extra coating does not interfere with the "roll" films in any way, as there is ample space therefor, including an additional backing of protective paper or other substance, which may be employed between the chemicals and the usual black paper. William Fraser Claughton Kelly, 22, Winchendon Road, Fulham, S.W., and John Arthur Bentham, 51, Claverton Street, London, S.W.

**A FILM PACKAGE.**—No. 29,631, 1905. A wrapper A for the films B is formed of opaque paper (or other material) by folding or pleating it into a number of folds, into or between which the sensitised films B are placed, each film being protected back and front by the opaque wrapper. The opaque wrapper A is placed in a container or envelope C, from which it can be drawn, leaving the film behind it therein. The container or envelope C is constructed with a partition c dividing it into two compartments, into one of which the wrapper A enfolding the films is placed and a bar or roller D, by which the film is diverted and passed over from one compartment of the envelope to the other, and is provided with a light tight slit e<sup>4</sup> through which the opaque wrapper is withdrawn. One side of the envelope or container is also provided with an exposure aperture e<sup>3</sup> through which the films are successively exposed. It is made from thick cardboard or other light material entirely separate and detached from the camera and entirely closes and seals up the sensitised films therein so that it can be placed in and removed from the camera in daylight without the possibility of any light reaching or damaging the films. The user takes the film pack—as loaded and sealed by the manufacturer—removes the outside sheath and discards it or reverses it, and places the pack in position in the camera, and before exposure pulls the protruding end of the wrapper A a

distance equal to one pleat. This uncovers the exposure aperture of the envelope, which allows the front film to be exposed through the exposure aperture in the fold of the wrapper. After exposure of the film the wrapper is again pulled the distance of one pleat, the exposed film being thereby lifted over the bar or roller D and transferred to the back behind the other films; this operation is repeated until all the films are exposed when the last fold of the pleated wrapper closes the exposure aperture. Instead of or in addition to the folds of the wrapper A the exposure aperture in the envelope may be closed by a cardboard or stiff shutter or by an opaque film or other device. Where the opaque wrapper A is made without exposure apertures in the folds, the first withdrawal of the wrapper for the distance of one pleat uncovers the exposure aperture in the envelope, and at the same time lifts the film carried in that fold in an upward direction, turns it over the deflecting roller or bar D and pushes it down in front of the first or front fold ready for exposure at the aperture. A fresh film is brought from the back of the package and placed in front of the one previously exposed every time the wrapper is pulled. When the last has been exposed the last fold or pleat is drawn over to close the exposure aperture. John Edward Thornton, Rokeby, Altrincham, Cheshire.

**A CHANGING BOX.**—No. 16,390, 1905. The claims for novelty embody a box, one wall of which is movable and connected to the box by flexible material, in which shelves are provided: the



material being held upright and extended. The box can be used as a carrying case for the camera and other apparatus. Arthur Richard Kellaway Jeffery, 2, Cross Street, Lynton, Devon.

The following Complete Specification is open to public inspection before acceptance under the Patents Act, 1901: Copying Prints, No. 25,040, 1905. Method of and machine for copying photographs, pictures, and the like. Clarke.

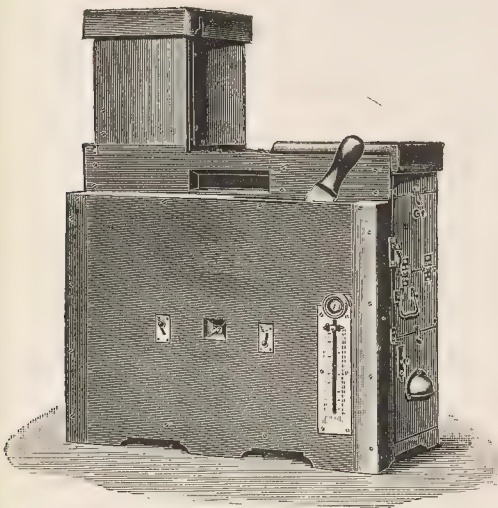
THE "Photo Era," our contemporary of Boston, U.S.A., has reduced the size of its page with the commencement of its 1906 volume, and shows other signs of keen vitality, not the least of which is a proposition to unite the Photo-Secession and the American Federation of Photographic Clubs. By the latter, we learn, the proposal has been cordially received, but the most that can be said of the attitude of the Photo-Secession is that the overtures have met with "respectful" audience.

An Exhibition of Modern Pictorial Photography is now being held at the Little Galleries of the Photo-Secession, 291, Fifth Avenue, New York. It consists of modern French pictorial photography (gum-prints). Some very interesting pictures are being shown, including several colour experiments, which certain of the French pictorialists have made their hobby, notably M. Puy, who has exhibited specimens of this process at the Photographic Salon in London.

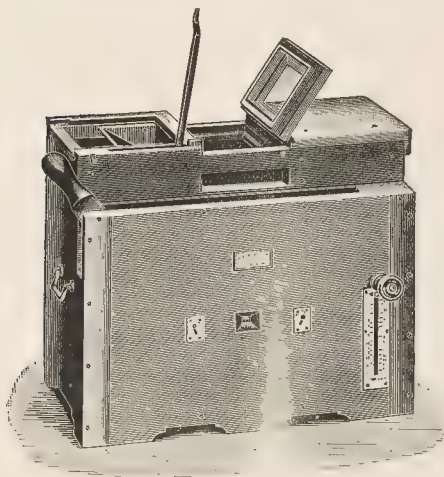
## New Apparatus, &c.

The "Sickle" No. 1 Postcard Printing Apparatus. Sold by O. Sichel and Co., 52, Bunhill Row, London, E.C.

The universal demand for postcards among every class of society has been the means, we are glad to say, of putting money into photographers' pockets, not only through the sale of reproduction rights to publishers, but by the production by the photographer himself of cards which create their own demand locally. Labour



being an important item in the production of the printed cards, those who have embarked, or propose embarking, on this class of business have good reason to make a note of a new piece of apparatus designed



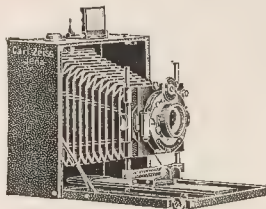
deal rapidly and automatically with the exposure of the sensitive bromide or gaslight cards. The external views of the apparatus, supplemented by a brief description, will suffice to make clear the mode of action of the new machine which has just been placed on the market by Messrs. Sichel. It consists of three portions or chambers,

a magazine or feed reservoir; an exposing chamber; and a collecting box in which the exposed cards accumulate. The feed reservoir, seen as the tower on the right of the figure, holds 500 cards, which are placed in it in a particular cross formation, which is easily understood on referring to the printed directions. The exposing portion is seen in the second figure, where the frame holding the negative is turned back. Negatives up to  $5\frac{1}{2} \times 7\frac{1}{8}$  inches can be accommodated, and by an ingenious provision they can be inserted wet into the carrier and printed in this state, an important advantage when, as is so often the case, the success of a postcard on the market depends upon it being on sale with the utmost promptitude. The negative is simply squeezed upon a clear celluloid carrier. There is also provision for vignettes above the negative, and the insertion of a negative is made in such a way that the charge of unexposed cards in the reservoir is not in any way disturbed. The collecting box takes the form of a drawer on the right of the apparatus, and its construction is such that the very act of withdrawing it from the printer closes it against light. The exposed cards are then carried to the dark room for development.

The method of operating the machine is extremely simple. The magazine being charged and the negative in position, the finger on the scale, on the right of the box, is set to the number of seconds exposure found necessary by a previous trial in a printing frame. This adjustment once made, each card automatically receives the same time, and simultaneously with each exposure a counter records the total number of cards which have been transferred to the "exposed" drawer. The action by which these transferences are made is that of the lever shown, with its handle, in the figures. One stroke from left to right brings the card flatly and firmly against the negative and commences the exposure—which automatically closes. A second (reverse) stroke from right to left removes the card, and the operation is repeated as rapidly as the length of exposure will permit. The illuminant may be daylight or any convenient artificial light, of sufficient power to permit of full exposure of the card within the range of times provided by the apparatus, namely, 2 to 60 seconds. The whole apparatus is strongly made and appears to us to be free from liability to get out of order. Messrs. Sichel inform us that they will be pleased to demonstrate it at their premises at Bunhill Row, and our advice to makers of postcards on anything approaching a large scale is to make themselves acquainted with the machine.

The Universal Palmos Camera: and the Zeiss Pack Slide. Made and sold by Carl Zeiss, Jena and London.

Folding cameras of the hand-stand pattern have been produced by the celebrated Zeiss works during the past year or two, and several have been reviewed in our columns. Now a new instrument has been submitted to us, the feature of which is its wide range of movements. The Universal Palmos, as it is called, is made in one

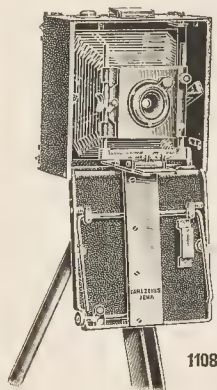


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size only—namely  $9 \times 12$  centimetres, a standard size on the Continent, coming between our quarter-plate and  $5 \times 4$ . The camera is built throughout of light metal, and can thus be depended on in all trying conditions of climate. Its extension is 14 inches, a length which permits of the use of the single component of a double lens. At the same time a lens of very wide angle can be employed by a device whereby the baseboard of the camera drops out of the way, a short runner adaptor taking its place and providing for the limited range of movement required by a lens of such short focal length. The front of the camera is similarly provided with a great range of movements up and down. Focussing is by scale or by a ground-glass screen, and

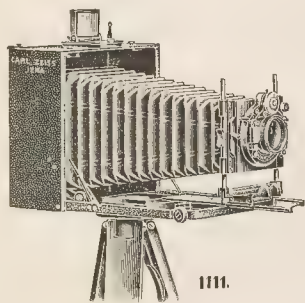


the instrument is thus available for the most varied kinds of photography, telephotography, and interior work, as well as out of doors in the hand. In the matter of exposure the camera is made to take dark slides, the Palmos roll-holder, the Palmos film adaptor for the Kodak film pack, or the new Zeiss Pack Slide. All or any of these can be carried, and fit the camera back without alteration in the register. The figures show the camera in three positions, and will give an idea of its movements better than a lengthy description. The lens recommended for it is the Double Protar of 143 mm. focus, and the Protar  $f/18$  for wide-angle work. The whole apparatus, we need



scarcely say, to those who know the quality of the Zeiss manufactures, is beautifully made, substantial though light, and evidencing in its details a thought for the convenience of the user and a skill in obtaining that convenience which few firms can equal. Prices of the equipment and of the lenses are set down in an illustrated circular of the camera, issued by the firm from Margaret Street, London, W.C.

The Zeiss Pack Slide referred to in the above description of the Universal Palmos is a new accessory, emanating from the Zeiss factory, for the exposure of cut films. It is a stout paper envelope which carries one piece of cut film. The envelope is inserted into an adapter



about the size of an ordinary dark slide, the outer shell of the envelope completely withdrawn when the film is left ready for exposure. The shell is then replaced—the operation we find is quite easy—and the film, in its light-tight envelope, is placed with others which have been similarly exposed. The system is extremely simple, as far as we can see, entirely free from liability to break down, and permits of the carriage of an indefinite number of films, while at the same time each exposure can be treated individually. The films listed as supplied in the Zeiss Packing are "Edwards," "Agfa," and "Perotto Green Seal."

## New Materials.

The Page Croft Pigment Paper. Sold by J. Page Croft, 24, Quadrant Chambers, New Street, Birmingham.

With the gum-bichromate process in high favour among pictorial workers there should be a very widespread reception of a paper which offers all the facilities of the home-made gum paper without any of the troubles involved in its preparation. What those facilities are we have never sought to conceal from our readers. We have insisted that the process in which the photographic pigment image can be wiped away by hand to any extent may produce results which are to all intents and purposes non-photographic in character. Perhaps none the worse for that, but not necessarily any the better. In other words we have resisted the view that a gum-print must be something artistically great because it is a gum-print. It may be as good—artistically—as skill can make any print: equally it may be a thing as artistically bad as ignorance and ineptitude can be guilty of. The latitude of the process works for and against it. A Demachy may exalt the process to the zenith, or the dabbler may hold it up to ridicule. At any rate, none may say that the practice of the process involves the difficulties or troubles which are supposed to beset the experimenter in the gum-bichromate process. We cannot profess any but the slightest acquaintance with the practice of gum, but we have nevertheless found the Page Croft paper quite easy in manipulation. The instructions put its speed down at twice that of P.O.P., but our experience certainly makes us think it considerably more rapid than that. On a dull day, when prints on P.O.P. required nearly a couple of hours to print out fully, the pigment print was fully developable after twenty minutes' exposure. The golden rule is avoid over-exposure and to work with the developing water at a low temperature and with the minimum of alkali. In this way prints of the greatest richness are obtained, but with very great over-exposure—so great as to produce a visible image on the paper—the development of the paper can still be forced with hotter water, with added alkali or by mechanical aids. Not that the results are equally good, though we have seen gum-prints of like character lauded as works of genius.

The prints can be developed automatically in water, in which case the results are reasonably uniform; or they can be treated locally with hot water or with a soft brush for the production of any effects procurable by removing the pigment; in other words, affording all the means of control for which your pictorial worker cries.

To sum up, the paper is the essence of simplicity, sensitised in a minute and a half by immersion, dried in half an hour or so in a warm room, exposed rapidly, and developed and ready for drying in less than a quarter of an hour. It can be purchased sensitive or insensitive in the following tints:—Black, cool sepia, warm sepia, and Bartolozzi red. The prices are based on 1s. 3d. for a dozen half-plate pieces.

A NUMBER of new lines in postcards and views specially offered to photographers from their own negatives and photographs have been shown to us by the firm of O. Flammger (Stengel and Co.), of 39, Redcross Street, London, E.C. The firm specialises in the first production of attractive and, we must say, highly saleable cards and views from photographic originals, and we can quite believe their experience that a print for which a very moderate sale can be made in its ordinary state can be converted into a rapid seller when reproduced with embellishments of various kinds. Messrs. Flammger have four chief series, their glazed bromide, and smooth "Platinotone"—apparently a very good colotype—and two series of cards coloured, by hand and machine. Each of these processes proves, in their hands, capable of altogether handsome results, and we cannot do better than draw attention to the firm's offer to send samples on request, as that course will convince our readers more than anything we can say, and will save us the employment of superlatives. One special item we may commend, and that is a series of local views, issued as postcards, and as souvenir cards, 8 x 6 inches, in each case with the arms of the borough introduced in an appropriate manner in one corner. Messrs. Flammger will prepare cards in this style, in sets of not less than 500 each, for any series of photographs.

RECEIVED.—"Silvo" postcards. Sensitised bromide and gaslight

postcards for producing prints on with a silver-like lustre. The emulsion is applied to an aluminium surface. (The Rotary Photographic Company, Ltd., 12, New Union Street, Moorfields, E.C.) We shall report on these cards as soon as we have made a few prints on them.

MESSRS. Houghtons, Limited, 88-89, High Holborn, London, W.C., send us a convenient gas-burner for the dark room, consisting of a eye-pass attachment, the watch flame in which is protected from draughts by a circular chamber with mica windows. The accessory is made in brass, and costs, ready for use, only 2s. 6d.

#### CATALOGUES AND TRADE NOTICES.

A HIGHLY decorated diary for 1906 reaches our table from the photographic department of the Actiengesellschaft vorm Gustav Ritzsche, Berlin, makers of Vidil films.

"New Cameras for 1906" is the title of a very lengthy and comprehensive list which Messrs. Houghtons have just issued. It describes and illustrates practically every type and form of hand and camera, including, of course, the celebrated Sanderson series. We note also the description and specification of the new "Houghton" film envelope and adapter, a small accessory no larger than an ordinary dark slide, but providing for the exposure of cut-films ad infinitum.

## News and Notes.

THE Berlin Photographic Company, of 133, New Bond Street, have been appointed Fine Art Publishers to his Majesty the King, by Royal Warrant.

A "ROTARY" TOUR.—We learn that the Rotary Photographic Company, Limited, have just despatched their Mr. C. E. Hodges on an extended tour of the Colonies, including Egypt, India, Australasia and Canada. Besides carrying "Rotary" papers, postcards, films, etc., Mr. Hodges is also representing the pictorial postcard department, with the well-known series of "Rotary Picture Postcards."

PHOTOGRAPHIC reproductions of the works of Frank Brangwyn are being published by Alvin Langdon Coburn (from 89, Guildford Street, W.C.) whose one-man show at the Royal Photographic Society will be opened at Russell Square on February 6. At present two portfolios have been completed, each including five reproductions. The price of each portfolio is five guineas.

THE third annual exhibition of the Dover Institute is announced for February 14 and 15. There are four open classes. The Rev. C. Lambert, M.A., is the judge; the secretary, Mr. J. W. Jewells, 6, Gladstone Terrace, Dover.

PHOTOGRAPHIC Society of Ireland.—The annual exhibition will be held in the Leinster Hall, Molesworth Street, Dublin, from April 2 to 7, when exhibits in ten classes will be judged by Mr. Arnold Baker. The last day for receiving entries is March 24. The secretary of the exhibition, Mr. W. F. Cooper, 194, Clonliffe Road, Muncondra, Dublin, will send the entry-form and prospectus to any applicant.

THE exhibition in Paris, under the patronage of the Photo-Club, for portraiture and other photography done with anachromatic lenses is to be opened at 44, Rue des Mathurins on March 1. It will be remembered that we published several articles on these lenses, of which M. Puyo and other leading pictorialists in France have spoken very high praise for their particular purposes, and the exhibition will be of more than ordinary interest to the professional photographer looking for certain qualities of breadth in his portraiture.

FROM Editor, Thomas Harrison Cummings, of the "Photo Era," Boston, we have received a reprint of the address delivered by him to the Convention of the Photographers' Association of America "Photography: Its Recognition as a Fine Art and a Means of Individual Expression."

NEW work on copyright is announced by Stevens and Haynes, of 4, Yard, Temple Bar, namely, "International Copyright," by Wilfrid Briggs. If the author is able to clear up some of the intricacies of foreign and colonial copyright, his work will be worth all the price

of it (16s.). We see that he does treat of artistic copyright in relation to photographs, but we doubt whether there is anything fresh to be said which will illuminate the dark places of this branch of the subject.

AN Argument for Stereoscopic Photography.—The "Dioptric Review" reports two interesting cases from New York where a complete cure of squint has been obtained by the prolonged use of glasses and stereoscopic exercises. In the first case it was after two and a half years of use of the stereoscope and correcting glasses that the intermittent strabismus ceased. The second patient was cured by the wearing of glasses and exercises which involved exclusion of the sound eye at intervals and the use of the stereoscope.

THE Secretaries' Postal Photographic Society.—Mr. B. J. Mitchell, having resigned his position as secretary, Mr. S. G. Kimber, Oakdene, Highfield, Southampton, now occupies the position, and will be pleased to give particulars to any hon. sec. wishing to join.

THE Cripple Gate Photographic Society's seventh annual exhibition will be held in the spacious hall at Cripple Gate Institute, Golden Lane, E.C., on March 12 to 15, 1906. Entry forms are now ready. Full particulars and entry forms may be obtained from the Hon. Sec., John B. Parnham, 5, Reighton Road, Upper Clapton, N.E.

A GERMAN edition of one of Mr. Kearton's nature books has been issued by the well-known firm of W. Knapp, under the title "Tierleben in freier Natur," and at a price of 10s.

A NOVELTY in the way of supplements in magazines is to be provided by the "Camera" (Philadelphia) in its February issue. It will be a Velox print coloured by the Japanese Water-Colour Co.

## Photo-Mechanical Notes.

### The Penrose Pocket Book and Diary, 1906.

The second issue of this convenient little diary reaches us from Messrs. A. W. Penrose and Co., 109, Farringdon Road, London, E.C., with a repetition of the arrangement of formulae and tables drawn up by Mr. William Gamble. These include a number of optical and chemical data in addition to the working directions for the half-tone, line, and three-colour processes. We know that the volume has been a constant source of reference to the photo-engraver, and doubtless many readers of these notes will be glad to know that Messrs. Penrose will send a copy to any bona-fide process applicant.

### Main Pipes for Photo-Engravers' Sinks.

The advice of a plumber to readers of the "Meard Printer," who had experienced trouble in the action of waste acid and alkaline solutions on drain mains, may be noted by others who find themselves in similar difficulties. "Properly glazed earthenware sewer pipe is the best for waste water containing acids or strong alkalis. The trouble with the ordinary glazed sewer pipe is that the clay of which it is made contains iron; this is attacked by the acids through the glaze and the whole pipe soon absorbs water and becomes useless. Proper sewer pipe for this purpose is made of 'magnetized clay,' that is, clay that has been poured in a fine stream before a powerful magnet that attracts all the particles of iron from it. The glaze must be acid proof and the pipes should be molded in lengths of at least four feet to reduce the number of joints required. The joints should be first calked with asbestos packing and finished with retort cement. The best material for sinks is undoubtedly soapstone, put together with hydraulic cement. All serviceable plumbing must be so supported that its weight or vibration does not injure the joints."

### PHOTO-MECHANICAL PATENTS.

The following patent is open to public inspection before acceptance under the Patents Act, 1901: No. 26,965. Photo-Mechanical Printing. Ippers.

The following application for patent was made last week: No. 644. Apparatus for photo-mechanical printing. Benjamin James Hall, 41, Castelnau, Barnes.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Jan.	Name of Society.	Subject.
26.....	Sutton Photographic Club .....	"Choice of Apparatus." Mr. Hector Maclean.
26.....	Aberdeen Amat. Photo. Assn. ....	"Carbon and Zigo Printing." Mr. J. F. Steadman.
26.....	Aberdeen Photo Art Club .....	"In the Highways and the By-ways." Mr. A. Mackilligan.
26.....	Loughton Photographic Society .....	"Architectural Photography." Mr. Chas. H. Oakden.
26.....	Photographic Society of Ireland .....	"Telephotography." Mr. C. P. Goerz.
26.....	Bromley Camera Club .....	Evening for Discussion.
26.....	Colne Camera Club .....	"The Story of Fendle and Boulsworth." Mr. A. Wilmore, F.C.S., F.G.S.
29.....	Oxford Camera Club .....	"The Principles of Pictorial Composition." Mr. O. G. Pike.
29.....	Southampton Camera Club .....	"Home Life in Birdland." Illustrated.
29.....	Scarborough and Dis. Ph. Soc. ....	"A Chat on a Trip to Egypt and the Syrian Coast." Mr. G. Whitfield.
29.....	Dewsbury Photo. Society .....	Members' Lantern Evening.
29.....	South London Photo. Society .....	"Stereoscopic Photography." Mr. C. H. Oakden.
30.....	Burton-on-Trent Nat. Hls. Soc. ....	"With a Camera in Paris." Mr. H. Lloyd Hind, B.Sc.
30.....	Leeds Photographic Society .....	"Gun Bichromate." Demonstrated.
30.....	Nelson Photographic Society .....	Mr. J. Page Croft.
30.....	Sheffield Photographic Society .....	"Cameras and Pictures." Illustrated.
30.....	Birmingham Photo. Society. ....	Mr. R. Hesketh.
30.....	Darlington Camera Club .....	Elementary Night. Paper by Mr. T. U. Simonson.
30.....	Osley & Dis. Cam. & Art Soc. ....	Lantern Evening.
30.....	St. Helens Camera Club .....	Lantern Slide Competition.
30.....	Gateshead Camera Club .....	"How to Make Lantern Slides." Mr. L. West.
30.....	Halifax Camera Club .....	"Gun Bichromate Printing." Mr. Carnaby.
31.....	North Middlesex Photo. Soc. ....	"Stereoscopic Photography." Mr. J. W. Holland.
31.....	Glasgow Southern Photo. Assn. ....	Rummage Sale.
31.....	Coventry Photo. Club .....	Entries Close for Championship Cup Competition.
31.....	Everton Camera Club .....	"Ozotype." Mr. F. J. Mercer.
31.....	Leeds Camera Club .....	"Reducing." Mr. J. Mansell.
31.....	G.E.R. Mechanics' Institution .....	"Making the Negative." Demon- strated. Mr. S. E. Bottomley, F.R.P.S.
31.....	South Essex Camera Club .....	"Stereoscopic Photography." Messrs. C. P. Goerz.
31.....	Cricklewood Photo. Society .....	"Enlarging." Mr. W. C. Jenkins.
31.....	Tring Camera Club .....	Daily Mirror Lantern Slides.
Feb.	Putney and District Photo. Soc. ....	Second Annual Exhibition at the Market House.
1.....	Chelsea and District Photo. Soc. ....	Yorkshire Photographic Union Lantern Slides.
1.....	Harrogate Camera Club .....	"Enlarged Negative Making." Demon- strated. Mr. A. S. Long.
1.....	Darwen Photographic Assn. ....	"In Search of the Picturesque." Mr. W. H. Houghton.
1.....	Tunbridge Wells Ama. Ph. Assn. ....	"Amateur Photographer Prize Slides." Mr. H. Wild.
1.....	Hull Photographic Society .....	"Are Orthochromatic Plates Best for Landscape Work?" Mr. J. W. Charlesworth.
1.....	Liverpool Amateur Ph. Assn. ....	Competition Pictures on View.
1.....	London and Prov. Photo. Assn. ....	Open Night.
1.....	Bolt Court Sch. of Photo. Eng. ....	"The Production and Distribution of the Picture Postcard." Mr. F. T. Corkett.
1.....	Southport Photographic Soc. ....	Exhibition of Affiliation Competition Lantern Slides of 1908.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, January 16. Rev. F. C. Lambert, M.A., in the chair. Mr. S. G. Kimber read a paper, with lantern illustrations, on "Winchester Cathedral," the interest of which was chiefly architectural and archaeological, and was created in large measure by the excellent lantern slides from the lecturer's negatives which accompanied it. Mr. Kimber reminded his audience that Winchester was the *pièce de résistance* in the programme of the Photographic Convention at its meeting at Southampton in July next, and probably the members of the audience with a penchant for architectural photography could have no stronger incentive offered to them to attend the forthcoming meeting than the lecturer's demonstration of the subjects which awaited them at Winchester.

Meeting held January 23, Mr. S. H. Fry in the chair. A demonstration of portraiture with the "Ideal" flash-lamp was given by Messrs. Houghton. Mr. Chas. E. Houghton explained the con-

struction of the lamp. It consisted of a framework, which he might call the "cabin," covered with fireproof fabric within which the magnesium flash was produced, being ignited by means of a percussion cap of the "central fire" type. The magnesium smoke was entirely retained within the lamp, and the latter was removed from its stand and emptied of its contents through a window or by any convenient means. A demonstration followed, in the course of which a number of portraits were taken instantaneously and developed on the spot. It was stated that the weight of powder consumed for each exposure for a head and shoulders was 15 grains, that the cost was 3d., and the time of exposure as short as one-eightieth of a second. In reply to a number of questions, the demonstrator said that the two parts of the powder should be mixed at the time of use, but that he had found the mixture to keep for some time. A member of the audience who worked the lamp with great satisfaction in his business stated that he had found the mixture to work well six months after mixing. He also used two lamps in one "cabin" for two exposures in quick succession. It was pointed out that the fabric of the "cabin" could not catch fire. On one occasion on which the lamp had been charged with a heavy dose of powder, for photographing 150 people, the only effect had been to make a charred hole in the material of the illuminating chamber. Mr. Frank Turner asked how it was possible for a photographer to judge of the effect he was getting with the lamp when photographing subjects in which there was a good deal of light drapery. It was recommended to use an ordinary gas or lamp light when viewing the sitter on the screen, but Mr. Turner did not think that the same effect would then be observed.

A demonstration of the Boardman arc lamps was then given by the Boardman Electrical Patents Co., Limited, assisted by Mr. Kaye. Mr. Boardman explained that the lamps provided for the visible adjustment of the lighting on the sitter in any desired way, and it was shown how the use of a reflector produced soft effects without loss of roundness and relief; also that the interposition of a semi-transparent screen between the lamp and the sitter gave a range of contrasts from strength (almost hardness) to softness which was really flatness, according as the filter was close to or removed from the light. This effect of the filter was very clearly shown by the operator. As regarded the choice of a lamp, it was stated that one taking three pairs of carbons would enable the photographer to work on voltages from 100 to 240 volts, and with direct or alternating current.

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

#### MEETING OF THE COMMITTEE.

A MEETING of the general committee was held at 51, Baker Street, W., on Monday, 19th inst. Present: Messrs. F. A. Bridge, Alfred Ellis, S. H. Fry, Wm. Grove, A. Mackie, H. S. Mendelssohn, D. Prodder, E. Scamell, Lang Sims, and R. Fellows Willson. Mr. Alfred Ellis, Past-President, in the Chair.

The Assistant-Secretary reported that the sub-committee appointed in connection with the Assistants Certificate Scheme, had carefully considered all the letters they had received from assistants criticising the present regulations and conditions. The principal objections raised were in respect to the fees chargeable and to the existing classification. Several very sensible letters had been received, and the sub-committee were glad to acknowledge the value of many of the suggestions that had been made. It was noticeable that in several cases the writers of letters made complaints for which there was no ground, and which were based upon erroneous interpretation of the conditions of the prospectus. The report of the sub-committee was as follows:—The sub-committee recommend that the association should be prepared to grant certificates to general assistants based upon their own statement of their qualification, confirmed by present and previous employers, to be known as the General Assistants' Certificate. That a registration fee of 2s. 6d. be charged for a certificate of this description. That at present no other alteration be made in the conditions already published.

After discussion the report was adopted, and the sub-committee were composed to make the necessary arrangements for carrying out the recommendation into effect.

The meeting then became special for the purpose of nominating

President and twenty-four members of committee as the committee's nomination for the new committee.

After the close of the formal business, the Chairman alluded to the very pleasant gathering the committee and friends had the early part of last year at the Villa Villa Restaurant, and suggested a similar festivity should take place this year. The suggestion was unanimously adopted.

**MEETING OF THE HULL BRANCH.**—A meeting was held January 10 at Regent House, Messrs. E. Cooper, C. Delf, W. Duncan, W. Fussey, R. Garside, P. Lyne, T. C. Turner and A. Wellsted attending. Letters expressing regret for absence were read from Messrs Barry and Parkyn. The Chairman (Mr. A. Wellsted) said he was glad to meet the members again, and regretted that the interval had been so long. Various causes contributed to render the activity of the branch subject to fluctuation, but he was quite sure that every one present continued to regard the Association's work with interest and sympathy. He wished the members every good fortune during the year. The Hon. Secretary drew attention to the reports of a considerable increase in the system of invitation sittings among professionals in Hull, and thought that nothing but mutual consideration would be effective in limiting this acknowledged evil. Prospective sitters came to the studio armed with an invitation from another man and endeavoured to cut down terms. Ladies, who received these baits, also seemed anxious to acquaint their friends in the city of the fact, and it led to mischievous retaliation or general loss among photographers. The chief discussion of the evening related to the practice of several outside enlargement firms who were operating in the city on an unusually aggressive scale and with much artfulness. Mr. Garside mentioned the names of several people who had asked his advice as to means of proceeding for the recovery of valued originals, and he wished to know if the committee in London were prepared to take up any test case with a view to giving publicity to the business. If not, he could find people who considered themselves very badly used. Mr. Fussey said the city was overrun by canvassers (chiefly women), the firm employing thirty-eight people. The procedure was to make large and faint bromide print, and to suggest that this was merely the "sketch" of a fine and important work which could be obtained for small weekly payments. After a few weeks of these payments the old frame trick was sprung upon the dupe, and in the end sums varying from 15s. 6d. to 50s. were obtained for the greatest rubbish imaginable. When the people objected they had to face the loss of the payments already made and the retention of the original photograph, and rows were constant incidents of these schemes. The harm done to professionals was of a two-fold character. Firstly, the direct loss of orders, which would otherwise be executed of fair value, and, secondly, because when the scheme had been worked out a great prejudice would remain against photographic enlargements through the fear of being done again. Mr. Cooper said the railway company delivered frames by the trolley load, and there was no time to lose. Mr. Delf suggested that every photographer should display a notice in this window dealing with the matter, as it was a cheap and effective means of reaching the notice of the public. Messrs. Fussey and Duncan thought a handbill circulation should be used as a countermove. The Hon. Secretary drew attention to the valuable assistance received from the Press, and it was agreed that the following extract from the "Hull Daily News" should be printed and distributed among all photographers for window exhibition:—

#### CAUTION.

I hope this note may catch the eye of Major Malcolm, Chief Constable of Hull, and his detective department. At the present time the city is swarming with a set of individuals who are practising in suburban streets a piece of smart American trading. They call on houses, and offer to enlarge portraits and finish and frame them for a fixed sum. After taking a deposit they return in a few days to say that the style of frame ordered is already sold out, and they therefore, only supply immediately one of a higher price. Most of their clients protest, and then they either have to lose their deposit and look pleasant. The visitors usually come when the husband is at work, and are not unequal to getting to the windward of a fair sex as have no business knowledge. It may possibly be the province of the Chief Constable to issue a warning against these folk, who sail, I think, sufficiently close to the wind to need

stopping. The moral is easily learned when there are so many old-established respectable photographers in the city. Entrust your work only to them.

**SUTTON PHOTOGRAPHIC CLUB.**—On January 19, Mr. C. Thwaites, M.I.C.E., gave a lecture on "Eclipse Photography." Mr. Thwaites' lantern slides of the sun, moon, nebulae, stellar bodies, and of the places and people connected with various expeditions he had taken part in, proved to be most interesting, as were also his reminiscences.

**BRADFORD PHOTOGRAPHIC SOCIETY.**—The annual meeting was held at the Grammar School on January 15, when Mr. G. A. Bever was re-elected President for a second year. The new secretary is Mr. W. H. Womersley, Spring Hurst Road, Shipley, and other officers, are as follows:—Vice-Presidents, Alex. Keighley, F.R.P.S., E. Clough, A. Bracewell, W. C. Ramshaw, G. Thistlethwaite, and Percy Lund. Committee: Messrs. H. A. Ram, J. Dawson, A. Denbigh, W. E. Fearnley, F. W. Linck, F. Nicholson, J. F. Seaman, A. R. Sharpe, J. Smith, G. Wood. Lanternists: Messrs. W. J. Forrest and T. Steele. Librarian: C. P. Tatham. Secretary of Portfolios: J. H. Liebreich. Treasurer: E. Hill. Assistant Treasurer: S. Hampshire. Recording Secretary: H. W. Longbottom. Secretary: W. H. Womersley, Spring Hurst Road, Shipley. Assistant Secretary: W. E. Townsend.

At the Chelsea Society on January 18 a lecture on "Holidays in Ireland" was given by Messrs. Brown and Hurdman.

**BROMLEY CAMERA CLUB.**—On Wednesday in last week Miss Gertrude Bacon, daughter of the Rev. J. M. Bacon, delivered a lecture on her visit to India with the eclipse party. Soon after the eclipse commenced they began to experience the strange weird feeling of which they were conscious only at the time of a total eclipse, though it might be likened to the sensation produced by a coming thunderstorm. The marvellous hues they had observed in Lapland were noticeable. Darkness stole gradually over the landscape, and before very long the birds seemed to understand that something unusual was taking place. They began to retire to roost, and the night-flying birds and insects began to make their appearance. The air began to get cold, and things began to assume a yellowish shade. As they took their places at their instruments for the purpose of making observations and taking photographs, their hands trembled and their hearts beat with excitement. Gradually the darkness deepened. It felt like a pall, and then a glorious object, the corona, appeared, an object indeed of indescribable beauty, of which no drawing or description would give them an adequate conception. The stars appeared twinkling close up to the sun, and totality commenced. The photograph of the scene thrown on the screen would give them an idea of the great black ball, representing a dead world, a ghastly corpse. But around it could be seen the great heavenly glory, a lambent, rushing flame, the corona, whilst outside this inner corona there appeared sharply defined streamers, glowing and bright. They were of the utmost brightness and brilliance, with something ethereal in their heavenly loveliness. It seemed as if for a fleeting second the golden gates had swung ajar, and given them a brief glance of the land which lay beyond the veil. There seemed no time for anything. The seconds were flying. The long streamers first disappeared; then the inner corona, though not for ten or fifteen seconds after totality. Venus and Mercury and the stars and the great shadows vanished, and the light came flashing back over the landscape. It was a matchless sight. The photograph thrown on the screen at this time was described as one of the finest ever secured of the corona.

**CROYDON CAMERA CLUB.**—Mr. Jackson gave a practical demonstration of the products of the Rotary Photographic Company on the 17th inst., and an interesting evening was spent. The various brands of bromide papers, including the latest, consisting of an emulsion on a silver-coated support, were described, and it was mentioned that although large differences as to weight, surface and tint existed, the speed of all was the same. The Rotary stripping films for three-colour and monochrome printing, the ordinary carbon tissue and negative paper, were each in turn brought forward, and the method of working them clearly indicated. Mr. Jackson then handed round some excellent examples of three-colour work on paper, also carbon prints and transparencies, and paper negatives. The last-named appeared rather hopeless viewed by reflected light, the images being



veiled and sunk in; by transmitted light they were, however, seen to be capital negatives, and considering the nature of the support remarkably free from grain.

**BURTON-ON-TRENT NATURAL HISTORY AND ARCHÆOLOGICAL SOCIETY** (Photographic Section).—At a meeting, held on January 16, a members' competition in architectural subjects was held. A number of excellent prints were shown, Mr. J. W. Woodhead taking the award with one of the doorways of Lichfield Cathedral. This was taken with an R.R. lens, well stopped down, and time exposure, and was printed on Leto gaslight paper.

**ST. HELENS CAMERA CLUB.**—At a meeting on January 17, Mr. S. A. Buckley gave a lecture on "Commercial Photography." By "commercial photography" he meant something beyond the taking of photographs as a hobby. For business purposes it is often of the utmost importance to be able to take a photograph of something and produce a presentable print in a minimum of time. One simple way of saving time was mentioned. After fixing and rinsing a plate, put a piece of thin celluloid in contact with the film, and squeegee the water out. By this means a print can be taken just as if the plate had been dried. This dodge, in conjunction with bromide paper that will stand heating to dry it, enables one to produce a print very quickly indeed. In reference to the reproduction of photographs in the Press, he mentioned that Gee and Watson's, the London Studio, 20, St. Bride Street, E.C., were agents for all the important papers and bought copyrights for themselves. The lecturer, however, wished to refer to those cases where fairly large numbers of copies were required to illustrate or advertise something in business, or when, as in the case of book illustrations and picture postcards, large numbers were required for sale. Photographic prints on bromide paper can be produced in large numbers by the aid of machinery, but the cost of these photographs, compared with that of prints made by means of printer's ink in a printing press, is very high, and therefore these latter processes are chiefly of interest in commercial photography. What is called the half-tone process is now very largely employed. The print is made up of fine dots of varying size (equal density), formed by means of a network of lines ruled on glass and placed in front of the sensitive plate when making the photographic negative from which the half-tone process block is printed. It may seem that the effect of the network of lines in front of the plate would be to cut the image into tiny squares which would be all the same size, only varying in density according to whether the square happened to be in a light or a shadow, so that when the negative was printed the result would be simply covered with black lines and the picture only imperfectly seen through them. Yet by suitable manipulation the image is broken up into dots, which are of varying size, but of equal density. One way of accounting for the fact that these dots are produced is to suppose that each little aperture in the network of the ruled screen acts like a pinhole; the spot of light formed by the opening in the diaphragm of the lens is an object external to this pinhole, so that the diaphragm is focussed by the pinhole on the plate and produces a black dot. That something of this kind actually does occur is proved by the fact that if the diaphragm opening is made square, the dot is rendered approximately square, the same applying to any other shape of diaphragm opening. The dots vary in size in proportion to the light; where there is most light the dots are largest. Each dot may be considered to start with a nucleus, which grows with greater and greater intensity of light or longer exposure. The screen will be, say, 1-10th inch from the plate. Various shapes of diaphragm are used, but generally the square, or square with extended corners, the object being to produce a dot which tends to spread at the corners, and will thus restore the parts which the screen has cut off. Half-tone blocks are made from negatives produced through screens ranging from, say, 30 to 400 dots per inch. When speaking of screens the number of dots is expressed per inch run, not per square inch. From the negative thus produced is made the half-tone block. A sheet of copper or zinc is coated with fish glue in combination with a bichromate salt, dried, exposed under the negative for about twice as long as for an albumen print. It is removed from the printing frame, immersed in a dye for a minute, so that the development can be watched, put into a dish, and water allowed to run over it until the bare metal is visible between the dots. It is then drained and dried in methylated spirits, heated over a gas stove, and then etched in an acid or iron perchloride bath,

which attacks and dissolves away the metal where it is not protected by the dots formed of insoluble glue. This etching may take from 5 to 15 minutes. The metal plate, when finally mounted on wood, is ready for the printers. The negative must be reversed by means of a process mirror or prism, placed before the lens, or the film must be transposed. Referring to the collotype process, the lecturer said the word "collotype" designated the process of producing a print in greasy ink from a gelatine surface. A glass or metal plate coated with gelatine, in combination with bichromate salts, is exposed under a negative, then washed in cold water for a considerable time to remove the bichromate. The plate is then allowed to dry after which it is placed on a level table and covered with what is known as the etch, the object of which is to damp the plate thoroughly and at the same time to keep it damp as long as possible. This is accomplished by the presence of some deliquescent substance. The plate now has the property of taking up the greasy ink in proportion as it has been acted upon by the light. The parts that have absorbed much water will take little ink, and on this principle every possible gradation is reproduced, according to the amount of action the light has had on the film. A reversed negative must be obtained either by stripping the film or with a mirror or prism. The process requires suitable negatives, extremely soft but full of gradation and detail, which, with transmitted light, have a greyish rather than a black look. By means of a microscope the lecturer showed the difference between various half-tone blocks, screens, and prints.

**HACKNEY PHOTOGRAPHIC SOCIETY.**—A smoking concert was held in connection with the Hackney Society at the Pembury Hotel on Tuesday in last week, Jan. 16, at which, under the chairmanship of Mr. F. W. Gosling, a long and entertaining programme was provided entirely by members. The president, Mr. Harold W. Lane, provided the "star turn" of the evening, in the shape of what was described on the programme as "a development in one act," entitled "The Peer, the Pressman, and the Photographer," the dramatis personæ in which were represented by Mr. Walter Selfe, Mr. J. J. Westcott, and the presidential author. Mr. Lane, as a playwright, is evidently of the modern school, which is prepared to sacrifice conventions, and even continuity of plot, to provide an amusing entertainment, and the reception of the performance was a proof that Hackney entirely approves of irresponsible fun, which is frequently photographic and personal in a good-humoured way. The many other items on the programme were also contributory to the evening's pleasure, and all concerned may be congratulated on a most enjoyable function, to the gaiety of which at the close the chairman, unexhausted by his active conduct of the meeting, added with a "French" song.

**LEEDS PHOTOGRAPHIC SOCIETY.**—The annual general meeting took place on January 16, when the officers for 1906 were elected. T. W. Thornton again holds the office of president, supported by Messrs. Godfrey Bingley and Robert Mackay as vice-presidents. G. H. Rodwell fills the treasurer's position, vacated by Mr. Thos. Carter, while A. Edwards continues the secretarial work. After the conclusion of the business Mr. Godfrey Bingley exhibited selections from a year's lantern slide work, comprising most varied and interesting subjects in Yorkshire, Lincolnshire, and Norway. Mr. Bingley apologized for the slight marking appearing in several of the subjects. He had used roll films, developing some in the Kodak machine with their adjusted pyro-soda developer, while the rest were developed by the ordinary method with his usual mixture of hydroquinone and eikonogen with caustic potash as the alkali. In most cases the negatives by the latter method were marked, while those developed by the machine were free from this defect. In conversation with a Kodak representative, Mr. Bingley mentioned this puzzling experience, and was informed that the Kodak Company did not recommend eikonogen, as they had found it prone to cause markings, the developed result of a slight reducing action exerted by the black paper backing on the emulsion, which did not appear when a developer of a less searching character was used.

**HANDSWORTH PHOTOGRAPHIC SOCIETY.**—At a meeting on Thursday January 18, the president (Mr. P. Whitehouse) gave a demonstration of the Watkins "time" system of plate development. He prefaced his demonstration with a short description of the theory of the process. He explained that it consisted in noticing the time which elapses to produce the first appearance of the image, counting from the time of flooding the plate with developer. As the time taken for complete

and accurate development is always a multiple of the time taken for the first appearance, all one has to know is the number or "factor," for the developer used. The demonstrator explained how and why different developers had different factors, also how one can determine the factor for any developer at the expenditure of two or three quarter-plates. Expose three plates on a normal subject, giving all three exactly the same exposure, which must be as near the correct as possible, using an exposure meter. Then develop one of the plates, noticing both the time taken for first appearance and also time taken for complete development, which, if divided by the time of first appearance, gives the factor for that particular developer. Develop the second plate and use that factor if a perfectly developed negative is obtained. The third plate is not wanted, but if the plate turns out to be either under or over-developed, then develop the third plate, altering the factor to suit the requirement. At the expense of two or three plates the developer is once and for all determined. The demonstrator impressed upon his audience the necessity of always making up the developer of exactly the same composition and always developing at the same temperature. He then proceeded to develop two or three plates with a pyro-soda developer, having a factor 4½. The first plate was normally exposed, and the image made its first appearance in one minute and a half, and was complete in just under seven minutes. The second plate, which was over-exposed, showed a first appearance in 1 min. 13 sec., and was therefore finished in five minutes and a half. Both plates came out very well, very little difference being noticeable. A short discussion followed, which brought forth the merits and demerits of the process. Mr. Proctor, in proposing a vote of thanks to the demonstrator, stated that he was not converted to the system, although he could see that no doubt it was founded on a sound scientific basis; yet the "personal factor" could not be disregarded, the fact that one has to use a certain amount of judgment in noting the first appearance is a big loophole for error, especially when multiplied by a large factor. Dr. W. J. Foster seconded the proposition, which was unanimously passed.

## Commercial & Legal Intelligence.

**A CASE of Likeness.**—In a case at the Westminster County Court, last week, where the price of a hand-painted miniature was claimed, Judge Woodfall, after studiously examining the photograph and miniature by the aid of a large magnifying glass, said that the miniature was not like the defendant; but, on the other hand, neither was the photograph. He also said the artist had painted the eyes blue, but the artist said they were grey.—The plaintiffs were told to alter the painting.

**THEFTS of Photographic Apparatus.**—At Bow Street, last week, John Appleby, aged 30, described as a photographic dealer, having no fixed address, appeared on remand charged with several cases of larceny and receiving stolen property. Mr. Bohn defended. The prisoner was charged with stealing a camera, value £12 12s., from the shop of Messrs. Houghton, photographic dealers, of High Holborn, on November 15 last. On that day the prisoner, it was alleged, called at Messrs. Houghton's shop and asked to see some cameras. Several were shown to him, and he went away without having made any purchase. Shortly after he had left a hand-camera was missed. In support of another charge it was stated that on November 10, 1904, Messrs. Watson and Sons, photographic dealers, received a telephonic message purporting to come from a firm in Cockspur Street, asking them to send some cameras on approval. A boy was sent with two cameras, and on the way he was met by a man who told him he had come from the firm to whom they were consigned, and at his request the boy handed over the parcel to him. One of the cameras, value £8, was subsequently found in the prisoner's possession. The other one had not been recovered. The evidence in the last case was somewhat similar. On October 2 last, in consequence of a telephonic message, the London Stereoscopic Company, Cheapside, handed their errand boy a camera, value £15 15s., to take to a firm in New Broad Street. On the way he was stopped by a man, whom he recognised as the prisoner, and at his request he handed the camera over to him. Detective-Inspector Crouch, of the City Police, deposed to finding the

camera, together with six others, on October 7 last at an address in London Fields, where the prisoner was then living. Detective-Sergeant Hayman said he arrested the prisoner on his release from the Old Bailey last week, where he had been acquitted on similar charges to those now preferred against him. The prisoner, who pleaded not guilty and reserved his defence, was committed for trial.

**MACLAURIN and Co., LTD.** (Photographic Apparatus Manufacturers, London).—Issue on January 1 of £400 4½ per cent. debentures, part of a series created same date, to secure £2,000, charged on the company's undertaking and property, present and future. No trustees.

### COMPANIES REGISTERED.

**STANDARD COMPANY, LIMITED.**—Registered January 12, by P. Ashcroft, Moorgate Station Chambers, E.C. Capital, £1,150, in 1,000 Preference and 150 Ordinary shares of £1 each. Objects: To acquire, work, develop and turn to account the sole rights in a certain secret process connected with the manufacture of photographic paper. No initial public issue. The signatories are to appoint the first directors. Qualification, £5 Ordinary shares.

**BROMAR, LTD.**—Registered January 12. Capital £20,000 in £1 shares (10,000 preference). Object, to adopt an agreement with J. Findlay and F. E. Freeth, and to carry on the business of manufacturers of photographic papers, dry plates, films, cameras, and photographic apparatus, accessories, and chemicals, photographers, lithographers, publishers, chemists, etc. Minimum cash subscription, 3,000 shares. The first directors (to number not less than three nor more than seven) are J. Findlay, F. E. Freeth, R. H. Gillespie, C. D. Gaskell, G. a'Beckett Terrell, E. C. Willis, and Mrs. F. E. Terrell. Qualification, £500. Remuneration (except managing director), £100 each per annum, with £50 extra for the chairman, and £100 each extra in any year when 10 per cent. dividend is paid.

**ART in Picture Frames.**—As with some books the best part is in the cover, so with some pictures the best is in the frame. For centuries, writes the Paris correspondent of the "Standard," it was the custom to border every picture with a wooden frame, bevelled, beaded, carved, or moulded, according to a joiner's taste, and gilded in a style worthy of an advertisement for gold paint. It was, however, photography that taught us that a frame has no special virtue in being gilded. The belief that dark frames were only suitable for colourless pictures is also destroyed, and yet some bold spirits are even now leading us back to primitive truth. One of the few women who have works hung at the Luxembourg is famous as much for her frames as for her style, and now the Countess of Bearn has just given a new frame for the most celebrated picture in the Louvre, Da Vinci's "La Joconde." The frame, like the picture, is old, and is of Italian workmanship. It is carved in a simple but very finished design, and the gilding is like that on no other frame in the Louvre, being quiet but not shabby. The Countess of Bearn has thus drawn attention to the ugly and unsightly frames of which there are so many in the Louvre. Appeals are made for further gifts. So far, there is no response, but the first caused much talk, and since the new frame was put on "La Joconde" attracts its thousands.

**PHOTOGRAPHY in Advertising.**—A new enterprise has been undertaken by Messrs. Elliott and Fry, the well-known West-End photographers, viz., in the domain of fashion illustration. They have issued a costume catalogue, entitled "Photo Fashion Studies," which in itself is a work of art. Living models are employed to aid the presentation of the costumes in wear, with the result that the artificiality which necessarily attaches to the work of even the best of drawings is replaced by a pleasant naturalness. The booklet will advocate more eloquently than any amount of written words the advantages of photographic work in high-class advertising literature, and, incidentally, serve to convince the interested reader that Messrs. Elliott and Fry have realised the necessity of giving of their best in the new branch in which they have embarked. In pose, in detail, and in artistic suggestion the specimens contained are excellent. We quote the above from a review in the "Draper's Record," in order to point out the new and profitable directions in which photography is being applied by those alive to its possibilities.



## Correspondence.

- \* \* \* *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \* \* \* *We do not undertake responsibility for the opinions expressed by our correspondents.*

### PLATES OR FILMS.

To the Editors.

Gentlemen,—I am about to carry out an idea, which would require convenient portable apparatus to make at least forty  $\frac{1}{2}$ -plate exposures per day, chiefly buildings; instantaneous apparatus not required. I have had a life-long experience of the ordinary field camera and tripod work, and know that, generally speaking, work done with it is vastly superior to hand camera work, but as the making of at least forty exposures per day is essential to my plan, I am faced by the difficulty of portability. I have had no experience of hand, but if I can hear from experienced men that with care work with hand cameras and films can be done equal to glass plate and ordinary field camera, I shall purchase one, and thus reduce the labour in my plan very greatly. But the quality of result must stand first. After close examination of a great number of films I have come to the conclusion that the material of which the film is made for a basis for the emulsion cannot be made so transparent as the best glass, therefore it is impossible for the result to be so crisp as those on glass, but as I have not worked films I am open to conviction. I should judge the different methods by (firstly) quality of results, (secondly) portability, (thirdly) cost. Your opinion would be greatly valued by

WET PLATE.

[There is no doubt in our judgment, and we believe our experience is that of many of our readers, that negatives, in every respect the equal of those on glass, may be obtained, and are being obtained in thousands, on flexible film. The only consideration which our correspondent need weigh with care is the holding of his half-plate film perfectly flat in the focal plane of the lens. Only in this respect is he likely to experience any disability of films in comparison with glass; but with a well-made roll-holder he ought not to detect any want of definition in his negatives on this account. We shall be glad to have the views of other readers.—Eds. B.J.P.]

### THE "SINOP" PROCESS IN COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—I have been to-day to see your exhibition of colour photography, and feel grateful to you for the care you have taken to bring so instructive a collection together. The leading feature your visitors will notice, I think, is the curious inequality of the exhibits; some are so very good, and some—otherwise. The gelatinous or "blobby" appearance of most of the prints seems to be the main fault. To remedy this why not use the "Sinop" simplified collotype plates? On the three-colour bed-plate correct registration is easy, especially if a few prints from the yellow plate are printed in black, to register the red plate with. The simplification is so great that a very slight acquaintance with ordinary collotype methods is necessary, while the prints have a crisp, dry, matt appearance, which I think is a great improvement. Although the process involves printing in ink, it can hardly be called mechanical any more than other processes which entail dyes and stains. I enclose a print to show what I mean.—Yours truly,

S. G. YERBURY.

25, Milton Road, Acton, W.  
January 22, 1906.

[The specimen of three-colour "Sinop" is the same subject as No. 6 in the exhibition, and we have therefore placed it on the walls for comparison with the result obtained on "Rotary" stripping pigment films.—Eds. B.J.P.]

### FREE SITTINGS.

To the Editors.

Gentlemen,—I for one am glad to see that one of your readers has spoken out on this iniquitous system.

I have lately joined a large society (not photographers) in London, and the day after my name appeared in its journal as having been elected, I received an invitation from a well-known firm, informing me that they were making a collection of the portraits of well-known men, etc., and inviting me to go and sit free. Now, I do not happen to be a well-known man, not even to the police, and I hope I never shall be, and being a professional photographer, I can obviously obtain as many free sittings as I want.

Personally, I think this class of business is extremely objectionable and likely to ruin any business in the long run, and as you aptly point out, it is a system which is bound to act prejudicially on photography generally.

The cheapening of photography, and the multitude of cheap hand-cameras in the hands of those who are willing to give their friends what they call "likenesses" for the mere cost of materials is bad enough. But I am not afraid of such things, because I know I can turn out far better work, and I see that I get my price for it. In fact, I believe that the very universality of the amateur photographer is an indirect advertisement for the man who turns out first-class work.

It is quite another thing, however, with "free sittings." I have met with cases in which I can trace direct damage to this objectionable custom. I have not yet offered a complimentary sitting to anyone. But I have frequently, when a prominent local person has come to be photographed, asked them to sit for me, and explained what I have wanted the negative for. In most cases I have met with a courteous assent. Some of the people seem sort of tickled at the idea that I think it worth while to take them.

One of my neighbours makes a great feature of this class of business, and I am frequently told of it by my customers. Still, in the face thereof, I hold my own, at least judging from external appearances, and my banking account confirms me in this comforting assumption.

I cordially agree with the concluding paragraph of Mr. Wyrall's letter in your last issue, and though I am occasionally told that Mr. So-and-So down the street will take a sitter for nothing, I courteously refuse, and shall continue to do so.

This is, I think, a matter which the P.P.A. might well take up, and induce their members to agree upon.—Yours faithfully,

A COUNTRY PROFESSIONAL.

[We are glad to find that others share our view of the disastrous effects of the "free sitting" system. The latest variant of it which comes to our knowledge is the case of a firm of photographers offering to take free portraits of people in their motor-cars on the prospect of reproduction fees from the photographs.—Eds. B.J.P.]

### THE LATENT IMAGE.

To the Editors.

Gentlemen,—I should be much obliged if you would give a few words of explanation of the reasons why the concavity of the lower part of the characteristic curve of the plate is assumed, in the note on page 42 of your Journal, to be strong evidence that the silver salt has a certain power of self-recovery from the strain imposed by light. I am much interested in this subject, having last year devoted a considerable amount of time to a study of the mathematical principles of these curves, and it has appeared to me that under any existing hypothesis of the action of light the curve must necessarily take a concave form at the lower end, except under one highly improbable condition—that is to say, accepting the assumption that each particle of silver haloid has a definite inertia becoming developable as soon as that is satisfied by the corresponding amount of exposure, the condition would be that the whole of the silver salt in the plate must have equal sensitiveness.

Under any other conditions it would also appear to follow that the upper part of the curve must become convex as a result of the exhaustion of the supply of unchanged haloid and the approach of maximum density quite apart from the influence of reversal.

Believing that a short statement of your views on the subject in question would have much interest for other readers besides myself, I have ventured to trouble you with this note.—Yours faithfully,

H. J. CHANNON.

20, Lewisham Hill, Lewisham, London, S.E.  
January 19, 1906.

To the Editors.

Gentlemen,—In reference to the paragraph in last week's issue, entitled "The Latent Image," it appears to me that that paragraph was written under a misapprehension. The characteristic curve of a plate is the D log. E curve. In the underneath portion this curve is strongly concave—in fact, it is logarithmic—for if the ordinates be converted into exposure units the under-exposed portion of the D log. E curve is a straight line (Hurter and Driffield, "J.S.C.I.," May, 1890). Now this is the ordinary photo-chemical law that work done is proportional to energy incident (Bunsen and Roscoe, "Photo-chemical Investigations"), and, in fact, for a plate coated with an emulsion, only one grain thick, the whole image is either under, or completely over-exposed, and there is no straight line portion. But when we deal with thick emulsions then the equation to the plate curve is given in terms of the absorption of active light by the upper layers of the film without any assumption as to the latent image whatever. (Hurter and Driffield, May, 1890). Four other equations for the plate curve of the same type have been deduced by Mr. H. M. Elder (Camera Club Conference, 1893), also without assumptions as to the latent image. Lastly, the collapse of the straight line into the over-exposed portion depends on the light having penetrated to the back of the film (i.e., having reduced the available bromide), and may be postponed indefinitely by simply increasing the thickness of coating. In fact, the length of the "straight line" is directly proportional to the capacity of the unexposed plate ("On the Sensitometry of Photographic Plates," "Phot. Journal," November, 1904).—Yours sincerely,

C. E. KENNETH MEES.

Ryeland, Caterham, Surrey.  
January 19, 1906.

[We are glad to see that our note has aroused the interest which has prompted the above letters, but we must explain that we hold no brief for any one of the theories relating to the latent image. The note in question was intended to be suggestive only.]

Mr. Mees' letter gives a clear and welcome explanation of the characteristic curve from the point of view of the theory originated by Messrs. Hurter and Driffield, and he explains the concavity of the lower part of the curve as a natural consequence of the Bunsen and Roscoe law. It has, however, been proved that this law fails with light of small intensity. Surely the failure of the law must be manifested in the curve, and in that case the curve must be affected by the phenomenon of self-recovery, to which phenomenon Dr. Bose attributes the failure of the law. On these grounds it appears to us that we were warranted in suggesting self-recovery as a factor to be considered in studying the concave portion of the curve.

As regards the convex portion, Mr. Mees states that the collapse of the straight line may be postponed indefinitely by increasing the thickness of the coating. In that case, when and where does reversal begin? We can hardly suppose that this is also postponed indefinitely in account of the thickness, and if it exists surely it must affect the curve in some way. We should like to ask Mr. Mees if the definite postponement of the convex curve has been proved by actual experiment, or whether it is a mere deduction from the equation to the plate curve. The fact that Messrs. Hurter and Driffield's formula fails to represent the effect of reversal was pointed out by Mr. H. M. Elder in the paper referred to by Mr. Mees.

Both our correspondents appear to place much faith in mathematical equations to the plate curve, but we may fairly ask how can reliable equations be arrived at until we possess considerably more knowledge of the actual mechanism of exposure and development. The most important attempt at analysis seems to be Mr. Sterry's solution of the curve into two curves ("Phot. Journal," February, 1904), one due to "primary development," and apparently fixed by exposure, and the other due to "secondary development," obeying no certain law, and varying with the chemical treatment of the plate. If we understand Mr. Sterry's experiments aright it appears that he found that the simple development of the exposure effect supplemented by an additional effect of the nature of intensification, more or less independent of the exposure effect. From these results it would appear that an equation designed to fit the compound curve is very possibly deceptive. The real effects of exposure may be effectually masked by the results of "secondary development."—S. B.J.P.]

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- J. Busby, 3, Avenham Terrace, Prestou, Lancashire. *Photograph of Declaration of Poll at Preston Election.*
- R. T. Ford, 125, King Street, Egremont, Cheshire. *Four Photographs of W. H. Lever, Esq.*
- H. J. Humphrey, Cravalls Road, Harpenden, Herts. *Photograph of St. John's Church, Harpenden.*
- Sarah Eddison, 2, Sheffield Road, Barnsley. *Photograph (Combination of Officials (Past and Present), Executive, Delegates, Auditors, and Office Staffs) of the Yorkshire Miners' Association, October 1, 1905.*
- Mary A. Frost, 24, Baxter Gate, Loughborough, Leicestershire. *Photograph of the old "Golden Fleece" and "General Hawcock" Public-houses, Loughborough, now pulled down and rebuilt.*
- Jakeman & Carver, High Town, Hereford. *Photograph of J. S. Arkwright, M.P.*
- W. H. Smith, c/o Fisher, Perry, Ltd., Dudley Street, Wolverhampton. *Photograph of Wolverhampton Technical School's 23rd Annual Soiree at Drill Hall, Wolverhampton, January 1, 1906.*
- J. M. Herridge, 8, Maryport Street, Devizes, Wilts. *Photograph of F. E. N. Rogers, Esq., M.P., and Party in Motor Car.*
- Pinnock Bros., 48, Park Row, Bristol. *Two Photographs of the Rt. Hon. A. Birrell, K.C., M.P.*

### DRAWING REGISTERED:—

- W. Terry, 91, Evesham Street, Redditch. *Drawing of an Easter Postcard.*

COSWAY BORDERS STUDIO.—1. Will you kindly inform me where I can obtain masks for Conway printing? 2. Also the best method for using same to ensure correct register. 3. I propose to build another studio of following dimensions:—32 ft. long and 18 ft. wide. I shall be greatly obliged to you if you will give me full instructions as to the best way to build regarding the lighting, giving dimensions of glass on top and side, and positions of same, height of eaves from floor. Will not ground glass be the best, also should the side lights be perpendicular or slanting a little inwards? I might say the studio will be built on the top floor of a house, and has the following aspect, as shown in sketch.—URGENT.

1. From such houses as Marion's, Houghton's, and the like.
2. If you employ a printing-out paper there will be no difficulty with regard to registration, as you will see when the masks are in register.
3. We should advise that only the north-east side be glazed. About 6 ft. at either end, top and sides, may be opaque. The glass may be about 8 ft. at the eaves, starting, say, 2 ft. 6 in. from the floor. You will then be able to take the sitters at either end of the studio as occasion may require. It is quite a matter of taste whether ground or plain glass be used for the side. If the outlook is bad the former will be preferable. Bolas's book on Studio Construction will give you some useful hints. It is published by Marion and Co.

PUZZLED.—Winsor and Newton or Reeves and Co.

A QUESTION OF DAMAGES.—We sent some valuable cabinet portrait negatives to a postcard house for machine-printed postcards to be printed from them. They returned negatives so cut down in size that they will not trim a cabinet-size photograph. Have we any remedy for damage?—SUBSCRIBER.

The firm should certainly not have cut down the negatives without first asking your permission to do so. We think you might have cause of action for damages, but we question if you would recover much if you proceed. However, we think the



firm should make you some recompense if the negatives are reduced much below the usual cabinet size.

**BROMIDE TONING.**—Wishing to tone some prints to a red chalk tint I made up a copper sulphate, etc., bath from formula, on page 979 of ALMANAC, 1906, but without any result whatever. Must the prints be bleached (if so, please give formula) before immersion in the above solutions? There is no reference to it in that particular formula. Have had good sepia-tone results from soda sulphide, etc., toning, but require rather warmer tones. Your kind advice on a good working formula will greatly oblige.—A. T. A.

The formula is perfectly correct. You have evidently not made it up correctly; probably you have used ferrocyanide instead of ferricyanide of potassium. The use of the former would account for the inertness of the mixture. Why not try one or other of the ready-made toning preparations, such as those we reviewed a week or two ago?

**ARTIFICIAL LIGHT.**—Lights placed along the top of the background will be quite useless. They will obviously light the backs of the sitters. You will get a far better effect by placing the extra lamps alongside the present side light, but rather nearer the camera. Take care not to have your present side light too low down. From your sketch we should judge that you are not using a sufficiently large reflector behind your lights. An eight-foot frame, covered with white blotting-paper is not any too much. Do not have the reflector for the shadow side so much at the side, or you will get cross lighting. It should be brought much nearer to the camera. Your exposures, particularly with groups of three or four figures, will always be long with gaslight, and if you increase the number of lamps you get terrific heat.

**PYRO-SODA.**—Can you give me a pyro-soda developer that will give a good plucky negative with very rapid plates? I find great difficulty in getting sufficient density.—EN AVANT.

There is very little difference between pyro-soda developers. You should obtain what density you want by increasing the pyro up to, say, four grains per ounce. A developer very suitable for rapid plates is pyro-metol, and perhaps one of the formulæ for it in the ALMANAC would answer better with the plates you are using.

**NUMERO 13.**—Contrary to our custom to do as you request. Consult our advertisement pages.

**"VERITAS."**—Properly worked, there is no doubt the paper is permanent; equally so, and requiring the same care as ordinary C.C. paper. You should turn to the recent correspondence on the subject, and the article in our issue of November 10, 1905.

**A BOOK QUERY.**—Will be pleased to learn where I can obtain "Materia Photographica," or other work of the same nature, and as complete.—C. READER.

"Materia Photographica" is out of print. You might turn up a copy by inserting a small advertisement. There is no similar work in English.

**DRYING NEGATIVE.**—How, when I have developed and fixed a negative, can I dry it at once for immediate printing, the whole operation to take, say, 15 minutes. When I dry a negative quick with methylated spirit it turns white. I should like to know if this can be avoided? The keeping qualities of the negative are of no importance.—W. C.

Lay a piece of soft cambric upon the negative and evenly press it in contact with the film with a roller squeegee. A large proportion of the water will thus be removed, and the negative, if placed in a warm place will dry in a few minutes; with care, it can be held a short distance from a fire and can then be dried in as short a time as 15 minutes. Some plates will not stand this latter treatment without the gelatine running, and these you should place in a bath of formaline, 1 oz.; water, 10 oz.; for five minutes, and rinse in hot water, after which the negative can be dried at quite a considerable degree of heat in a very short time. The opalescence produced when you dry with spirit is due to the mineral naphtha in the latter.

**TROUBLED.**—Address the Tress Company (205, Oxford Street, W.), who, we believe, supply what you require.

**COLOURS FOR AEROGRAPH.**—Shall be much obliged if you will inform me through your paper this week where I can obtain the black and other water-colours, as used with the aerograph or any instrument for working up enlargements.—J. F. SLACK.

Reeves and Co.'s or Winsor and Newton's water-colours are the best for the purpose, and obtainable from any artists' dealer.

**STAND DEVELOPMENT.**—Kindly give a formula for stand development. Do you know of any book dealing with slow stand development?—A.C.S.

Almost any developer may be satisfactorily used for stand development except pyro, which is rather apt to stain the film. Glycin is particularly useful for this work, and the following is a good formula:—Sodium sulphite,  $2\frac{1}{2}$  oz.; hot water, 4 oz.; when dissolved, add glycin, 1 oz.; and then in small quantities add potassium carbonate, 5 oz. This forms a thick cream, and for use 1 oz. should be diluted with 80 ozs. of water and 8 grs. of potassium bromide added. This takes about two hours, so we prefer to reduce the amount of water to 60 ozs., which quickens its action. There is no English work on the subject, but Schmidt, of Berlin, has published "Das Stand-Entwickelung," by Dr. Blech. Two or three formulæ are given in the 1906 Almanac.

**BRIXTON.**—We should choose No. 1 or 2. No, we cannot recommend anything cheaper; if you want quality you must pay for it.

**F.D.**—You could use any in your list; possibly we should choose No. 2 or 3.

**BROMIDE PAPER.**—1. Can you give me any reliable preventative for surface markings in bromide paper and postcards, particularly glossy? 2. I am building a new dark room for enlarging purposes, and have a choice of two positions. One will give me fairly even daylight only, artificial in this case is out of the question, owing to distance same will have to be brought, being at the top of building. The other will be useful for artificial light only. With daylight I find I can use an old camera for enlarging. If I decide on artificial light can I still use this camera, or would it be necessary to have a lantern? I am of course referring to obtaining the best results, and as I should in either case use the same lens, cannot see why my present instrument will not serve. 3. For artificial light, is a condenser necessary? if so, should I be right in making a tin lined box for arc lamp, with condenser in front of box, then camera back made to fit in front of condenser.—"BROMIDE."

1. We know personally of no reliable preventative, but a correspondent in our issue for December 22, 1905, stated that the addition of a few drops of methylated spirit to the developer would have this effect. 2. Which is the better of the two methods is to a great extent a matter of opinion; but for professional work we should advise artificial light, as always being available and more constant. There would be no difficulty in using the old camera for artificial light, if it can be used for daylight. 3. A condenser is not absolutely essential, but as it condenses the light it obviously means shorter exposures, and this might be a consideration. The arrangement of light, box, and camera would be correct.

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## SUMMARY.

The event of the week in photographic circles is the opening on Tuesday next of a one-man show at the Royal Photographic Society, Alvin Langdon Coburn. We give a portrait of Mr. Coburn and an account of his methods, and are also able to publish a very characteristic appreciation of his photography by Mr. G. Bernard Shaw. (P. 85.)

Colour Photography.—A further description of the "Drac" method obtaining the three colour-sensation negatives without filters by fitting the image from one lens into a spectrum is published, with an account of the practical performance of the process. (P. 87.)

Colour Photography.—An American inventor has put forward a process of colour photography, the results of which, it is naively timed, will always be "true to some phase of nature," and may be very pleasing to the worker intended. The method appears to be a combination of ferro-prussiate and gum-bichromate produced on a support of coloured paper. (P. 88.)

Colour Photography.—To-day and every weekday from 10.30 to 4.30 (Tuesdays, 10.30 to 12.30) an exhibition of colour photography is open to the public at the offices of "The British Journal of Photography."

In continuing a criticism of the proposed alterations in the copyright law it is pointed out that many portions of the bill are incapable of intelligible interpretation. The clause relating to the marking of plates, if it means what it may be construed to mean, would have the effect of destroying largely the photographer's rights in his photographs. (P. 83.)

The method of print-out gum-bichromate by an indirect process the subject of some notes by Mr. E. W. Foxlee in continuation of the report of the demonstration in our last issue. (P. 89.)

A method of making self-toning paper has been patented in which cyanide is added to an emulsion containing gold chloride and silver hydrocyanide. It is claimed for it that treatment in a salt or water bath gives a fixed tone independently of the time of action. (P. 92.)

It has been found by E. J. Wall that the new "Sanzol" reducer is well adapted for prints on P.O.P. and bromide papers, and that it is itself a species of local reduction by friction. (P. 80.)

## EX CATHEDRA.

**The Congress of Applied Chemistry.** The meeting of this annual congress to be held in Rome from April 26 to May 3 is now preliminarily arranged, and a lengthy circular of the officials and programmes in the various sections has been published. Section IX., photography and photo-chemistry, meets under the presidency of Colonel Pizzighelli, and so far is able to announce only two items on its agenda, two papers by a Russian. The one is "Notes on Processes of Photography in Natural Colours," and the second, "Applied Photography in Russia," both by S. De. Prokondine-Gorsky, St. Petersburg. We understand that offers of papers may still be made to Colonel Pizzighelli, and he will answer enquiries to him as to the general arrangements of the congress, or place them in the proper hands. We also hear that there is some prospect of the Congress, which is looked upon as an important one in chemical circles, assembling in London next year. Hitherto its meetings have always been held in Continental centres.

## Colour Contrast.

The ordinary use of the orthochromatic plate with the "yellow screen," as it is commonly called, is to render the luminosities of various coloured objects with approximate accuracy in monochrome. The ordinary plate gives blues too light and yellows too dark. The orthochromatic plate and light filter will correct this error. But it may occur that the design on a fabric or vessel, or the inlaid work on a piece of furniture, is not sufficiently emphasised when the relative luminosities are fairly accurately rendered. Recourse may then be had to the well-known method of emphasising the colour contrast. Suppose the article to be a satin-wood table decorated with painting in a greenish shade, quite an everyday example. The decoration shows distinctly to the eye by reason of the difference between yellow and green—that is, by the contrast of colour. But if it happens that the luminosity of the green is almost or quite the same as that of the yellow the orthochromatic plate and yellow screen will give a negative showing little or no contrast between the wood and the decoration. An ordinary plate may quite conceivably render the green actually lighter than the yellow satin-wood, particularly if the green be of a bluish shade. In order to get the green decoration darker, a light-filter would be used of a colour almost a complementary to green, say deep orange, but care should be taken not to go too far, or the green would be translated as black. If a perfect complementary to green—that is, red—were employed such would be the effect. In the case of a vase with a design thereon in red the red may be made lighter in the monochrome rendering, by using the orthochromatic plate with a red light-filter, or the red may be made darker



by using a green light-filter. By using various suitable dyes in a cell composed of two sheets of thin plate glass, these special contrast light-filters may readily be prepared. Such a cell may be purchased for a few shillings only, and two or three experiments will convince the photographer of the importance of the subject when dealing with many branches of technical work.

\* \* \*

#### **Photographing Furniture.**

We referred several weeks ago to the difficulty of photographing brightly-polished furniture on account of the excessive contrast between dark-red woods and the reflection of white light from the polished surface, pointing out the advantage of such work being done before the polishing was accomplished. We have recently had inquiries as to the best method of handling such work, the principal difficulty encountered being the loss of the figuring of the wood and the incorrect colour-rendering of inlaid work. Where pieces of furniture are both inlaid and highly polished the worker is face to face with the difficulty that he needs to emphasise slightly the contrast between the wood and the inlay, and at the same time he needs to diminish the contrast between the wood in shadow and the bright reflections. The only satisfactory method of working is to use as much light as possible, and that a very diffused light. In this way the general illumination of the article is good, and there is an absence of strong shadow. At the same time, the light being very soft, the reflections are much less brilliant. Probably the open air on a grey day would give the most favourable conditions. With regard to the rendering of contrast between, say, the mahogany and the satin-wood banding, usually met with in Sheraton furniture, an orthochromatic plate sensitive to yellow, or orange-yellow, should give a satisfactory result. The light-filter employed would need to be something different from the three- or six-times screen commonly met with. We should suggest a fairly deep screen, say, a gelatine film dyed with tartrazin or brilliant yellow till it increased the exposure at least twenty times.

\* \* \*

#### **Questionable Advertising.**

A New York photographer is credited with inventing a novel advertising scheme which is said to have brought him much business. The object of his attentions, if a lady, receives a portrait of an attractive looking girl with no other inscription on it than "To Elizabeth from Eugenia" (Elizabeth being the Christian name of the recipient ascertained from the directory) and the photographer's name and address printed on the mount in the usual way. Feminine curiosity prompts the lady to solve the mystery of the unknown Eugenia by visiting the photographer, who professes with every assumption of truth that the portrait is that of a Miss Eugenia Reynolds, who at the time of the sitting was resident in such and such a street: the subject of the portrait being actually a model engaged by the photographer for the purpose of his little ruse. The visit to the studio is made the opportunity to bring the photographer's work before the fair prospective client, but we can well understand the need of an editorial caution which accompanies our contemporary's account of this advertising method.

\* \* \*

#### **Some Optical Illusions.**

While attempting to read the election results as they were spelt out in the "dashed dottey" system of Mr. Morse, we noticed two interesting illusions. So long as the gaze was directed to the search light it was impossible to get away from the idea that at the commencement of each

flash the light emerged from the lens like a jet of water from a hose, and that it receded back into the apparatus at the end of the flash. The cause of this illusion is doubtless the fact that the brightest part of the beam next the apparatus affects the retina most, and is the first part that we perceive and the last that we lose sight of. The next illusion, however, does not permit of any similar easy explanation. We found that the eyes were less worried by the flashes, and the distinction between the dots and dashes was better perceived, when we looked away from the flash, so that the image fell on the side of the retina. The illusion just described then disappeared, but instead of an apparent longitudinal movement of the beam we perceived a transverse or vertical one. At the commencement of each "dash" the beam appeared to rise parallel to itself, while it fell at the end of the dash. The rising effect was very marked indeed, but the falling effect was less obvious, and we did not in all cases perceive it. We have at present no satisfactory explanation to offer of this, but perhaps readers with a taste for optical matters will like to worry it out. The inclination of the searchlight was about 15 deg. from the horizontal, while the angular deviation of the eye away from the light was, perhaps, 50 deg. This brought the image on to the nasal side of the retina, and the direction of the inverted retinal image of the flash must have been towards the front of the eye.

\* \* \*

#### **Studio Lenses.**

A few days ago a photographer brought to us a second-hand portrait lens of about eight inches focal length, to ask if it was useful for cabinet work in his studio. He also wanted to know whether we should advise him to buy an 8 in. anastigmat with large aperture to use when more depth of focus was necessary. As there are no doubt others who are in some uncertainty as to the most suitable lens for certain work, we may refer to the salient points in selecting an objective for studio work. Where the studio is short, the focal length of the lens must not be too great if half and three-quarter length portraits are to be produced. Eight inches is about the shortest focus we should use for three-quarter length cabinets, and some care would be necessary in posing to avoid violent perspective. It is, of course, much too short a focus for cabinet heads. As we presume both classes of portraits are done in almost every studio, it becomes necessary to have a second lens of longer focus if the short length of the studio demands an 8 in. objective for the three-quarter length pictures. For good perspective or "drawing," 15 in. is not any too much for heads of about 2 in. It is difficult to get people to understand that an anastigmat lens at  $f/4.5$  has no more depth of focus than a portrait lens at the same aperture, and it should be remembered that though many Petzval lenses are marked  $f/4$ , they are most usually only nominally of that aperture, and really of a somewhat smaller one. Where the anastigmat lens scores, however, is in its flatness of field. Every user of the portrait lens knows that when taking a standing figure it is difficult, if not impossible, to get reasonably good definition in the central part of the picture at the same time that the head and feet or knees of the subject are in focus. This arises from the curvature of field of the Petzval type of lens. With the anastigmat, or flat field lens, the definition is uniform over the whole of the figure.

\* \* \*

#### **The Lens for Groups.**

Where much group work is anticipated in the studio the anastigmat is again the lens to select. The portrait lens, with its roundness of

eld, may be utilised, the defect being met by arranging the figures in a crescent. The definition on the margins will still be unsatisfactory, however, by reason of the astigmatism present in the lens. Stopping down improves the marginal definition, but prolongs the exposure at the very time when the risk of spoiling the plate by movement is increased through the inclusion in the picture of several figures instead of one. The modern anastigmat enables the group to be arranged fairly in one plane, and, this being done, gives as fine definition for the outside figures as for those in the centre. Our advice, then, regarding the purchase of lenses would be to obtain an anastigmat of eight, nine, or ten inches focus, according to the length of the studio, and working at an aperture of at least  $f/6$  or  $f/5.6$ . Such a lens would answer admirably for producing full length, three-quarter length, and group pictures. In addition to this, it would, of course, be useful for outdoor photography, and an ideal lens for enlarging purposes. The selection of the second lens for large cabinet heads would depend on circumstances. If any quantity of Imperials or 12 by 10 portraits were done, the lens should be of a size and quality suitable to their production. This would mean another anastigmat of 15 in. focus in the case of Imperials, and 18 to 20 in. for 12 by 10 work. For all-round cabinet heads in an average studio we should prefer the lens of 15 in. focus. If large work had not to be prepared for a good second-hand portrait lens of 14 to 16 in. focus might be picked up. Lenses of very excellent capabilities may frequently be obtained for a few pounds, but care should be taken to see that the lenses themselves are not abraded by constant "polishing" with any odd piece of cloth. One or two distinct scratches are of much less import than a dulness of surface caused by myriads of tiny scratches.

#### PROPOSED ALTERATIONS IN THE COPYRIGHT LAW.

IN our previous article it was shown that the proposed Bill of the Artistic Copyright Society is calculated to provide ample opportunity for the employment of the legal fraternity in unravelling its mysteries, and we must now return to the subject and expose other ambiguities, and show also that the Bill makes an unfair and inequitable distinction between photographs and other forms of graphic art.

The distinctive treatment of various classes of work in the proposed Bill involves definitions, and definitions are pitfalls even for the most skilful in the use of language, legal and otherwise. There is first the broad division into works of fine art, original works of fine art, and other works; then there are definitions of various classes of work—painting or drawing, sculpture, engraving, photograph, and casts from nature—and the Bill still further contemplates, in some connection, a work of fine art made by one person from a work of fine art designed by another, though it is notable that it does not contemplate a work of fine art made by one person from a work not of fine art, e.g., a photograph, made by another, and, considering the number of paintings that are made from photographs, it is a class that surely should be recognised. With such a number of classes the difficulties of steering clear of latent contradictions are of course enormous, even where the definitions themselves are comprehensive and conclusive. That of a photograph is certainly the least so of any.

It will be noticed that in the definition of engraving and cast from nature that not only is the plate and the

mould made the subject of copyright, but also the impression and the cast. The definition of photograph, either intentionally or accidentally, omits to include the print or impression, and accordingly under the definition a photograph is not a photograph unless it permits of prints or copies being taken or multiplied definitely or indefinitely. A daguerreotype or ferrotype is therefore not a photograph, and no copyright can exist with regard to it, and this applies to a photograph of any kind which is complete in itself, including all prints produced by processes of pure photography, and impressions from photographic plates and process blocks.

But let us assume that the definition is to be made consistent, and consider the conditions imposed on the photographer for the maintenance of his copyright. We have to refer again to Section 22 and its sub-sections. We have shown that Sub-section A breaks down at once on application, that literally it may enjoin a statement contrary to fact, and that there is nothing in the context to show what was otherwise intended. Sub-section B is rather more than less a muddle. It provides for the marking of copies with the name of the proprietor of the copyright, but similar confusion arises. For instance, in the case of a photographic copy of an engraving from a painting. Here there may be three proprietors of copyright. Literally, the proprietor of the copyright in the engraving is the proprietor indicated and the year of completion of his work; but probably the proprietor of the copyright in the photograph was really intended. We have pointed out that under the definition of a photograph a photograph must be capable of producing prints or copies, the word copies clearly being used as practically synonymous with prints. A negative answers the definition of a photograph, and in applying the sub-section the opening words, "In the case of a reproduction of any other work," if taken in one sense, distinctly imply, in the case of an ordinary photograph, "In the case of the reproduction of a negative." A print is emphatically not a reproduction of a negative, therefore the sub-section cannot apply. The alternative meaning of "reproduction" is as the word is used in Sub-section A, as a synonym of "copy," the substantive of the verb to copy in the sense the verb is used in Section 2. In that case, again, the sub-section would not apply to photographs of views, persons, or objects, for the term "any other work" is clearly inapplicable to such subjects. The word "work" can only apply to a human performance, and a photographic view is emphatically not a reproduction of a work.

The section, as a whole, is one of the most extraordinary examples of ungrammatical and slipshod language to be met with in an Act of Parliament or elsewhere. "He" is used as the pronoun referring to "persons." The word "copies" is used indiscriminately to mean multiplied representations of works the subject of copyright, prints or impressions from plates, negatives or blocks, and also as the plural of the substantive of the verb to copy as used in Section 2. "Work" apparently is used indeterminably to mean the work from which a photograph, say, is produced and the production itself. Reproduction means in one place copy as the substantive of "to copy," and in another apparently merely a print or impression. Without explanation the section is simply nonsense.

But as the subject matter of this portion of the Bill is such an important one to photographers and it is impossible to discuss the effects of the proposed alteration in the law of copyright without an understanding of what the conditions to be imposed are, we shall make a guess at what the section really is intended to mean.

"Before delivery for sale, etc., of any copies made by any means, or multiplications of the design or subject



matter by any method or process of any work the subject of copyright, or of any prints, impressions, or casts of any negative, plate, block, mould, or matrix the subject of copyright, such copies, multiplications, prints, etc., shall be marked:—

"(a) When the design or subject matter of an original work of fine art is copied or multiplied," so and so. We confess we cannot fathom what was intended.

"(b) In all other cases each copy, multiplication, or print shall be marked with the name of the proprietor of the copyright in the negative, plate, block, mould, or matrix, together with the word copyright and the date of the year in which the period of copyright commenced and in default of such marking," etc.

This is not what we think the law ought to be. It is merely the sense we believe the drafters of the Bill intended to convey, and we do not profess that our drafting of their intentions is flawless. We give it in order to discuss its effect upon photographers.

Under the existing Act, copyright in a photograph remains with the original proprietor until he chooses to assign it, or until he disposes of the negative, when, if no agreement is made in writing as to whether it shall be transferred or remain in his possession, it ceases to exist. But he cannot exercise his full rights unless he registers it. The system works very well; but it does not suit the profler after free illustrations. Anyone who may happen to consider a photograph which comes into his possession a desirable property to be exploited for his own benefit is under the disability that in parting with the print the proprietor of the copyright has not therefore parted with his sole right to reproduce it. The essence of copyright justice is that the originator of any work in which a right of reproduction is involved—not necessarily the author, as the drafters of the Bill we are discussing seem to have imagined—is entitled to the benefit of the work, and the right to assign his interest. But a copyright is an abstract and not a tangible property, which the owner may or may not attach value to, and there must be some limit imposed as to its continuance to be settled in an arbitrary way, but in accordance with some primitive principle tempered with expediency. At present the natural determination of a copyright is based upon the author's lifetime, a perfectly equitable arrangement were the author necessarily the interested party; but the author in many cases has not, and sometimes never had, an interest in the copyright, and a fixed term is therefore more in accordance with general policy, besides avoiding the speculative nature of property in copyright which now obtains. In this respect the Bill partly rectifies the existing system. Expediency dictates that the owner of a copyright shall signify in some way whether he reserves his rights for his sole use, otherwise it is to be assumed that anyone is at liberty to make use of his work without hindrance. How this signification shall be given must form part of a Copyright Act, and it is a matter not to be lightly treated. To prescribe a method which involves much time, trouble, or expense is practically to restrict the enjoyment of copyright in a way contrary to the spirit of copyright legislation, and if our idea of the intention of the Bill is correct, the conditions to be imposed upon photographers are of such a nature that in very many cases they cannot practically be complied with. If Section 22 means that if any one copy of a photograph be issued without the prescribed marking the owner is deprived of all remedy for infringement, there will not be any copyright in the majority of photographs, and in the case of portraits, the only remedy against pirates will be under common law, as naturally photographers will not put themselves to the trouble of marking their customers' portraits as prescribed.

A further hardship on photographers is the condition precedent to the right of action and the recovery of penalties that the proprietor of a copyright shall show that he took proper steps to secure the marking of all copies issued by him. In the case of an engraving, or photographure, or block, no difficulty would arise; the fact that the required mark appeared on the plate would be sufficient evidence; but when prints are marked individually by a stamp or otherwise, to prove that no print escaped would be an impossible task. The false marking of a print is made a punishable offence, but the removal of the mark is not provided against; hence, if the marking on a photograph be trimmed off the photographer has no remedy against the individual who may have trimmed off his mark, and so caused him infinite trouble in proving that he was entitled to the protection of the Act.

We have mentioned that the Bill alters the term of copyright. In the case of a photograph it provides that it shall exist for thirty years after the end of the year in which it was completed (Section 3), and it is further provided that the copyright in existing works shall endure for the term provided in the new enactment, or that of the present Act, whichever is the longer.

Section 5 of the Bill provides that when the subject of a work is a portrait, and is made for payment, the original proprietor of the copyright shall be the person at whose instance the work is made, but the wording of the sub-section expressly excludes the application of this proviso to a group. Section 9 deals specifically with the original proprietorship in photographs. It states that in the case of a person who employs another person to do the work, and who gives pecuniary consideration for the work, the employer shall be considered the author. It is not clear whether this is intended to mean that anyone who employs a photographer becomes proprietor of the copyright in the photograph, or whether the expression "who employs another person" is intended to apply only to employment in the connection of employer and servant. If the former, the relationship of photographer and sitter in relation to the copyright of the photograph is left as at present.

Section 6 materially alters the existing law. At present on the sale of a work, or of the negative of a photograph, the copyright ceases to exist unless an agreement is made reserving the copyright to the seller or transferring it to the buyer. The Bill provides that the copyright shall remain with the seller unless expressly assigned to the buyer.

We have treated at length the marking of photographs that is imposed, but we have not mentioned that as far as photographs are concerned there will be no such thing as registration. Section 23 (Sub-section 2) of the Bill provides that the regulations as to marking shall apply to existing works, but as Sub-section 4 provides that nothing in the section shall diminish any subsisting rights, it is far from clear what is intended.

We have treated the subject of the proposed Bill at considerable length, not because we think the modification of copyright law is likely to come within the range of practical politics in the near future, or because we suppose that the Bill in its present state will ever be presented to Parliament, but because it is well that photographers should be aware that there are influences at work, to say the least, not friendly in disposition towards their interests. We have condemned the Bill in explicit terms. The drafting of a Bill is difficult under any circumstances, but if in this case an honest attempt had been made to deal with all interested in an equitable way, most of the difficulties would never have occurred.

## ALVIN LANGDON COBURN.

For several years photography has been in the throes of an upheaval. This renaissance has affected alike the professional and the amateur, though it is chiefly the efforts of the latter which have been noticed—on account of the amateur's greater pliability. The movement has not been confined to this country; it has been in force on the Continent, and particularly in America. In this latter country it has been marked by bitter controversy, not a few echoes of which have rumbled across our shores. Meanwhile, discerning people have welcomed the movement, and, while smiling at each that has been offered to them, have earnestly commended the same—and have awaited developments. One thing is sure—that photography has been so taken up that the inevitable result is a step forward; it has been led from a rut to which it can never return.

Several interesting collections of American work have been seen in this country, sometimes containing pictures by many makers, and at other times "one-man shows." One of the latter will be held on Tuesday next in the rooms of the Royal Photographic Society, 66, Russell Square, W.C., and will remain open until the end of March. The pictures shown are by Alvin Langdon Coburn, one of the youngest of American workers. Though he is a hard worker in the literal sense of the word, he would probably speak of himself as a student. Like so many well-known photographers, he has drifted into the work. He has been practising assiduously for fifteen years—began when he wrote a page with one figure—he is still practising. For years photography was to him merely an enthusiastic hobby, and it was not until a widening circle of friends and admirers asked for his pictures that he was compelled in self-defence, and probably with a view of choking them off, to put a price on them.

There are two broad classes into which photographic workers of the new school naturally fall; one class which is, unfortunately, much in evidence, includes those who look to photography as a quick step to superficial success, and who, taking advantage of the fatal facility of the camera, appeal to the public at a stage when they ought to be studying in private.

The other class is that which has mastered the technique of the work, and out of considerable knowledge can select the means of expression most suitable for its needs at the moment. Mr. Coburn belongs to the latter class; he at least does not shirk work, and may be said to have voluntarily gone through, and to be still going through, the mill. As long as he considers himself a student he is in the right way to strengthen his already strong work.

He appears to have a sane appreciation of the limitations

and the possibilities of his art. He can see the picture which is everywhere latent, and wait until conditions are favourable to translate it according to his vision of it; but in congenial surroundings he is quite capable of exposing as many plates in the course of a day as the average enthusiast can. The exposures are not made at haphazard—it simply means that he has the facility of quickly choosing the best view point, and of getting his picture without any fumbling delays.

We are not in this article either describing or criticising the work which is hung; reference will be made to it in a later issue, to which we refer our readers, and we urge all who possibly can to see the exhibits themselves. Perhaps if there were fewer pictures to be hung they could be seen with less effort; as it is, it is not a collection to be dealt with in an idle quarter of an hour. The man who would seriously examine them must either confine his attention to a few of them, or visit the exhibition more than once. One of the most noticeable traits in Mr. Coburn is his wide catholicity of



Photograph by]

ALVIN LANGDON COBURN.

[Reginald Craigie.

choice; it may be a view of a London fog requiring ten minutes' exposure at noon, or it may be a sunlit snowscape—whichever it is, he sees the picture and the proper handling of it.

In portraiture—that most difficult branch of work—Mr. Coburn's pictures have received the hall mark of competent judges. A somewhat lengthy series of portraits of British notabilities, literary and artistic, has been given in supplement form in several issues of the "Century Magazine." Needless to say, he does not usually go for the sharp-focus picture; his first aims in portraiture are character and personality. We believe he is not very favourably inclined to the usual methods of professional lighting; if he equipped a studio



probably the skylight would be conspicuously absent. In practice he takes his pictures where his sitters happen to be; some of his best portraits have been taken in the open air, sometimes under the sky only, at other times under a tree. Instead of moulding his sitters to the conventions of his art, he uses art to express his sitters naturally.

His favourite workroom is an ordinary living-room, usually with all the windows except one blocked, and half the light of that one, perhaps stopped out. A circular folding fan reflector of white cotton, about 40 in. in diameter, and a metal socket which, when clamped to a chair, holds the reflector, are his only apparatus besides the camera. Mr. Coburn has a lens for every occasion; his battery includes

a number of experimental lenses which have been made specially for him by an American friend—Mr. Henry Smith, of Boston—and some of which have never been put on the market.

Mr. Coburn is making a long visit to Europe, more with a view to study than to the making of professional work, and the exhibition is an incident in response to the request of a number of friends. He has worked much on the Continent, and is now in London—a city that he has fallen in love with—learning photogravure and other branches of photography and allied work which he considers necessary to make him master of his craft.

## GEORGE BERNARD SHAW ON COBURN'S PHOTOGRAPHY.

THE catalogue of the exhibition of Mr. Coburn's photographs contains the following appreciation from the pen of Mr. G. Bernard Shaw.

Mr. Alvin Langdon Coburn is one of the most accomplished and sensitive artist-photographers now living. This seems impossible at his age—twenty-three; but as he began at eight, he has fifteen years' technical experience behind him. Hence, no doubt, his remarkable command of the one really difficult technical process in photography—printing. Technically, good negatives are more often the result of the survival of the fittest than of special creation: the photographer is like the cod which produces a million eggs in order that one may reach maturity. The ingenuities of development which are so firmly believed in by old hands who still use slow "ordinary" plates, and develop them in light enough to fog a modern fast colour-sensitive plate in half a second, do not seem to produce any better results than the newer timing system which is becoming compulsory now that plates are panchromatic and dark rooms must be really dark. The latitude of modern plates and films, especially those with fast emulsions superimposed on slow ones, may account partly for the way in which workers like Mr. Evans get bright windows and dark corners on the same plate without over-exposure in the one or under-exposure in the other. And as to choosing the picture, that is not a manipulative accomplishment at all. It can be done by a person with the right gift at the first snapshot as well as at the last contribution to The Salon by a veteran. But printing remains the test of the genuine expert.

Very few photographers excel in more than one process. Among our best men, the elder use platinotype almost exclusively for exhibition work. People who cannot see the artistic qualities of Mr. Evans' work say that he is "simply" an extraordinarily skilful platinotype printer, and that anybody's negatives would make artistic pictures if he printed them. The people who say this have never tried (I have); but there is no doubt about the excellence of the printing. Mr. Horsley Hinton not only excels in straightforward platinotype printing, but practises dark dexterities of combination printing, putting the Jungfrau into your back garden without effort, and being able, in fact, to do anything with his methods except explain them intelligibly to his envious disciples. The younger men are gum-mists, and are reviled as "splodgers" by the generation which cannot work the gum process.

But Mr. Coburn uses and adapts both processes with an instinctive skill and range of effect which makes even expert photographers, after a few wrong guesses, prefer to ascertain how his prints are made by the humble and obvious method of asking him. The device of imposing a gum print on a platinotype—a device which has puzzled many critics, and which was originally proposed as a means of subduing contrast (for which, I am told, it is of no use)—was seized on by Mr. Coburn as a means of getting a golden brown tone, quite foreign to pure or chemically toned platinotype, whilst preserving the feathery delicacy of the platinotype image. Lately, having condescended to oil painting as a subsidiary study, he has produced some photographic portraits of remarkable force, solidity, and richness of colour, by multiple printing in gum. Yet it is not safe to count on his processes being complicated. Some of his finest prints

are simple bromide enlargements, though they do not look in the least like anybody else's enlargements. In short, Mr. Coburn gets what he wants one way or another. If he sees a certain quality in photogravure which conveys what he wants, he naively sets to work to make a photogravure exactly as a schoolboy with a Kodak might set to work with a shilling packet of P.O.P. He improvises variations on the three-colour process with casual pigments and a single negative taken on an ordinary plate. If he were examined by the City and Guilds Institute, and based his answers on his own practice, he would probably be removed from the class-room to a lunatic asylum. It is his results that place him "hors concours."

But, after all, the decisive quality in a photographer is the faculty of seeing certain things and being tempted by them. Any man who makes photography the business of his life can acquire technique enough to do anything he really wants to do: where there's a will there's a way. It is Mr. Coburn's vision and susceptibility that make him interesting, and make his fingers clever. Look at his portrait of Mr. Gilbert Chesterton, for example! "Call that technique? Why, the head is not even on the plate. The delineation is so blunt that the lens must have been the bottom knocked out of a tumbler, and the exposure was too long for a vigorous image." All this is quite true; but just look at Mr. Chesterton himself! He is our Quinbus Flestrin, the young Man Mountain, a large, abounding, gigantically cherubic person who is not only large in body and mind beyond all decency, but seems to be growing larger as you look at him—"swelling visibly," as Tony Weller puts it. Mr. Coburn has represented him as swelling off the plate in the very act of being photographed, and blurring his own outlines in the process. Also, he has caught the Chestertonian resemblance to Balzac, and unconsciously handled his subject as Rodin handled Balzac. You may call the placing of the head on the plate wrong, the focussing wrong, the exposure wrong, if you like, but Chesterton is right, and a right impression of Chesterton is what Mr. Coburn was driving at. If you consider that result merely a lucky blunder, look at the portrait of Mr. Bernard Partridge! There is no lack of vigour in that image: it is deliberately weighted by comparative under-exposure (or its equivalent in under-development), and the result is a powerfully characteristic likeness. Look again at the profile portrait of myself "en penseur," a mere strip of my head. Here the exposure is precisely right, and the definition exquisite without the least hardness. These three portraits were all taken with the same lens in the same camera, under similar circumstances. But there is no reduction of three different subjects to a common technical denominator, as there would have been if Franz Hals had painted them. It is the technique that has been adapted to the subject. With the same batch of films, the same lens, the same camera, the same developer, Mr. Coburn can handle you as Bellini handled everybody; as Hals handled everybody; as Gainsborough handled everybody; or as Holbein handled everybody, according to his vision of you. He is free of that clumsy tool—the human hand—which will always go its own single way and no other. And he takes full advantage of his freedom instead of contenting himself, like most photographers, with a formula that becomes almost as tiresome and mechanical as manual work with brush or crayon.

In landscape he shews the same power. He is not seduced by the picturesque, which is pretty cheap in photography and very tempting. He drives at the poetic, and invariably seizes something that engages you into a mood, whether it is a mass of cloud brooding over a river, or a great lump of a warehouse in a dirty street. There is nothing morbid in his choices. The mood chosen is often quite a holiday one; only not exactly a Bank Holiday: rather the mood that comes in the day's work of a man who is really a free worker and not a commercial slave. But anyhow, his impulse is always to convey

a mood and not to impart local information, or to supply pretty views and striking sunsets. This is done without any impoverishment or artification. You are never worried with that infuriating academicism which already barnacles photography so thickly—selection of planes of sharpness, conventions of composition, suppression of detail, and so on. Mr. Coburn goes straight over all that to his mark, and does not make difficulties until he meets them, being, like most joyous souls, in no hurry to bid the devil good-morning. And so, good luck to him, and to all artists of his stamp. G. B. S.

## COLOUR PHOTOGRAPHY.

THE Exhibition of examples of Colour Photography, at present open at our offices, continues to be visited daily by some fifty or sixty people to whom the collection apparently is the source of considerable interest and pleasure. To the notices by the daily Press, which we quoted last week, we could add a number of others from weekly technical and other journals, but calls upon our space in the present issue compel us to postpone further reference of this kind until a more convenient occasion. The exhibition has made us the recipients of a number of communications bearing on Colour Photography, all of which we hope to present to our readers during the next few weeks. Several notices of newcomers in colour photographic processes, claiming the attention of the reader are dealt with below, and in future issues we shall publish among other items practical articles on the making of three-colour prints by the carbon process, on three-colour the "Sinop" colotype process, and on some new apparatus designed to provide the photographer with the opportunity of making his first excursions into colour photography.

### COLOUR PHOTOGRAPHY WITHOUT FILTERS AT ONE EXPOSURE.

In our issue of January 12 we published a few notes on the new method of colour photography without filters invented by Mr. C. J. Drac, of Warsaw. After witnessing the working of the apparatus at the Photographic School at the Polytechnic, Regent Street, W., where Mr. Drac has taken a number of photographs of various objects, including portraits from life, we can give our readers some further particulars of this method which should certainly interest workers in colour photography, inasmuch as it approaches the problem of making the colour records in an entirely novel way.

Coloured light-filters of one sort or another have been invariably employed in analytic methods of colour photography since the time of publication of Du Hauron's papers in 1869. Joly made them narrow bands; the Lumières propose to distribute them as fine powder; Mr. Drac dispenses with them altogether. In their place he uses a system of spectral analysis, and in part of his apparatus does any coloured filter occur. He does not claim the discovery of any new principle in heliometry. He has worked out his system in conformation with established and acknowledged theories of Young—that is to say, he aims to carry out the following conditions:—

(a) The three colour-sensations into which the multi-coloured image is divided—i.e., red-orange, green, and blue—must be complementary to each other.

(b) The blue, purple, and yellow dyes by which an actual picture is produced must also be complementary between each other.

(c) The following pairs must be complementary colours:—(a) The red-orange colour-sensation, and the blue print-colour; (b) the green colour-sensation and the purple printing colour; and (c) the blue-violet sensation and the yellow printing colour.

As everyone knows, the state of our knowledge of dyes and pigments does not enable us to produce permanent colours of arbitrary spectral composition, and hence the theoretical conditions cannot be satisfied in practice. This disparity, and the additional difficulties caused by the unequal time of exposure for the single colours, and by the action of the ultra-violet rays, have convinced Mr. Drac that correct colour photography means of filters is more an art and a craft, dependent for results upon the personal choice of the worker, than a technical operation following a fixed method. Adopting the

three-colour principle as derived from Young's theory of vision, Mr. Drac circumvents the difficulties of filters by transferring the problem from chemistry to optics. The three sets of rays which produce the negatives in the "Drac" apparatus, according to the above mentioned conditions, are strictly complementary, as they are produced by dividing an actual spectrum. Such a system of dissection of the spectrum permits of the adjustment of the composition and strength of each section to the sensitiveness of the plate so as to obtain the same time of exposure for all three negatives. This adjustment once made, the action of the apparatus depends upon its geometrical construction, and the uniformity of the results is further ensured by the elimination of the ultra-violet rays by means of a screen suitably placed at the limit of the visible spectrum. The apparatus is employed both for the making of the colour-sensation negatives and for the viewing or projection of colour records by additive synthesis. For the latter purpose the positive transparency from the triple negative is placed in the position occupied by the plate, and thus a system of direct colour photography is available in which no coloured means of any kind are used. A number of results shown to us at the Polytechnic were most excellent reproductions of the colour, texture, and lustre of the originals. The time of the exposures varies from half a second to two seconds, and in bright sunshine, Mr. Drac tells us, he has obtained the whole exposure in one fifteenth of a second, although the only apparatus yet at his disposal has been a working model.

In regard to the employment of the negatives for photographic and photo-mechanical printing by subtractive synthesis, there is still the disability of the want of coincidence of inks and pigments with theoretical requirements, but the "Drac" apparatus can be applied to the adjustment of the printing colour, with a view to making it as closely as possible the complementary of the rays by which the negative was taken. The device is a simple one. It was used by Mr. Ives years ago, and has been demonstrated not long ago by Messrs. Newton and Bull, at an R.P.S. meeting. The "Drac" apparatus easily permits the complementary colour to be obtained in the apparatus, and colour thus compared with colour. For this purpose the apparatus is pointed to a brightly illuminated white surface. On looking through the lens of the apparatus a colourless field is seen. Then, by shutting off, one after the other, the single optical systems, we obtain, by direct spectral



subtraction, the complementary colours determining the printing colours.

Mr. Drac thus claims that the system of which he is the inventor gives an absolute solution of the problem of photography in colours by extremely simple technical means, and at the same time introduces exactness into the selection of the

printing colours of the widely used printing processes. From what we have seen of it, there is no doubt of the great ingenuity of the process and of its practical character. It is evidently a step forward in the making of the three-negative colour records, particularly in the direction of reducing the time exposure.

## THE "SOLGRAM" COLOUR PROCESS.

AMONG the communications on colour photography which have reached us since the opening of the exhibition is one from an English reader, enclosing a specimen of the so-called "Solgram" process. We referred to this method some time in commenting upon the ambiguous accounts of it in the American Press, and we are therefore glad to have the opportunity of examining it, so far as a specimen and its author's printed circular permit us to do. The two, however, should be quite sufficient for the purpose. We have added the specimen to the collection in the exhibition.

The process is of American origin, and according to the inventor, W. C. South, of Downingtown, Pa., it "was devised on simple lines in order to make the theory plain and not theory in order to make the Solgram plain." This is kind of him, because the specimen which lies before us requires absolutely nothing to make it plain, "plain" being defined as "wanting in beauty."

The introduction to the descriptive pamphlet of the process makes good reading.

"The intention of this system of colour-photography is to enable the student in Photographic Art to produce photographs in the colours of nature which will resemble paintings in water-colours. As there is no process or means or producing pictures, which for truthfulness to nature can rival a water-colour drawing executed by a master, I have made the aquarelle my standard.

"Matt surface pictures, whether in painting or photography are considered the highest types of art. *It is a rare thing to see works of fine art varnished. To day oil paintings resembles pastels and the time has come when artists have abandoned molasses atmospheres as unsightly if not unhealthy.* The great charm of water-color painting lies in the beauty and truthfulness of its ariel tones, which are further assisted by the granulous surface of the paper upon which they are usually painted.

"There are some people who think a matt surface print not finished. To them I will say that if polish is finish the Solgram Co. sells a lovely varnish which will make a Solgram print shine like a sheet of plate glass.

"I may add that colour photography need not necessarily be lustre photography. You can add lustre however to color photography. If my process of color photography will be appreciated by the large class of truly artistic workers, I will consider myself amply repaid for my trouble in working out what I believed to be a means of a deeper art expression by photography than by any other process at our command.

"The Author,"

"W. C. SOUTH."

The italics are ours.

In his modesty Mr. South claims that the process differs from all other tri-colour processes 'in that the resultant product is a photograph (not a lantern slide, half-tone cut, or physical print) in the colours of nature.' The usual three negatives are required, taken through the usual filters, but these can be dispensed with, and any ordinary negatives used, and the three printings obtained from this, or you can use two negatives. It is all very easy, you can see every step, cold water does the whole of the toning and fixing, and a print is rarely lost because the operator can correct it, "or, what is better still, he may have a picture far more pleasing than he originally expected or intended." We are further told that the photographer with poetic feeling can produce from his two negatives pictures representing any time of day, "from early morn till shades of night."

Apparently a special crimson or red paper is issued; this is printed under the green screen negative, then rubbed with cotton wool and cold water, and thoroughly dried. It is then painted over with "the blue print chemicals, ammonium ferric citrate, and ferricyanide of potassi," exposed and washed in water, dried, and then coated with

a special gum-bichromate film containing a transparent yellow pigment, and this exposed and developed.

After a careful perusal of the pamphlet this is, we think, what the process may be boiled down to. We are only sorry that it is not possible to reprint the whole thing, for there are some delightful touches of quite unconscious humour which are distinctly American. For instance, this passage, read in the light that we have all of us, practically since the beginning of photography, been trying to make photographs in colours *true to nature*, is almost worthy of Mark Twain. "The fact is that the photographer is bound to get a *color picture of some kind*, no matter how carelessly he prints the Solgram, and his picture will never be untrue to some phase of nature."

Again, in dealing with his "bi-negative" process Mr. South is particularly precise, why even Messrs. Kenneth Mees and Sheppard could not tell us more, or be more exact. We quote the following passage to prove the contention: "From the original negative make a proof upon gelatine chloride or any printing-out paper which will give us a reddish proof. The next thing to do is to place a piece of glass in our printing frame; upon this glass lay the proof face up (picture side up); upon this proof place a fresh unexposed dry plate sensitive surface in contact with the proof; then place the back in the frame, turn the frame over, and *light a match, hold it about two or three feet above the frame*, keeping the light in motion all the time, in order that our plate shall be evenly exposed. *When the match has about burned out the exposure can be considered sufficient.* . . . The grain of the paper proof will, of course, show in your negative, but this will be of no consequence.

It is, of course, quite immaterial as to the size or make of the match, or that when it has about burnt out the operator's fingers will be about burnt. The bi-negative process may thus be carried out, or one negative may be made through a green filter, which is used for the red and blue printing, and another through a violet filter, for the yellow print and half-tone cuts are given of such a pair. Obviously "Solgram" is an elastic process, because the two pictures do not coincide; again, we are told that corrections may be made by using "about four or five drops of citric acid (lemon juice)." We may, to save wetting our prints, use a knife or ink-eraser to take out, and water colours, or the special "Solgram" colours, to paint in, colours. And the book winds up with the following sentence: "Indeed, the photographer who can use colors at all and has an aptness for drawing can often to advantage introduce figures in his pictures."

Now to examine the specimen which is to be hung in the exhibition. The background looks like the surface of the sun, showing "rice grain" structure in blue and orange; in the centre of the picture is a lamp, presumably made in bronze; this is a sort of bronze colour with the high-lights white; an opal shade is not such a failure, because there is less colour in it, and the same may be said of the edges of a book which are nearly white. There is an open packet of chewing gum, a pipe of the same colour as the lamp, some books bound in exactly the same shade of leather or cloth, and two boxes of cigars. We do not happen to know this particular brand, "The Boss," but judging from the name it is the sort which is ornamented with plenty of gold medals, which have been awarded it, and these are reproduced as black, though printed, of course, on the box in Dutch gold leaf.

Considering the somewhat effulgent (this is the best term we can find) articles which have appeared in some of the American photographic papers on the process, we are reluctantly compelled to conclude that either the inventor is not such a good operator as author or else that if he is, as he should be, a perfect operator, the speed with which he sends out damn the process as a flat catching dodge.

## NOTES ON OPERATING.

study the individual, his or her expressions and unconscious poses, vary and modify them as your judgment directs, but, if you want good orders, your customers' recommendation, and good business, above all get a characteristic portrait which expresses something of the individuality of the sitter. Let that be your primary object and the work will please even though it be faulty technically and artistically.

\* \* \* \* \*

Most photographers have the experience continually that the sitters who please them most are not the most favoured by the customer. What is the lesson to be learnt? Clearly the photographer's judgment has been at fault, and his ideas require rearranging. But as a class we are very egotistical, and pretty sure to take the opposite view, viz., that the customers require to be educated up to our ideas.

\* \* \* \* \*

Having realised the necessity for that quality, which we may describe as the soul of operating, we face the question how to obtain it? This is easier to a man of naturally pleasing manner and tactful address than to one lacking that valuable asset. But no matter how difficult at first it may be to adapt yourself to each individual sitter, you are sure of some success if you persist and are in earnest. You must break down the formality and reserve that will exist between the sitter and yourself. Until this is done you can have only a moderate success, and to do it you must keep the photographic part of the business entirely in the background. Do not be in a hurry to begin, but engage your sitter in conversation while you are moving a blind something of the kind, the while observing your sitter carefully with a view to seizing favourable characteristics of pose and expression.

\* \* \* \* \*

The ability to seize instantly on what is good comes partly from practice, but partly depends on your knowledge of human

nature and powers of observation, which you can greatly improve by studying people under varying conditions. I plead guilty to having made hundreds of mental exposures during sermons that have interested me less than the people to whom they were addressed, and I admit a good deal of absent-mindedness when attending "At Homes" and other social functions.

\* \* \* \* \*

Your artistic sense will enable you to convert the result of your observations into a pleasing picture of more or less artistic merit, according to your knowledge and taste. If lacking in those qualities you can certainly develop them by cultivation.

\* \* \* \* \*

A few words about posing. A photographer of my acquaintance, who was for years head operator to one of the largest and most fashionable studios in the North of England said he had dropped posing, and let people pose themselves, which was certainly an advance on the stage in his career when he posed them in positions they did not assume under natural conditions. Having a class of sitters who posed well without his help he turned out good pictures, though had he been more progressive he would have returned to the plan of posing them himself, but in a more sympathetic manner, suggestive rather than creative. Once you have a definite idea in your mind and know how you are going to pose and light your subject, make all necessary preparations, then do the actual posing as quickly as possible, engaging your sitter in conversation while an assistant is focussing and making all ready to work from a secret signal. Cultivate this method of control and you will be surprised at the power acquired in time. Impassive sitters have to be worked up until you fairly drag a bright expression out of them. Your sitter will go away pleased, and often exclaim "I always hated being photographed, but I have quite enjoyed it this morning."

AN OLD OPERATOR.

## A MODIFIED GUM BICHROMATE PROCESS.

At the request of the Editors, I am supplementing the report in the paper by Mr. E. H. Griffin before the Wolverhampton Photographic Society, which appeared in last week's B.J., with a few notes from my experience when working out the process some few years ago.

At the outset, I may say that I am not an admirer of the gum process. All must admit, however, that excellent pictures have been produced by a few workers, but they can scarcely be classed as photographs. I, as a technical photographer, prefer to see technically good photography, as well as artistic productions. Both may be combined in a gum print, but that is seldom the case, for many of the results that have been shown at times at exhibitions have been neither of one or the other. Possibly this is why I am not so much in love with the process. Yet, though one may not be personally an admirer of any particular process, there is no reason why one should not publish anything of possible service to others. In the present instance, this modified method of working is capable of yielding, technically, excellent results as well as artistic ones.

### An Indirect Pigment Image.

I may explain that this method is the outcome of some investigations I had to make a few years ago in connection with the action of light on bichromated colloid bodies, and the continuing

action of light, upon which this modification is based, had to be taken into consideration. Mr. Griffin, in his lecture, reported in last week's JOURNAL (see page 68) explained the Mariotype process: In this it will be seen that the action of light set up in one gelatine film is transferred to, and continued in, another which has not been exposed to light at all. In my investigations I found that the same action could be made to continue in another colloid different from that upon which the light had acted—say, if that were gelatine, it would be continued in one of gum—under certain conditions. In my first experiments free bichromate was present, but I found that its presence introduced an element of uncertainty in working, and I rather expected that if this was washed out of the initial print there would not be this continuing action, but I found this was not the case, for when the free bichromate was washed out of the print and a little bichromate added to the gum, the action went on pretty much the same as if it were left in the first print. Finding this to be the case, I next, with the view to seeing how persistent was this action, tried without the addition of the bichromate to the gum, so as to eliminate the uncertainty pertaining to its presence. Here, again, I found, somewhat to my surprise, that it was unnecessary. It was found that prints made on bichromated gelatine could have the bichromate washed out, be dried, and kept for weeks. Then



they could be coated with a pigmented solution of gum slightly acidified, dried, and developed at any convenient time, even after a week or more keeping.

#### Advantages of Indirect "Gum."

Having settled this point, I next turned my attention to other colloids than gelatine, and I found their action was much about the same. Tragacanth, starch paste, and flour paste all answered well. I then conceived the idea that a process could be worked out that would be of some advantage to workers of the gum-bichromate process, and for the following reasons: When the exposure is made on an unpigmented film there is a visible image as a guide to the right exposure of the print, and when the free bichromate is washed out of the paper the prints may be kept till a convenient time for completing the operations. As the pigment coating has not to be printed through it need not be so carefully applied as if it had to be; also, that more pigment can be added to the gum, so that greater vigour can be obtained, thus avoiding the trouble of multiple coatings and printings to secure sufficient depth of colour. Another advantage I recognised was this: In the ordinary method of working the hardening effect of the light progresses from the surface of the pigmented coating downward, as in the carbon process, hence that portion of the image which is in contact with the paper is the softest and most soluble, so that it has to be very tenderly dealt with in the development, or the more delicate tones may be impaired. In this process, however, the conditions are reversed. The hardening action proceeds from the paper upwards, so that the most insoluble position of the image is next the paper, and the more soluble on the surface of the film. This should give greater scope for what is irreverently, by some, termed "faking," or individual treatment of the picture.

#### Formulae.

In his paper Mr. Griffin gives a preference to gelatine for the initial print, but I prefer either starch or flour paste, as they give a more pleasing matt surface, with great vigour.

Between these two materials I found no practical difference in working. Here are the formulæ I used for both. For the flour:

Good household flour, rich in gluten .....	2 ounces.
Water .....	20 ounces.

Mix into a smooth paste; and boil for three minutes. For the starch paste:—

Bermuda arrowroot .....	$\frac{1}{2}$ ounce.
Water .....	15 ounces.

Mix as above, and boil for four minutes.

St. Vincent arrowroot will no doubt answer as well as the Bermuda, and is much cheaper, but I have not tried it. The pastes are best made over night, then in the morning the solid layer on the top is removed, the mass broken up, and then squeezed through coarse muslin. It is then easy of application. For coating the paper I used a three-inch flat hog-hair varnish brush, working it alternately lengthwise and crosswise, so as to obtain an even coating. If the paper is a soft and porous one, two coatings of the paste may be necessary to fill up the pores and keep the image on the surface. If it is a hard, sized paper, a single coating will suffice. Or the paper may have a preliminary coating of gelatine—say, 1 oz. of dry-plate gelatine to 40 oz. of water. The easiest and quickest way to apply this, if it is a smooth paper, is to place two sheets of it back to back and draw them through the solution, and then hang up to dry. In this way two sheets are coated at once, and they dry flat. When dry they can be separated by cutting off about a quarter of an inch round the edges. If the paper be a rough-surface one this plan will not answer. The best plan in that case is to let the gelatine solution cool and jelly, then break it up, as with the paste, and apply with a brush. For sensitising I used a somewhat dilute solution of the bichromate:—

Bichromate of potash .....	$\frac{1}{2}$ ounce.
Water .....	50 ounces.

On this the paper was floated for a couple of minutes. With regard to the pigmenting of the prints I need say nothing, as the method given in his paper by Mr. Griffin is very similar to that I employed.

E. W. FOXLEE.

## LOCAL AND GENERAL REDUCTION OF PRINTS WITH SANZOL.

HAVING occasion recently to reduce the high-lights of a negative I selected "Sanzol," the newly introduced cobaltamine reducer agent, and followed precisely the maker's instructions, with good results. It then occurred to me to try the effect of this reducer on prints. Not that I particularly wanted to reduce a print, but as the solutions were made up I thought I might as well waste them on some prints as down the sink.

The prints were on bromide, gaslight, and P.O.P. papers, and were all printed under an actinometer with a series of opacities ranging from bare glass, reckoned as 1, by geometric progression to 1,024, this last corresponding to an H. and D. density of 3.01, which is quite beyond that obtained in ordinary work. For the purpose of these experiments the development papers were exposed and developed till a distinct and easily seen image was obtained under the densest square, and the lowest squares, corresponding, of course, to the shadows of a negative, were totally ignored, because I wanted to see what the action of "Sanzol" would be on the fine high-light detail, as well as on the shadows of the print.

Precisely the same idea was followed with the P.O.P., only gelatino- and collodio-chloride prints were made, in order to determine whether the vehicle for the sensitive salts played any part in what might happen.

The solution as recommended by the makers was first used, and dealing first with the developed prints I could trace no difference of action between the gaslight and bromide papers, but whilst "Sanzol" will be found useful for reducing excessively heavy shadows, there is distinct action on the high-lights. In both test prints the deposit under the 1,024 square was eaten away. On the other hand, whilst on the original print the three lowest squares were absolutely one uniform black patch, after reduction they could all be differentiated. The duration of the reducing action was five minutes.

#### Reducing P.O.P. Prints.

As regards the P.O.P. prints, I at once met with distinct and strong action on the high-lights. The deposit under squares 1,024 and 512 disappeared before there was adequate reduction in the lower squares. Abandoning, therefore, the makers' instructions, the solution was diluted with an equal quantity of water, and now, whilst the action was more satisfactory, I met with the trouble of blistering.

Nitric acid was therefore abandoned, and citric used in place of it. This introduced the trouble of very strong and distinct staining of the film, but whereas with the nitric acid the high-light detail was eaten out, with citric acid there was

an absence of this defect, and the shadows were considerably lightened. The actual reducing solution used was:—

"Sanzol" .....	1 grain.
Citric acid .....	10 grains.
Water .....	1 ounce.

Experiments with glacial acetic acid were also successful, but I have not had time to carry the experiments to that conclusion which I should do.

Whilst the use of the organic acid reduces the action on the high-light detail, it produces a very strongly coloured deposit on the print, and also entirely alters the tone. Whereas the gelatino-chloride prints were, before treatment with "Sanzol," of a rich purple brown, they afterwards distinctly showed nothing but cold purple or bluish tints. The gelatine prints showed much greater change of colour than the collodion prints, and a greater reduction generally.

#### "Sanzol" as a Local Reducer.

Submitting development prints to the action of "Sanzol" plus organic acids, I found the deposit troublesome, as it prevented anything like an accurate determination of the reduction, and quite casually I wiped a print with a tuft of cotton wool, and found, or thought that there was, more reduction at once. This point was followed up, and, abandoning P.O.P., development papers were tried, and treated with "Sanzol" plus nitric acid and also plus organic acid. After immersion in the reducing solutions till they were thoroughly soaked the prints were laid face up on a sheet of glass, and the lowest square selected for treatment; this was gently rubbed with a tuft of cotton wool saturated with the solution, the other squares being meanwhile also kept saturated with the solution. I then found that I had so reduced the greatest deposit that it now corresponded in intensity or depth of deposit with the fourth square—that is, with the square of opacity 8. It then occurred to me that possibly mechanical attrition plus "Sanzol" would give us another local reducer, and I found that I could reduce any square at will, and could wipe out no less than the three highest squares with practically no friction. The slightest pressure seemed to wipe the image right off the paper.

These experiments were made without photometric measurements of the prints; any change in the print was controlled by mere visual comparison with an untreated print, and whilst therefore very rough and ready they may lead others to try "Sanzol" for local reduction.

As regards the cobaltamine deposit and stain upon the prints, and these are very marked when organic acids are used, the ammonia bath at once removed them. I found, however, that if the ammonia was much stronger than that advised by the makers blisters occurred on all the papers that I used.

#### The Effect on Sulphide Sepia Prints.

Finally, it occurred to me to see what would be the action of this reducing agent on bromide prints which had been submitted to sulphide toning, and I must at once confess that I was surprised at the results obtained, for it is generally accepted that silver sulphide is one of the most stable salts known; yet I obtained a distinct action. I am not prepared to maintain that what I met with was a reducing action, but that there is action is indubitable.

The first experiment was made with prints exposed under my actinometer, and I congratulated myself that my preconceived opinion as to the stability of the silver sulphide image was confirmed. Anxious, however, to make sure more certain, some prints were developed with ferrous oxalate and metol-hydroquinone, and to my astonishment I found a distinct change of colour in the ferrous oxalate developed prints, and

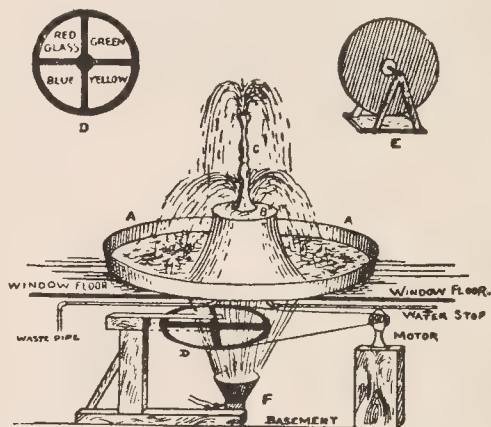
that with the metol-hydroquinone prints I could wipe out the high-lights.

I am not prepared to say that there is reduction of density; there is reduction in intensity of colour—that is, a rich brown becomes a yellower tint—and one can reduce the high-lights when the paper has been developed with metol-hydroquinone. Whether this applies to all development papers and all developers I am not prepared to say. Possibly Mr. Smith, who is, I believe, the discoverer of the action of cobaltamine salts on the silver image, may be able to help us. These notes are merely advanced in the hope that someone else can and will take up the subject; someone with more leisure than I have, for if we could add to our present resources a local reducer which would not only be under control, but allow us to tone sulphide-toned prints, the picture-making powers of the pictorial worker would be enhanced.

E. J. WALL.

#### A FOUNTAIN WINDOW-DISPLAY.

PHOTOGRAPHIC dealers in certain districts might find the installation of a window display, such as we see described in the "Keystone" (America), quite an attraction to the passer-by. Wherefore we reprint the portion of our contemporary's instructions which is necessary for the making of the appliance:—"Have a tinsmith make the centre bowl (marked A in the above illustration) of tin, of any size desired, according to the size of the window. This centre bowl should be shaped like a large cake-tin, hollow in the centre. Cut a hole in the centre of the window-floor and place the tin bowl over it. Put a large rubber band around the centre tin cone. Secure a circular glass shelf, B, having a hole in the centre, and rest it upon the cone.



"Have the tinsmith make a fancy stem, C, enamel it white, punch fine holes in it at the top and bottom and solder it to the water-pipe, which passes through the hole in the centre of the glass shelf and which is attached to the main pipe in the basement. Put a rubber washer on the glass shelf to make it watertight. The water flow is regulated by the water-stop, and the surplus is carried off through the waste pipe.

"Make a skeleton pulley, D, with a piece of coloured glass in each of its openings. Use red, green, yellow and blue glass, and fasten it in position with tacks. Arrange this pulley so that half of it is in the centre of the fountain.

"Place a strong electric light, with a reflector, in the position shown at F, so that it sends its rays upward through the coloured glass and through the centre cone on the water. The effect will be most beautiful. The changing of the colours can be reduced to speed by means of the reducer E. In the lower bowl lay three electric bulbs coloured green, with wires made waterproof, well insulated and enamelled."



## Exhibitions.

### LIVERPOOL AMATEUR PHOTOGRAPHIC ASSOCIATION.

THE annual exhibition of members' work was opened last week at Eberle Street, and will remain open until February 16. The chief award, the gold medal, for a set of three prints, has been awarded to Joseph Appleby. The two silver medals have been won by Messrs. C. F. Innton and Stuart, the former sending three figure studies in the best of his well-known style. In other classes medals have gone to Messrs. Innton, J. D. Johnston, Colonel Pilkington, W. H. Marquis, H. K. Byrne, A. R. Macleay, and C. A. Hutson, with work well above the average. The president's prize for the best single picture by a member who has never won the society's medal before goes to an exquisite carbon, red in tone, with a delightful effect of sunshine, by A. R. Macleay. There is a good entry of prints in the "Humorous Class," and the medal will go by the popular vote of the members—the voting taking place during the exhibition. In the Scientific Section, Dr. Heatherley exhibits "Studies of Birds," and there are microphotographs of diatoms, by P. T. Aman.

### SOUTH ESSEX CAMERA CLUB.

THE fourth annual exhibition was held from January 25, 26, and 27 in the East Ham Town Hall. In addition to a very creditable exhibition, a series of concerts and other attractions were provided, and every credit must be given to the honorary secretary, Mr. T. Michell, and his committee, in whose hands were the arrangements. The judges, A. Horsley Hinton and H. Snowden Ward, made the following awards in the open classes:

Class A (Landscape and Seascape).—Silver medal (No. 11), "Even-tide," J. E. Latham; bronze medal (No. 19), "Summer Afternoon," F. L. Warner.

Class B (Portraiture).—Silver medal (No. 46), "Beyond," D. J. Scott; bronze medal (No. 43), "Intent he Seemed and Pondering Future Things of Wondrous Weight," Miss M. Woods.

Class C (Architecture and other subjects not included in A and B.).—Silver medal (No. 59), "Flying Gannets," W. Farren; bronze medal (No. 63), "Through a Norman Arch," T. R. Somerford.

Class D (Lantern Slides).—Silver medal, F. G. Tryhorn; bronze medal, F. Judge.

## Patent News.

*Process patents—applications and specifications—are treated in Photo-Mechanical Notes.*

The following applications for patents were made between January 15 and 20:—

HAND-CAMERAS.—No. 1030. Improvements in hand-cameras. Samuel Dunseith McKellen, 19, Cannon Street, Manchester.

PHOTOGRAPHY.—No. 1037. An improved system of photography. Arthur Augustus Brooks, 57, Barton Arcade, Manchester.

TRIPODS.—No. 1298. Improvements in tripod stands for photographic cameras. David Johann Heinrich Simonis, 53, Chancery Lane London.

CAMERAS.—No. 1317. Improvements in folding photographic cameras. Optische Anstalt C. P. Goerz Aktien-Gesellschaft, 31, Bedford Street, Strand, London.

SHUTTERS.—No. 1412. Improvements in photographic shutters. Auguste Romanet and Gaston Guilbert, 115, Cannon Street, London.

PRINTING FRAMES.—No. 1563. Improvements in photographic printing frames. Marwood Short, 37, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

DARK SLIDES.—No. 117, 1905. The invention consists of a dark slide in which the plate is changed in position from the outside of the slide. The invention is to provide a substitute for the turnbuttons, or other fastenings employed in a dark slide to hold

the plate in position, and consists of fasteners operated by a side bolt, which passes through the side of the dark slide. Arthur Lewis Adams, 26, Charing Cross Road, London.

A SMOKE-TRAP FOR FLASH LAMPS.—No. 25,750, 1905. The invention consists of a bag which completely encloses the source of light, is closed on all sides, is collapsible, transparent, or translucent, water-tight and smoke-tight, and is closed during and after the flash. The bag may be made of any material or fabric which is flexible or capable of being folded, transparent or translucent, and has an opening which can be closed smoke-tight and serves on the one hand for introduction of the lamp and on the other hand for cleaning. To make the bag unflammable and impervious to smoke, it is only necessary to wet it. It may, however, be made unflammable in any known manner, or it may be coated with some form of wax, rosin, gelatine, caoutchouc, gutta-percha, or the like. The main feature of the bag is that during the flash it is closed, impervious to smoke and of such a size that it can catch the whole of the smoke evolved. Finally parts of the bag, for instance its back, may be made of opaque or reflecting material. The unavoidable expansion of air accompanying the flash, which would burst the bag, is rendered harmless by collapsing the bag as far as possible when the lamp has been introduced, and when closing it tight, so that it is fully blown out by the pressure produced by the flash. The most advantageous construction is a bag which is broad at its upper part, narrow at its lower part, capable of being opened at the top or at the side, but also of being tightly closed; it is made water-tight in order that the water may be poured in for the purpose of wetting the walls and cleaning them. In the bag is the lamp which is ignited from outside, preferably electrically or by a cap. Inasmuch as this device remains closed during the flash, it catches all the smoke with certainty, and needs only to be washed occasionally in order to be always ready for use. Julius Feider, 70, Romergasse, Vienna, and Ferdinand Hrdliczka-Csiszar, 96, Zieglergasse, Vienna.

PAPER DARK SLIDES.—No. 5,822, 1905. The claim is for a dark slide and envelope for plates or films which is an improvement on that of Patent No. 16,821, 1898. In the present invention the sheath-like shutter or cover is completely removable. Its return is made possible by such a construction of the dark slide, that in addition to the shutter also the film or film-carrier (or an extension attached to the film or film-carrier) and the frame, in which the film or film-carrier is housed and in which also the shutter is guided, extend into and beyond the slit of the camera back or the adapter. Max Staehler, 29, Margaret Street, London, W., for Carl Zeiss, Jena, Germany.

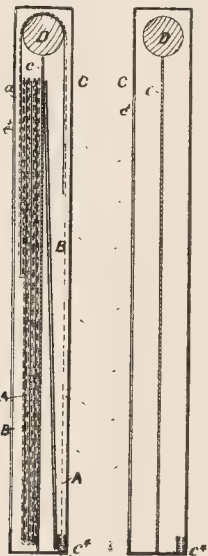
PACKING AND CHANGING FILMS.—No. 9,440, 1905. The specification describes the device whereby the magazine in which films are sold on the system described in Patent No. 9,323, 1905, is used as the receiver for the exposed films from another magazine. Jules Carpentier, 20, Rue Delambre, Paris, France.

SELF-TONING PAPER.—No. 19,850, 1905. The paper is prepared by introducing the gold with a dye-stuff such as methyl violet, fuchsine, or the like into an emulsion containing silver, in which the silver is present partly as cyanide or sulphocyanide. Accordingly to the silver-containing emulsion (collodion, gelatine, albumen, or the like), there is added a dye-stuff of the kind referred to, for instance in the proportion of 5–15 milligrams to 1,000 grammes emulsion, and alkaline cyanide or sulphocyanide for instance in the proportion of 3–6 grammes, as also old chloride or the like in such proportions, for instance 2–3 grammes, that the gold is present in sufficient degree of concentration in the self-toning paper. The toning—i.e., the reaction in the water or salt bath or like bath, proceeds, as above mentioned, with the employment of the improved paper in a surprisingly short time and with absolute security. According to the proportion of salt in the bath the tone can be varied with exactitude from red-brown to the most extreme blue black. There is no risk, and no special attention is required in the toning operation. Experience has proved that the principal effect of the dye-stuff is to prevent the reaction between the silver- and gold-salts while the paper is kept. Such reaction undoubtedly takes place with the self-toning papers hitherto known, and the result is that these

papers, as already pointed out, cannot keep. Moreover, the dye-stuff has a favourable influence on the toning. The circumstance that the toning is effected immediately and with a pre-determined tone is, of course, in the first instance due to the presence of the silver-cyanide or -sulphocyanide, but the dye-stuff ensures that the toning is effected evenly and with a uniformly excellent result. Thus, the object of this invention is to provide a self-toning paper which is not only durable, and gives a genuine durable gold tone on dipping in a salt water or like bath, but has also the special property that the gold tone is independent of the duration of the bath, and is determined only by the concentration or composition of the baths so that with a given property of the bath a definite tone will always be obtained without fail, which is instantly formed and does not alter even if remaining a long time in the bath. Carl Sofus Poulsen, Valby, Copenhagen, Denmark.

**CINEMATOGRAPHS.**—No. 6,436, 1905. The invention consists of a cinematograph camera, also applicable for ordinary photographic purposes with a plate-holder, the camera body being divided into a front chamber and a rear unobstructed film-chamber by a removable partition, which constitutes a holder for the actuating mechanism. The latter is entirely mounted on the front of the partition and without the aid of any contrivances for winding the film with positive motion for the exposure and of special winding-up devices, by means of a cylinder or drums, feeds the film after exposure direct into the rear chamber, where it lays itself in folds wholly unobstructed. Max Hansen, 22, Nachod Strasse, Berlin.

**ADDENDUM.**—By an oversight last week in abstracting the film package patent of J. E. Thornton, the date was wrongly given



as 1905 instead of 1904, and the explanatory diagrams were omitted. The latter are now given, and should be studied in reference to the description on page 70 of the "B.J." of January 26.

## New Books.

THE "Photographischer Almanach" of the firm of Liesegang reaches us in its 26th annual issue, containing a number of technical articles by German writers and an appreciation of A. Horsley Hinton, by E. O. Hoppe. There is a fragmentary review of the practical hints of the year, and the usual notices of new goods on the German market. The price of the "Almanach" is one shilling and the publisher M. Eger, Leipzig.

## CATALOGUES AND TRADE NOTICES.

THE Kodak Company notify us of special displays of Kodak and general photographic goods for the 1906 season which will be held daily until February 28 at 57-61, Clerkenwell Road, 72-74, Buchanan Street, Glasgow, and 96, Bold Street, Liverpool. The display includes the latest models of the Brownies, Folding Brownies, Folding Pocket Kodaks, Cartridge Kodaks, the Screen-focus and Stereo Brownie Kodak, the new Quick-focus Kodak, a full series of Premos, the Premo Film Pack in its latest form, the Kodak Tank Developer, and a full line of general goods.

A new list of telephoto lenses reaches us from Messrs. Steinheil, of 7, Theresienhöhe, Munich. The list, which is fully illustrated, catalogues the new telephoto objectives made specially for hand-cameras, and includes also some tables drawn up to save the usual calculations in this class of photography.

The latest (January) price list of chemicals for photographic and photo-mechanical processes reaches us from Messrs. Harrington Brothers, 4, Oliver's Yard, City Road, E.C.

MESSRS. John J. Griffin and Sons, Limited, are finally vacating the premises formerly having the address Sardinia Street, but now standing on Kingsway. Their new establishment is a handsome block on the opposite side of the road, and, before moving into it, they are offering a number of cameras and other pieces of apparatus at prices which, in many cases, are one-third the usual one. A list of these goods, which can now be inspected, is sent post free.

THE Thornton-Pickard catalogue for 1906, which has reached us from the Company at Altrincham, is artistically a very fine production, and on that account alone is noteworthy as showing the value which a firm like the Thornton-Pickard Co., manufacturing high-class instruments, sets upon appropriately good printing. The chief inducement, however, to seize the offer of the Company to send the list free to readers of the B.J., is of course the very full specification and illustration of the various T.-P. shutters, cameras, and accessories. The company has always spared no pains to lighten the task of the purchaser unable to examine its goods on a counter, and the present catalogue is, if anything, still more explicit and descriptive. It describes, among other new T.-P. introductions, a new half-plate set, the "Imperial Perfecta," a triple extension high-class camera at a popular price.

## New Materials.

**Silvo Postcards and Paper.** Made by the Rotary Photographic Company, Limited, 12, New Union Street, Moorfields, London, E.C.

To their long series of rotary papers the Rotary Photographic Company have now added another—viz., one which enables the worker who is able to use either a bromide or gaslight paper to produce prints of silver-like lustre without any departure from his ordinary methods. Printing papers, incorporating a flexible metallic support, have appeared upon the market from time to time, but cannot be said to have enjoyed very long spells of popularity. It is to be hoped that the Rotary Company, with its great facilities of distributing any new product, will be able to create a demand for a deservedly notable departure from the usual kind of photograph. We have found the "Rotox-Silvo" papers submitted to us capable of yielding excellent results when put through the customary routine of exposure and development, and we can well believe that professionals might create some amount of interest among their customers by means of it. The price of the postcards are 1s. per packet, and the papers are obtainable in all the cut sizes at prices based on 8d. per dozen quarter-plates.

**EDWARDS'S Lantern Plates.**—A special interest attaches to the receipt at the "British Journal" Office of samples of lantern plates from Messrs. B. J. Edwards and Co., of Castlebar Works, Ealing, inasmuch as the occasion marks the issue of manufactures under the direction once more of Mr. B. J. Edwards, the founder of the firm and the first manufacturer of isochromatic plates in England. Though the plates are thus old established, it is admissible for us to depart from our usual custom of reviewing only new introductions on the market, since users of Edwards's products who may have had occasion for complaint may be glad to learn that the technical



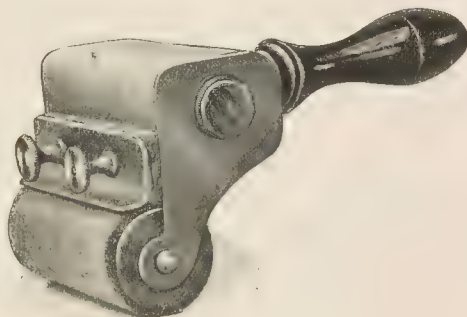
management of the business is now in the hands of its originator, by whom no effort will be spared to render the current output worthy of its traditions. To leave generalisations, we find the "special transparency" plates give us slides of black or warm tones of great richness and of fine grain. They are obtainable in the usual way from the dealers.

**COLD AND WARM TONES ON MATT PAPER.**—The double method of toning first with gold and afterwards in a platinum bath is, of course, widely known and practised by users of print-out papers, but it does not appear to be generally recognised that the two metals may be employed together in one bath—that an acid one. Acid gold baths have been advocated, it is true, so that the employment of gold in a state other than that of faint alkalinity, which is usually adopted, is not without precedent. The use of such a combined gold platinum bath was brought to our notice recently by a demonstration of the treatment of "Mattos" paper, a new print-out plain paper sensitised on a hand-made Whatman paper. The bath employed and prescribed in the "Mattos" instructions is strong in platinum, and its content of gold chloride is less than one-thirtieth that of potassium chloroplatinate. In this bath the prints are toned without any preliminary washing and quickly pass to a stage which gives an extremely fine black tone after fixing. The bath can be used repeatedly until exhausted, but an old bath favours the production of fine brown and sepia tones, and should, in fact, be kept for that purpose. We were also shown the tones obtainable on "Mattos" by simple fixation with and without a preliminary bath of ammonia. The results are rich warm sepias and purplish browns, admirably suited to the close yet broad texture of the paper. It is thus evident that "Mattos" paper has certain strong claims upon photographers—and particularly professional photographers—by whom further particulars can be obtained from 6, Holborn Viaduct, London, E.C. On the occasion of the demonstration we were shown by Messrs. Thornton some specimen prints on wood sensitised as "Mattos," and were given to understand that it would be possible to place a flexible sensitised wood of very velvety surface upon the market at a moderate price.

## New Apparatus, &c.

**Christy's Damper.** Sold by Thomas Christy and Co., 4, 10, and 12, Old Swan Lane, Upper Thames Street, London, E.C.

For many purposes, in the photographer's or photographic dealer's despatch room, the little piece of apparatus shown in the drawing should be found most useful. It consists of a roller covered with coarse flannel and mounted below a reservoir containing water. The



latter is fed on to the flannel-covered roller by capillary attraction, through the medium of cotton packing placed in the aperture of the reservoir. The water is thus distributed evenly and gradually to the flannel, which is thus preserved in a convenient state of dampness. For moistening labels, wrappers, stamps, etc., the apparatus is obviously a convenience. Such we have found it during our short possession of it, and we have no doubt that our experience will be that of others. It is even conceivable that it may find a place in the photographic workroom in circumstances where it is desired to apply an even coat of solution to any surface. The reservoir is of brass, and, therefore, should not be used as the receptacle

of many sensitising solutions unless first silvered, but in its present state the accessory is such a speedy and desirable substitute for insensitising methods of applying moisture that it should make a place for itself in offices and workrooms. Its price is 3s. 6d.

## News and Notes.

**The Bolton Amateur Photographic Society** holds an Open Exhibition on April 18, 19, and 21, in the Victoria Hall, Knowsley Street, Bolton. Particulars and entry forms may be obtained from the hon. secretary, Mr. T. W. Cross, 27, Latham Street, Bolton.

An exhibition is to take place at Easter week in connection with the Redcar Photographic Society.

A course of elementary practical lessons in photography commences at the Cripplegate Institute, Golden Lane, E.C., this evening (Friday), at 7.15. The class is open to ladies and gentlemen, and will be in the hands of Mr. C. W. Coe.

**PYRO FOR STAND DEVELOPMENT.**—In reference to our promise last week for a "stand" developer, M. A. Levy writes to us from Amieres, France, stating that he regularly uses pyro for the purpose, and finds that if well diluted it does not give rise to stain.

**FINGER-NAIL PORTRAITURE.**—The latest Society fad, according to the daily Press, is the wearing of photographs upon the finger-nails. A few weeks ago it was photographs on waistcoat buttons, but that has been displaced by the finger-nail craze, so we are solemnly assured by one halfpenny journal. We have not yet met with any ladies adopting the alleged correct style of carrying their husbands' fiancées portraits on the finger, but perhaps our experience has been uncommon. If the wish is father to the thought, the rumour might have been started by a photographer, for we read that the price of a finger-nail portrait is half a guinea, and at the end of three weeks the growth of the nail has necessitated its renewal. Quite an ideal kind of business.

**CINEMATOGRAPHY IN COLOURS.**—As announced in THE BRITISH JOURNAL OF PHOTOGRAPHY last week, a demonstration of cinematography in colours was given at the Royal Institution, Albemarle Street, W., last Friday, by Captain W. N. Lascelles-Davidson and Mr. W. Friese-Greene. The projections, which were on a small scale, created a good deal of interest among the scientific audience, and were pronounced to be a great stride forward in colour photography. Some speculation was indulged in on the preparation of a colour-sensitive film of quality to obtain the balance of colour-sensitiveness for the two filters through which the exposure is made. It was explained that the results were obtained by the combination of a very sensitive, specially orthochromatised, adjusted light filters, a quick lens, and a good light. The spectators expressed themselves surprised at the brilliance and accuracy of the colours. One gentleman was heard to predict a great future for cinematography in colours, as applied to scientific investigations, such as spectrum analysis and solar physics. The apparatus was examined by a number of those present.

**The Invention of Bromide Papers.**—Mr. John Nicol, the veteran editor of "The American Amateur Photography," writing in a recent issue on the article by Mr. Burgess in THE BRITISH JOURNAL OF PHOTOGRAPHY, says:—"Mr. Burgess claims the invention of bromide paper, while he was superintendent of Morgan and Kidd's factory during the first year of its existence. Just when that was I do not remember, but I do remember that a considerable time before that Mr. Swan [now Sir Joseph Swan—Eds. B.J.P.] appeared before the members of the Edinburgh Photographic Society and showed bromide paper, as a reference to its minute book will show. Of course, I know that not always the man that invents, but he that brings into practical use deserves the credit and also gets the dollars, but the introduction of bromide was a big thing, and it is but right that the credit should go to the right man. Mr. Burgess may have made a better gelatine emulsion before Dr. Maddox, but he kept his thumb on the emulsion and sold it, while Dr. Maddox published his, and there lies all the difference."

Last week a fire broke out in the house of Mr. J. Trotter, photographer, Comrie Street, Crieff. A chimney had gone on fire, and owing to its construction some joists were ignited.

**ROYAL PHOTOGRAPHIC SOCIETY.**—The paper by Mr. T. Thorne

Baker, on "The Applications of Spectro-Photography to Chemistry," is postponed from February 27 to March 27. On the former date a lengthy paper will be read by Messrs. C. E. Kenneth Mees and S. E. Sheppard, on "The Estimation of the Colour Sensitiveness of Plates," consisting of an historical introduction and an examination of the methods of adjustment of the light used, Eder's two-colour method, three-colour testing, bathed plates, spectrum tests, possibilities of spectro-sensitometry, and some results with pinacyanol.

## Commercial & Legal Intelligence.

**BANKRUPTCY of a Builder-Photographer.**—George Edmund Wren, builder and photographer, 17, Copenhagen Road, Gillingham, appeared for his public examination at the last sitting of the Rochester Bankruptcy Court, before the Registrar. Debtor attributed his failure to depreciation in the value of property and slackness in trade. In reply to questions put by the Official Receiver, debtor said he started in business in 1877, with a capital of £40, and took contracts for carpenters' work up to 1885, when he removed to Copenhagen Road. He learnt photographing while suffering from the effects of an accident. Between the end of November, 1904, and the end of January, 1905, he made a profit of £105. He had twice previously made arrangements with his creditors. In 1887 he paid a dividend of 15s. or 16s. in the £1, and six years later his creditors accepted 10s. in the £1. The business was arranged mostly in the office of Mr. Bessent, who had the receipts. The examination by the Official Receiver showed that the debtor had been involved in very considerable building speculations, and that he had allowed his collections of accounts to be very lax. The debtor was allowed to pass.

**INSTRUCTION in the Bioscope.**—At Shoreditch County Court on Thursday, Mr. Thomas Charles Field, bioscope operator at the Palace Theatre of Varieties at Bow, sued Mr. Maries, of Dalston, to recover £2 18s., balance due for lessons on the bioscope. The plaintiff said the defendant asked him to teach him the use of the bioscope to enable him to better his position in life, and eventually was able to take a position at Morecambe. A verdict was given for the amount claimed, with costs.

**FRUITS of the Coupon Business.**—On Monday last the Stockport magistrates investigated charges of obtaining money by false pretences with intent to defraud brought against a Manchester woman named Elizabeth Shannon. They decided that the evidence was not sufficiently clear, and giving the accused the benefit of the doubt, discharged her. It was alleged against the woman that she went round the shopkeepers representing that she was the agent of Mr. J. C. Bradshaw, photographer, of Victoria Street, Manchester, and offering what she said were special terms for one week only for shopkeepers. Evidence was given by three witnesses that they paid her money for photographs. The photographs were to be taken at a new studio which the prisoner said had been opened on Lancashire Hill, Heaton Norris, by Mr. Bradshaw, and coupons entitling the purchasers to the photographs were given. One of the witnesses, Mrs. Ethel Bent, said that she arranged to have her photograph taken in her wedding dress, but when she went to Lancashire Hill she found no studio there. Mr. Dobson, who prosecuted, said that there were a large number of similar cases in Stockport and Levenshulme. The prices paid for the photographs varied according to size—in one case 2s. 6d. was paid, in another 1s. 6d., and in a third 1s. The money was not forwarded to Mr. Bradshaw. Mrs. Bradshaw, the wife of Mr. J. C. Bradshaw, said that shortly before Christmas the accused applied for a position as agent. She was told that there were no vacancies, but she was allowed to have a coupon book in order to introduce any business she could. She had no authority to offer special terms to shopkeepers or to say a studio had been opened on Lancashire Hill by Mr. Bradshaw. Mr. Bradshaw had never any intention of opening a studio in Stockport. The police evidence was to the effect that the prisoner when arrested gave two false names and a wrong address. In reply to the charge she said she had no intention of defrauding. Mr. Dobson explained that the coupon system was adopted some time ago and was used by many photographers as a way of getting business. The magistrates were absent from the bench for some time considering their decision.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Feb.	Name of Society.	Subject.
2	Aberdeen Amat. Photo. Assn.	Federation Portfolio.
2	Colne Camera Club	"Pictorial Composition." Mr. J. Emmott (Nelson).
2	Sutton Photographic Club	Photography 1905 Prize Slides.
2	Watford Photographic Society	Lectures by Members.
5	Scarborough and Dis. Ph. Soc.	Y.P.U. Lantern Slides.
5	Widnes Photographic Society	"Insect Hairs Curious and Beautiful," Mr. F. W. Saxby.
5	Motherwell Y.M.I. Cam. Club	"Wet Collodion Process." Mr. Henslowood.
5	Leek and District Photo. Soc.	Lantern Night. Lecturette. Mr. W. H. Nicksdale.
5	Bowes Park and Dis. Ph. Soc.	Outing. Lantern Slide Competition.
5	Heaton & Dis. Camera Club	"Manipulation of Plates and Improvement of Faulty Negatives." Demonstrated. Mr. Gardner.
5	Dewsbury Photo. Society	"Ceramic Photography by the Powder Process." Demonstrated. Mr. J. Skelbeck.
5	Oxford Camera Club	Annual General Meeting.
5	Catford & Forest Hill Ph. Soc.	"Pictorial Possibilities." Mr. J. W. Budge.
5	Southampton Camera Club	Lantern Slide Competition. Landscape.
5	Halifax Camera Club	"Some Ruined Castles, their History, Antiquities, and Anecdotes." Mr. J. Marston.
5	Wandsworth Camera Club	Affiliation Lecture on "Flower Photography."
6	Royal Photographic Soc.	"Notes on Cathedral Photography." Mr. H. W. Bennett.
6	Manchester Amat. Photo. Soc.	"Making Transparencies for Enlarged Negatives." Mr. O. J. Harrison.
6	Stafford Photographic Society	"Systematic Exposure and Development." Mr. H. Cliff.
6	Sunderland Camera Club	"Intensification and Reduction of Negatives." Mr. Bert Jackson.
6	Gloucestershire Photo. Society	Lecture. Mr. R. W. Dugdale.
6	Newcastle-on-Tyne Photo. Assn.	"Architectural Photography." Mr. A. E. Cowling.
6	Brentford Photo. Society	"Marine Photography." Mr. F. J. Mortimer, F.R.P.S.
6	Orley & Dis. Cam. & Art Soc.	Y.P.U. Set of Lantern Slides.
6	Birmingham Photo. Society	"Taste." Mr. R. Catterton-Smith.
6	Sheffield Photographic Society	"The Elements of Architectural Photography." Mr. J. R. Wigfull, A.R.I.B.A.
6	Nelson Photo. Society	Amateur Photography Prize Lantern Slides, 1905.
6	St. Helens Camera Club	"Old Widnes." Mr. C. Poole.
6	Darlington Camera Club	"Zigzag and Carbon." Demonstrated. Thos. Illingworth & Co.
6	Bristol Photographic Club	"The Camera as a Diary." Mr. G. Rasmussen.
6	Jersey Photographic Society	Affiliation Competition Prints, 1904.
7	Coventry Photo. Club	Judging Autumn Prints.
7	North Middlesex Photo. Soc.	Lantern Slide Competition.
7	G.E.R. Mechanics' Institution	"Velox and Its New Applications." Demonstrated. Mr. A. W. Green.
7	Leeds Camera Club	"Telephotography." Illustrated. Mr. William A. Furse.
7	Edmonton and Dis. Photo. Soc.	Lantern Lecture. Mr. E. T. Coombes.
7	Cricklewood Photo. Society	Competition Portraiture.
7	Everton Camera Club	"Dry Mounting." Mr. Herbert Holmes.
7	Edinburgh Photo. Society	"Wireless Telegraphy." Mr. G. J. Drysdale.
7	Redcar and Coatham Ph. Soc.	"Some Scottish Abbeys by an Englishman." Illustrated. Mr. E. Darwin Wilmot.
7	Photographic Club	Yorkshire Photographic Union Portfolio. Members.
7	Hampstead Scientific Society	"Novelties in Printing Papers." Mr. T. W. Derrington.
8	Rugby Photographic Society	"Copying." Demonstrated. Mr. O. C. Quekett.
8	Fulsey and District Photo. Soc.	Members' Night.
8	Liverpool Amateur Ph. Assn.	Members' Competition.
8	Wallasey Amat. Photo. Soc.	Bromide Prints.
8	Hastings and St. Leonards P.S.	"Composition of Line in the Figure." Mr. Fred. Burridge, R.E.
8	Hull Photographic Society	Focus Slides.
8	Southport Photographic Soc.	Ten Minutes' Lecturettes. Members.
8	Rodley, Farsley, & Calverley Dis.	"More French Architecture and a Camera." Mr. J. V. Saunders, M.A.
8	Bolt Court Sch. of Photo. Eng.	Conversation in conjunction with the Southport Society of Natural Science.
8	Richmond Camera Club	"Gum-Bichromate Printing." Mr. J. R. Coulson.
8	London and Prov. Photo. Assn.	"The Present Position of Wood Engraving." Mr. Arthur Dix.
8	Harrogate Camera Club	"A Cruise in Norwegian Waters." Mr. C. H. Davis. "The English Lakes." Mr. J. D. Gibson.
		"The Latest Image." Mr. A. J. Bull. Members' Night.



**LIVERPOOL PHOTOGRAPHIC ASSOCIATION.**—The annual meeting was held last week, Dr. C. Thurstan Holland, the retiring president, in the chair.—After the passing of the annual report and the balance sheet—both very satisfactory documents—the officers for the ensuing year were elected. Mr. Joseph Marples is the new president, Mr. Appleby the senior vice-president, and Mr. F. Gregory Jones the junior. Messrs. Inston, Lockier, and W. A. Taylor were re-elected respectively secretary, treasurer, and librarian; and Messrs. C. Thurstan Holland, E. R. Dibdin, J. Parkinson, F. Anyon, H. E. Cubley, and Harry Holt to the vacancies on the council.

**NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.**—On January 24 Mr. W. Thomas lectured on "Photography with a Hand Camera." He fully explained his own method of working by means of a reflex hand camera of superb make. The adjustments in connection with such a camera, Mr. Thomas pointed out, must be accurate, more particularly in the agreement between the image on the reflector and on the screen. For the most rapid work and work on dull days lenses of large focal aperture must be employed. Examples, by means of slides, were thrown on the screen, of subjects exposed at  $f/4$  and  $f/2$ . With apertures of this character depth of focus is a factor of serious consideration, hence Mr. Thomas's advocacy of a camera of the reflector type, where the image can be seen up to the moment of exposure. With lenses of the above character, rapid orthochromatic plates and suitable screens, the hand camera worker, Mr. Thomas said, was equipped for all classes of subjects, excepting certain kinds of interiors. The lecture was full of suggestions to those who sought by photography means to produce pictorial subjects. The emphasis was perhaps strongest on the idea of taking subjects which would serve as reminders for future guidance, and to utilise them as studies for the development of the idea which they originally conveyed.

**BOWES PARK PHOTOGRAPHIC SOCIETY.**—Demonstrating lantern slide making before the above society, on the 22nd inst., Mr. J. P. Bayne said he preferred a thin negative. When making warm tone slides he over-exposed, over-developed, and reduced in ferricyanide. To clear he advised a weak ferricyanide solution.

**CROYDON CAMERA CLUB.**—The annual meeting was held on the 24th ult. From the report and balance sheet submitted by the secretary, Mr. H. M. Bennett, the past year shows nothing but continued prosperity, together with a large accession of new members. The average attendance has been high, and the fixture list well up to standard. No change of officers takes place, but Messrs. Alexander, Dodsworth, and Stokes succeeded Messrs. Jenkins, Rogers, and Wood, who retire from the council. It was also satisfactory to learn from Mr. Rogers that the recent exhibition had only resulted in a trifling deficit, it standing out in this respect in marked contrast to its predecessor. The president, Mr. W. H. Smith, congratulated all upon the position of affairs, a happy state of things, he very truly said, which was mainly due to the energy and ability of the best hon. secretary it had ever been the club's lot to secure.

**THE Redhill Camera Club** has published its report for 1905, from which we see that its last session has been one of considerable prosperity and progress.

**HULL PHOTOGRAPHIC SOCIETY.**—At the meeting last week, Mr. W. H. Willatt recommended the taking of a portable dark room on one's holidays, so that wet days could be spent in developing plates. His own apparatus was a double-hinged board with frame at each end, fixed up like a book-rack, and black cloth cover, with arm holes and elastic and two glasses and pads to fix in front of eyes, held there by elastic, and the head outside. A ruby glass window in it, with blind inside to adjust, according to strength of light.

**ABERDEEN PHOTO ART CLUB.**—Last week a lecture, entitled, "In the Highways and By-ways," was delivered by Mr. A. Mackilligan ("Luke Round"), a well-known and popular North of Scotland journalist.

**THE SUTTON PHOTOGRAPHIC CLUB.**—The first of the series of photographic instruction evenings was held on Friday at Mr. Bradshaw's studio, which he kindly placed at the club's disposal at short notice, consequent upon the Sutton Society's rooms not being available. There was a good attendance of amateurs to hear the chairman of the club, Mr. Hector Maclean, upon "The Choice and Use of Photographic Apparatus."

## Correspondence.

- \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- \* We do not undertake responsibility for the opinions expressed by our correspondents.

### PLATES v. FILMS.

To the Editors.

Gentlemen,—In reply to "Wet-Plate's" query in your last issue, I would strongly recommend him not to use films if absolute sharpness is required. It is my experience, covering some twelve years' use of films, that with any size over  $5 \times 4$  it is quite impossible to get a flat surface on your film, it either "sags" or, if stretched tightly, it "creases." If you use the thick-cut films, they invariably "bulge." Another disadvantage is that with thin negatives, the grain of the celluloid prints out. Thin glass is undoubtedly best, as far as quality, cost, and ease of manipulation are concerned.—Yours faithfully,  
January 26, 1906.

STELLA.

To the Editors.

Gentlemen,—In reply to "Wet-Plate," may I say that for my work, as an amateur, I have used cut celluloid films up to whole-plate size, almost exclusively, ever since they first came out. Negatives equal to those on glass are obtainable; they print equally quickly. For portability about 1-10 the weight, and, of course, unbreakable; cost, unfortunately, considerably more. With films over  $\frac{1}{2}$  plate they will not keep quite flat, and it is better, if possible, to work at about  $f/16$  or under, although I have snap-shots taken at  $f/11$  and  $f/8$  that are quite satisfactory on whole-plate size. I have used films two to three years old, and found them quite good, and in places as far apart as Egypt and Norway. If many prints are wanted they can be varnished with water varnish; spirit will not do.—Yours faithfully,  
H. G. M. CONYBEARE.

Delmore, Ingatestone.

January 29, 1906.

### THE INVENTOR OF THE ENAMEL PROCESS.

To the Editors.

Gentlemen,—In regard to the letter of Mr. Horgan in your issue of January 19, I think there is no doubt that Charles E. Purton is the inventor of the enamel process. Mr. F. E. Ives, who was a fellow-worker with Purton, has acknowledged this; and Mr. C. E. Chetham, now residing in St. Louis, who was also working in the same establishment, has also borne testimony to the same fact. I met Mr. Chetham in Buffalo last year, and he gave some reminiscences of their early days of process work. He related how Purton used to work in a separate room, which he kept carefully locked, and no one was ever allowed to find out the details of his process. Mr. Max Levy, another of the "old timers" of photo-engraving in Philadelphia, confirmed Mr. Chetham's reminiscences. Mr. McIntyre, of the Electro Tint Engraving Company, Philadelphia, is another who could tell us something about Purton, who is now dead. I think it is only about a year ago that I saw notices in the papers of his death. Purton undoubtedly got his idea from the Garnier process, which was described by Major-General Waterhouse in the "Photographic News" for November 4, 1881. (I was wrong in ascribing the source to an old "British Journal Almanac," although I have often heard it stated so.) I find I have a copy of this article, and, as the paragraph bearing on this subject is a short one, I think you will find the space to quote the same. It is as follows:—

"PHOTO-ENGRAVING OF LINE WORK.—A plate of copper is prepared by covering it, either by flowing or with a roller, with a very thin coating of a solution of:—

Sugar .....	2 grammes.
Water .....	14 grammes.
Bichromate of ammonia .....	1 gramme.

This coating is equalised and quickly dried by means of an arrangement which keeps it in rotation over a warm plate. As soon as the plate is dry, a positive cliché of the drawing to be reproduced is laid upon it, and the whole exposed to the sun for a minute, or to the

electric light for three minutes. The reaction produced is the same as with citrate of iron, but much quicker; the exposed parts are no longer hygroscopic, but in the parts protected by the lines of the drawing the sensitive coating has retained its stickiness, and will hold any powder that may be passed over it, thus producing a very clear image of the drawing. The coating being excessively thin, the little moisture it holds and the powder applied suffice to break its continuity, especially if the powder be slightly alkaline. If the rest of the surface were equally resisting the plate might be bitten at once; but light alone is not enough to produce complete impermeability; the action of heat must be combined with it. The plate is therefore placed on a grating with wide openings, a large flame is applied underneath, and it is heated till the borders where the copper is bare show iridescent colours. The sugary coating thus becomes very hard in the exposed parts, but under the powder it is broken, porous, and permeable to acids. The surface is then covered with the biting of fluid, which is a solution of perchloride of iron at 45 degrees Beaume, and after a few minutes contact the plate is engraved. It only remains to clear off the bichromated sugary coating which forms the reserve, and which, being hardened by heat, resists ordinary washing. It is removed perfectly by rubbing the surface with a hard brush and warm potash lye; the plate is then ready for printing. Sometimes it is necessary to give several successive bitings, or to use a resinous grain; in such cases various methods of the engraver's art are employed."

It will be seen that the process described applies to intaglio etching, but in another part of the article it is shown how it can be applied to relief blocks in the same way, only, of course, using a negative instead of a positive. The inventor, however, suggests powdered bitumen for dusting on the image. It is not stated in the article what powder should be used in the process we have quoted, but Mr. Ives has stated that Purton used a "tin salt." This process has lately come up again as a new thing, under the title of the "dry enamel" process, in which it is understood that the powder is anhydrous carbonate of soda.

With regard to the introduction of the enamel process into England I believe the first to bring it over was an American, named Ryan, who also introduced square stops, and square stops with extended corners. About the same time (1893) the process was sent over from America by a dealer named Sellers to Penrose and Co., and I had the somewhat onerous duty of demonstrating it to the trade. Fish glue was the principal substance used for making the enamel solution. A number of the biggest users of the enamel process to-day first acquired the method in this way. At first it was despised and rejected of men, but as negatives improved and copper became more and more used it soon made headway.

As to the claims of Mr. Hyslop, I have heard it related that he landed in America as a photographer, and found it difficult to get employment, but seeing an advertisement in "Wilson's Photographic Magazine" for a photo-engraver, he bought a copy of Wilkinson's "Photo-Engraving," and steadily "crammed" himself with the subject, then, boldly presenting himself for employment in that line, he was engaged, and proved a very useful man to his employer. I have been unable to find the date of Hyslop's article in the "Artist Printer," but I see Mr. Horgan puts it as the beginning of 1892, which I do not think is correct. I think it was in 1893. "Wilson's Magazine" discovered and quoted the article in a condensed form. The "Practical Photographer" (then edited by Mr. Snowden Ward) reprinted it from "Wilson's" in its number for April, 1893, and the "Photogram" reproduced it in its first number, January, 1894. In the original article Mr. Hyslop states that he bought an enamel formula for fifty dollars, which contained gum arabic as the base, and finding himself unable to work he began to experiment with glues, finally hitting on fish glue. Sellers was the dealer who was selling the enamel process for fifty dollars, and he seems to have adopted fish glue as soon as it was suggested. The late M. Wolfe, the screen maker, of Dayton, Ohio, was also selling a gum enamel formula, but never, so far as I am aware, changed it for fish glue. The sales of fish glue for photo-engraving purposes are very large, and if the makers had paid Hyslop, say one penny on every pint sold, he would have been a very wealthy man by this time.

I think this is about the whole history of the enamel process, but

possibly some of our American friends can fill in more details.—Yours very truly,  
109, Farringdon Road, London, E.C.  
January 25, 1906.

WM. GAMBLE.

### THE LATENT IMAGE.

To the Editors.

Gentlemen,—It appears to me that the paragraph in which you invite criticism dealing with the latent image, in last week's issue, may be divided for my purposes into three propositions:—

(1) That the shape of the curve of a plate is affected by the failure of the reciprocity law.

(2) That the proof of the shape of the curve is rendered invalid by Mr. Sterry's work on primary and secondary development.

(3) That the bending of the over-exposed portion of the curve is, or may in extreme cases be, conditioned by reversal.

Unfortunately, the answers to propositions 1 and 2 arise from investigations which I have completed, but not yet been able to publish, and I must, therefore, ask that they be taken on trust without experimental proof for a little while.

(1) Since we assume equal intensity and differing exposure time in the case of a plate-curve, the failure of the reciprocity law can only affect the shape if the extent of the failure varies with different total exposures for the same intensity. I have measured this with a range between the two exposures of 500 to 1, and found that the reciprocity failure is independent of the exposure.

If we use an intensity-curve in which equal exposure times are given and the intensity is varied (as in ordinary photography), then the reciprocity failure will slightly (usually very slightly) affect the shape of the curve.

(2) Inasmuch as Mr. Sterry's theory of primary and secondary development was directly opposed to the theory of development adopted by Mr. Sheppard and myself (Chemical Dynamia of Development, Proc. Roy. Soc., 74, reprinted in PHOT. JOURN., August, 1905), I at once commenced an investigation of the action of chromic acid upon the latent image, as the result of which I concluded that Mr. Sterry's theory was unnecessary, the results obtained being explicable on much simpler grounds. I believe that Mr. Sterry, who has kindly read this paper, will agree to my results. There appears to me to be very little evidence for supplementary intensification independent of the exposure effect.

(3) Probably if we were to increase the thickness of a plate film enough reversal would begin to condition the bending of the curve, but I do not think that in any ordinary case reversal enters into the question. Mr. Sterry, I think, differs from me on this, but experimental evidence on both sides is vague. Hurter and Driffield's equation failed to represent the effect of reversal for the very reason that reversal is a phenomenon associated with the nature of the latent image, while the shape of the plate curve, which they dealt with, is not.

On the subject of the nature of the latent image itself, Mr. Sheppard and I have been driven by experimental evidence to abandon the physical theories, and to come to a chemical theory almost identical with the modern form of the sub-bromide theory. We hope to publish a paper on the subject shortly.—Yours sincerely,

C. E. KENNETH MEES.

Rylands, Caterham, Surrey, January 26, 1906.

### COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—I have read with much interest your criticism on the exhibits at your office. I consider your criticisms very fair, and in reference to my own exhibits I am quite aware of the truth of much that you say, but I would like to be allowed to give a few words of explanation. In the first place, all the exhibits must be looked upon quite in the light of experiments. During the past two years we have been groping about looking for the most convenient method of reproducing our colour value negatives as positive prints in colour. Many of the described methods sound very pretty in writing, but when put into practice show considerable difficulties, therefore we have tried first one, then the other to get at the most convenient method. As a practical worker, I am of opinion that the results must be on one surface. The cementing together of films will never give satisfactory results as the reflection from the last surface always



give a preponderance of colour which spoils the general result, when the subject is viewed as a transparency this does not have the same effect, and the result is satisfactory. The imbibition system of one sort or the other appears the most practical and easy method to follow. It must be borne in mind that the exhibition was got together at very short notice, and workers had no opportunity of preparing results, specially for the exhibition, but were compelled to show such results as they happened to have by them at the moment, and I do not think it quite fair to lay stress on minor defects, such as errors of superposition, which can always be corrected in careful work. You lay stress upon error of superposition in certain specimens. These specimens are portraits, and a word of explanation will show how this happens. When a sitter is posing for a three-colour subject there is always a tendency for a slight movement of the sitter to take place at the moment of changing the plates—in producing the finished result to obtain superposition of the figure, especially the face. It is necessary, perhaps, to throw some of the surrounding objects out of superposition. In future, as we shall now take all these negatives at one exposure, this will not occur, and in any case the results are intended to be examined in a broad general way without minute investigation. A painting is not exposed to criticism as to brush marks or peculiarities of pigment. Then again, the tone values are a matter for individual judgment. Some artists prefer to render the colours heavy, others light, but so long as the proportion is the same and the relation correct, the amount of colour may vary. Do we not see variations in the tone value of the same piece of Hampstead Heath, whether painted by Constable, Turner, David Cox, or De Wint. I prefer a heavy effect, similar to Constable, but any other three-colour worker, by simply not putting so much colour into each successive printing, can obtain a lighter and more dainty result. With regard to the curiously coloured stool and flower-pot. These were painted to act as a colour chart, and will undoubtedly vary in different cases according to the different light in which the photographs were taken. It must not be supposed that the same subject will show exactly the same colour by every sort of light. The flower-pot, I may say, is a Wedgwood vase, and to those who bear in mind the colouring of a Wedgwood vase, will appear very faithfully rendered. Another point is that in all three-colour rendering, reflections in colour become much more apparent to the eye than in nature. In nature, the colour reflections are there, but the ordinary eye does not perceive them. Possibly the Editor's black kitten may have had a red reflection on it, for I have noticed a certain amount of colour reflected from a negro's face. So far as I can see there is nothing in nature which is absolutely black in strong sunlight. Surface reflection, which is not noticed by the eye, will show a very marked effect upon the photographic plate. Therefore, I contend that it is not fair of any critic to judge results by what he thinks they ought to be. The photograph is probably more correct than the critic's impression, and it is for three-colour workers to select subjects which will be as much as possible in accordance with popular preconception. In course of time Whistlerian effects may be tolerated, but at present they would only be looked upon as monstrosities. It is sufficient to show that practical and workable means exist by which objects can be reproduced in colour by means of photography. Let this be generally known, and the highly-finished accurately superimposed perfect results will come in time.—Believe me, dear sir, yours faithfully,

EDW. F. GRÜN.

The Hall, Southwick, Brighton. January 25, 1906.

To the Editors.

Gentlemen,—In the account by Mr. Wall in your current issue of your interesting exhibit of examples of colour photography, I note that no mention is made of the method to which I called attention last year in "Focus," and which a few weeks ago you noticed in your pages as an abstract of a lecture given by me to the Worcester Camera Club. The method is, of course, not original, but has been strangely overlooked. I venture, therefore, to send you half a dozen examples of the method, which I hope may find a place in your show. In every case the process is the same—viz., starting with a ferro-prussiate print; subsequent red and yellow prints are made in gum. The screens through which the negatives were taken were prepared by myself, and are gelatine films stained with diamond dyes.—Yours very truly,

JOHNSON BARKER.

Kingsbury House, Lansdowne Road, Worcester,

January 29, 1906.

P.S.—I regret that the prints are not the best examples I have

produced, but I have had no time to make fresh, and cannot recall from loan better ones. They, at any rate, serve to indicate the possibilities of the process which for simplicity and ease is difficult to beat. They must be judged as examples of a process and not on artistic or pictorial grounds.

[We are much obliged to the Rev. Mr. Barker for calling attention to our omission to request examples of the method recommended by him. Three of the six prints have been added to the exhibition. The report to which Mr. Barker refers appeared in our issue of December 1, 1905.—Eds. B.J.P.]

## AN AID TO PRINT-WASHING.

To the Editors.

Gentlemen,—A few weeks ago I read an article in your "Journal" about a "sink." I have a sink here I made, and a description of it may interest your readers and may be of some use to all of them using a sink or tank for washing prints. Fig. 1, A is the sink, B is the waste water outlet. Fig. 1, B, C is a tube fitted into B. When the water rises to top of C it flows down through C and B. A wire-cage on top of C will prevent prints from being carried away, but as this plan only takes the surface water I make a tube, Fig. 2, closed at one end and perforated at the other at least  $\frac{1}{4}$  inch up; this is inverted over C. This then takes the water and channels from the bottom of sink first, and no prints can get away. The water can be left running and the prints washed without watching. To anyone wishing to change the water when washing prints, as so many makers

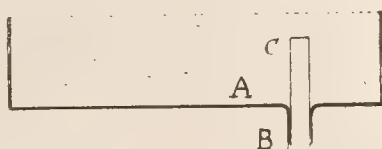


Fig. 1.

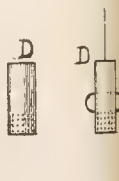


Fig. 2. Fig. 3.

of paper advise, then we can go a step further. I put an air-tight jacket round the tube as in Fig. 3, with a piece of thin wire on top with a hold fast with eye to steady tube, fixed in the wall, the air-tight jacket is just large enough to float the tube as the water rises, the tube is inverted over C as already described. When the water begins to overflow at C a suction takes place and down goes the tube D to the bottom, and the tank or sink is soon emptied, when all the water is gone, as will be noticed by a long gurgling breath. Then the sink begins to fill until the water begins to overflow, then off she goes again, automatically. To prevent the prints from getting in the way the outlet is best placed in the corner of sink, with a wire screen placed diagonally across the corner, leaving room enough for the tube D to work up and down. It could easily be made to register the number of changes the prints have had. D and C can be taken away and a plug put in B as in an ordinary sink.—Yours truly,

JAS. RITCHIE.

Belvedere Studio, Selly Oak.

January 20, 1906.

## THREE-COLOUR BY THE "AUTOTYPE" CARBON PROCESS.

To the Editors.

Gentlemen,—In view of the interest which is being created by the excellent exhibition of three-colour work at your rooms, we venture to think a brief description of the methods by which our two exhibits (Nos. 51 and 51a) are produced, may be welcomed by some of your readers. We are just putting the special tissues and temporary support on the market, and are inclined to think that those desirous of making experiments in three-colour printing will find the carbon process both simple in working and satisfactory in result.—Yours faithfully,

THE AUTOTYPE COMPANY.

74, New Oxford Street, London.

January 29, 1906.

[Pressure on our space this week prevents our printing the notes sent by the Autotype Company, but they will appear at the earliest opportunity.—Eds., B.J.P.]

## Answers to Correspondents.

- \* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- \* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED :—

- Stuart, Thistlebank, Helensburgh, Dumbartonshire. *Photograph of Dr. J. D. White, Dumbarton.*
- K. Holden, Closeburn, Shrewsbury Road North, Birkenhead. *Photograph entitled, "A Study in Snouts."*
- Hall, The Studio, Witham, Essex. *Photograph of Declaration of Result of Poll for the Malden Division of Essex.*
- A. Kime, 116, St. James' Street, Newport, Isle of Wight. *Photograph of the Declaration of the Poll (Isle of Wight Election) at the Newport Town Hall.*
- Mr. G. Baring, M.P., Addressing the Electors.
- Carson, Komati Poort, Transvaal, South Africa. *Three Photographs of Hippopotami in the Komati River, Transvaal. Photograph of Crocodile and Native Boy in the Komati River.*

**TIME DEVELOPMENT.**—Is there any standard time for developing plates? For instance, if it takes the image, say, one minute to make an appearance, how long before development would be complete? I think I have seen it in print somewhere, but don't know where, if it takes one minute to stamp the image it takes five minutes to complete. I shall be very pleased if you would give me instructions in the "Journal." I may say I am going to use the developer mentioned in your "Journal" of January 5, 1906, page 4. **INFORMATION.**

The system of "time" or factorial development is well known. A lengthy article on it appeared on pages 149 and 168 of the "B.J." last year. The principle as laid down by Mr. Alfred Watkins is that with varied exposure the total time of development for a certain density has a fixed relation to the time of appearance of the image. The total time of development divided by the time of appearance is the factor of the developer, and in developing a plate the duration of development is continued for a time equal to the time of appearance multiplied by the factor of the developer. You will see a paragraph on the subject on page 76 of last week's issue, but you had better get The Watkins Manual (1s.), which treats fully of the system.

**BY MOUNTING.**—On page 846 of the "B.J." Almanac is the following recipe :—Shellac (white), 300 grammes; gum elemi, 30 grammes; Canada balsam, 50 grammes; methylated spirit, 1,000 c.c.s. Is the quantity of shellac correct? If so, will you please say how this is to be dissolved in 333 c.c.s. of S.V.M.?—H. HANNATH.

The formula is correctly quoted from the French author. The alcohol need be divided into three equal parts. Take about three-quarters for the shellac and the rest for the other two resins.

**PROCESS.**—I should be obliged if you would be kind enough to let me know if there is any journal devoted to the interests of lithographic and process reproduction and allied trades; also where I could procure such, if it exists?—ALLAN C. HILL.

The "Photo-Engraver's Monthly" (Dawbarn and Ward, Ltd., 6, Farringdon Avenue, London, E.C.)

**PHOTOGRAPHIC MACHINERY.**—We have seen, at various times, advertisements in your paper of photographic engineers—firms who manufacture coating machines, drying machines, and similar things, but we cannot at the present moment find their names.

We should take it as a great favour if you could very kindly supply to us the name of such a firm.—METTALOID..

Messrs. N. L. Scott and Co., 18, Ironmonger Lane, London, E.C., and Mr. Aug. Koebig, Radebeul Engineering Works, Radebeul, Dresden, Saxony.

**GLAZING PRINTS.**—I beg to thank you for your formula (in last week's "Journal") for glazing prints. I have tried it, but am sorry to say that I have had no success whatever, so I am venturing to write you again, giving particulars. I boiled the shellac with borax as directed, and when thoroughly mixed it became a thick mass of the consistency of treacle, and was, moreover, a dark brown colour. Is this correct? I tried the solution in strengths, varying from one in 1 oz. to equal parts of shellac solution and warm water, but with none of them did I get a trace of glossiness on the cards when dry. The shellac, which was supplied to me as "bleached shellac" was a hard opaque lump of something, which was about the colour of putty. I should be very grateful if you could put me right, as I expect my want of success was due to some fault of my own.

D. O.—We suspect your trouble is due to your being supplied with a sample of lac which has become insoluble by long keeping. The shellac should be freshly bleached, and white in colour. The solution will not be quite colourless, but very nearly so. Better get some lac direct from a lac bleacher—say from such a house as Gedge's, St. John's Street, Clerkenwell.

**THE ROYAL ARMS.**—I note your remarks in the current number of the "Journal" re use of Royal Arms; but can you tell me if I, having had the honour of supplying His Majesty the King with a considerable number of my photographs of this neighbourhood, and of my sea-birds, am at liberty to print on my bill-heads, etc., "Patronised by His Majesty the King," of course, without using the Royal Arms?—C. J. KING.

We know of nothing to prevent you from saying on your bill-heads and the like that you have been patronised by the King, so long as you do not use the Royal Arms in connection with the announcement.

**FINISHING IN COLOURS.**—1. I am making water-colour paintings on platinum matt bromide enlargements. Is there any varnish I could put over the surface to resemble oil paintings? I know it is not a custom to put anything. What effect would paper varnish (clear) have; would it harm the colours? Please let me know what would be best, as I cannot work in oils. 2. In working flesh colours, what colours are best for first wash, and also for finish? Watercolours I am using.—CYMBRO.

1. Varnish with celluloid varnish, and repeat the operation if necessary. Paper varnish would do as a substitute, but is inferior. Either method will increase the brilliance and permanency of the colours. 2. If you wish to imitate oil-colour work, use Naples yellow, burnt sienna, light and Indian red, permanent crimson, etc., and mix as may be required, using a neutral tint with them for shadows.

**A BOOK QUERY.**—I am an old hand at wet plates in the tropics, and, after a little experience of the dry plate, I laid the work aside some years ago. Now, I am settled at home, with plenty of leisure, I want to resume the work. Will you kindly recommend me a good practical up-to-date book which will help me? I find that both in optics and chemistry the world has gone past me, and I want to make up for lost time.—AN OLD SUBSCRIBER.

You cannot do better than "The Science and Practice of Photography," by Chapman Jones, 5s. (Iliffe and Sons, Limited.)

**SPECIMENS.**—I am about to open a studio. I have all apparatus and accessories, but would like to get some nice specimens of carte, cabinet, and larger size photographs. Would you kindly inform me where I could obtain same?—A. W.

Why not make them? A few good portraits of well-known people will be the best window display you can have. As an alternative, we can only suggest that you apply to one or two of the trade enlarging firms, who may be able to let you have framed specimens of their various styles.

**THE RIGHT TO PHOTOGRAPH.**—Enclosed is a postcard of Station Road, Barnt Green, published by us and sold at a agent's in that place; the owner of the house on the left-hand corner of post-



card has written threatening an action against us, and says she can, and will, obtain an injunction to restrain us from selling any more, as she says it is a photo of her house and gardens. Needless to say we had no idea of simply taking her house and gardens, merely wanted it as a view of the road. Please say if we have the right to take and publish it, and if she can legally stop us.—LEWIS BROTHERS.

You are entirely within your rights in making and publishing the photograph. You may refer the lady to the clause in the Copyright Act, which reads:—"Nothing herein contained shall prejudice the right of any person . . . to represent any scene or object, notwithstanding that there may be copyright in some representation of such scene or object." (See paragraph 8 in the "Almanac" article on "Copyright," page 663.)

**SOUTH AFRICA.**—I have been advised, for health reasons, to go to South Africa. Can you tell me the best way to proceed to obtain a berth? Do you know the names of any papers one could advertise in?—S. A.

We know of no South African photographic journals. Vacancies in studios in the colony are usually filled through shippers in London, or by advertisements in our columns.

**W. E. (Grantham).**—We think you will not find a perfectly smokeless flash candle. Your best course, we should say, would be to use the flash in an enclosure in which the smoke would be retained. Better write to Houghtons Limited for particulars of their "Ideal" lamp, which is of this description.

**J. BUSBY.**—Flashlight groups of the same kind as yours have frequently been taken. We think it unlikely that any of the illustrated papers would take it.

**A QUESTION OF PRICE.**—I had a C.D.V. photograph (head and shoulders) of a gentleman brought to me to enlarge to 24 x 20, (sepiabromide) to be finished first-class, and work in background, as the one in photograph was mottled. I quoted 37s. 6d. for it complete. Do you think that too much?—A. C.

The price quoted seems to us to be very low if the work is fairly well done. Of course, you could not produce a very high class picture for the money—that is, if you put the work out to be done by a first-class artist.

**COPYRIGHT.**—As a subscriber to your valuable paper, would you please give me a little information on the following subject? I have taken several pictures of a well-known music-hall artist, and he has given me orders and paid me for same. A picture postcard publisher has offered me a price for copies for reproduction. The music-hall artist will not give me permission to copy-right same. Can he copyright them without my permission, or am I at liberty to sell copies of same to publisher for reproduction, when not copyright, without his (sitter's) permission? Some of my pictures of same artist has been copied and published without my permission or name not being attached in any to same. Is this right?—A. F.

Assuming that the portraits were taken to the sitter's order, and paid for by him, the copyright belongs to him, and he can, of course, register it without your permission. The negatives are yours, whether the sitter registers the copyright in them or not, but you must not sell or otherwise deal with copies from them without his permission. You have been paid for your work, and there is the end of the matter, so far as you are concerned. There is no reason why your name should appear on the reproductions if the sitter did not wish it to do so.

**INTERESTED SUBSCRIBER.**—The stop marked f/11 on the lens mount becomes, approximately f/22, when only one component of the lens is used. This was our reason for saying that you must be working at an aperture at least f/12.5, the full aperture of the lens being f/6.3. In regard to the studio we now see that you have a great deal too much light. We should recommend you to cover the south side with some quite thick calico, and screen also the top and north side. You should adjust the different strengths of the two lightings—the south must be your chief light, unfortunately—until you get a fair amount of contrast in the subject itself. Apparently, you are getting a flat-lighting and trying to make up for this in development. Hence the hardness. The chemicals in the developing formula should dissolve

completely, but will readily separate out if the solution falls much below 60 deg. in temperature. Better stand both in a warm place (70 and 80 degrees F.) for an hour or so, shake at intervals, and then pour off, for use, from any undissolved salts.

**SUBSCRIBER.**—The usual causes of yellowness are: 1. Traces of hypo reaching the prints between toning and fixing: the use of an acid or exhausted toning bath. We presume these are known to you, but we can suggest 10 others.

**INQUIRER.**—Your best course is to become a member of the P.P.A., in virtue of which you can obtain favourable insurance rates. Address the Secretary, 51, Baker Street, W.

**STUDIO QUERIES AND OTHERS.**—In our next.

**QUERIST.**—We do not know of the articles. The late H. P. Robinson wrote a series in the "Practical Photographer" in 1892, under the title "Photography as a business."

**J. N.—1.** We cannot say at present. 2. Extremely unlikely.

**W. SMITH.**—A modified crystoleum process is described on page 851 of the "Almanac," but for full instructions in the usual process you had better obtain the manuals supplied by dealers in crystoleum materials.

**GAS v. Electricity.**—The article from the "Globe," which we printed in our issue of January 12, has brought us from the Gaslight and Coke Company a reply to the advocates of electricity which was published in the "Globe" of the same date as that on which the article appeared in our pages. We have not the space at this date to give in full the arguments of the company, but we can summarise them. It is pointed out on behalf of gas that the "Lancet" Commission appointed to inquire into the sanitary properties of gas fires reported that "gas can be used for warming purposes efficiently without prejudice to health and without the formation of fog-forming or air-contaminating products." Eminent doctors and architects have testified to the innocuous behaviour of gas fires, and the Gas Light and Coke Company point to the number of these sources of heat in the houses of Harley Street physicians and in the homes to which Harley Street sends its clients. The fact that gas consumes oxygen is an argument in its favour, since for every cubic foot of air consumed by a fire, whether of coal or gas, a corresponding volume of fresh air is drawn into the room; whereas, with a non-combustible source of heat like electricity, the want of healthy ventilation is frequently a cause of injury to those occupying the apartments. In the matter of cost, even admitting the excessive percentage of 50 to 60 per cent., as the heat which goes up the chimney from a gas fire, the latter would still be half the cost of electricity at one penny a unit. With gas stoves of the syphon type the relation of cost to electricity at one penny per unit is as 1 to 5. The company concludes: Altogether we view without alarm the competition of electricity as a heating agent; and similarly do we regard its competition in the field of cooking. If it cost the Electrical Exhibition experts 4s. 8d. (that is a sum equal to the cost of a quarter of a ton of coal!)—with current at 1d. per unit—to cook a dinner at Olympia for 65 people, which we should be glad to cook for less than a shillingworth of gas, and 3½d. to cook a breakfast that would not have cost us more than ½d. to cook, there is no need for your readers to sell their gas shares just yet.

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## The British Journal of Photography.

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## SUMMARY.

The annual general meeting and election of officers of the Royal Photographic Society take place on Tuesday next, February 13. (P. 101).

The first of series of explanatory articles by Mr. C. E. K. Mees, F.Sc., on the methods employed in the scientific testing of photographic plates, appears on page 104.

Colour Photography.—Mr. H. J. Burton, technical expert of the Autotype Company, has drawn up instructions for the preparation of three-colour prints by the carbon process, such as those now being shown in the Exhibition at these offices. (P. 106).

Colour Photography.—The production of prints from three-colour negatives by the "Sinop" process is the subject of practical instruction. (P. 106).

Colour Photography.—A simplified form of the Drac apparatus for colour photography, without filters, has been patented. (P. 111).

Colour Photography.—A camera, with filters of the ratio, 1: 2: 2: 2: for pinachrome-bathed plates, has been introduced. (P. 105).

Colour Photography.—Dyes suitable for printing the three impressions in the Pinatype process have been patented. (P. 110).

Colour Photography.—It is rumoured that the new direct Lumière process will be demonstrated at the July meeting of the Photographic Convention. The aged Ducos Du Hauron is reported to have invented new method of direct colour photography. (P. 102).

A machine for the rapid copying of long lengths of drawings and engravings has been favourably reported on by the Franklin Institute. (P. 108).

A stationer in Shoreditch has been sentenced to two months' hard labour for selling indecent postcards. (P. 117).

Some Postcard Statistics.—During 1904, 2,500 million postcards passed through the offices of Germany, Great Britain, and America. The estimated number for 1905 is 5,000 million. A stationer who, in 1899 was with difficulty induced to buy a thousand assorted picture postcards, is stated to have sold 100,000 in his shop last year. 1,000 picture postcards passed through the Blackpool Post Office during the August Bank Holiday week last year. (P. 108).

## EX CATHEDRA.

### The R.P.S.

The annual general meeting of the Royal Photographic Society will be held on Tuesday next, and by 12 noon on the previous day the balloting papers for the election of officers must be received at 66, Russell Square. In accordance with a time-honoured custom, the president's term of office is for two years, and the Society will thus enjoy the privilege of having Major-General Waterhouse at its head for another year. The fact will be a satisfaction to everyone who has been brought into any relation with General Waterhouse, and it should be equally so to the body of members, who are indebted to an extent they perhaps do not fully appreciate to their president for his unremitting work for the Society, and the tact with which he has occupied a position which has not always been the most pleasant. For the four vice-presidents there are eleven nominations, headed by Sir Wm. Abney and the Earl of Crawford, both of whom by their past services to the Society are reasonably assured of election. Almost all the members nominated for the vice-presidencies are well known by their consistent labours for the welfare of the Society, and the support of any given member will no doubt be considered—as it should be—in the light of the fact that among the vice-presidents to be elected between to-day and Monday next shall be found the president for 1907-8.

\* \* \*

### The R.P.S. Council.

Nomination of a person for election on the Council of the Royal Photographic Society is not to be taken as a proof of that person's fitness for the duties of his office. We know of nominations which have been made without the slightest personal conviction on the part of the nominator that his nominee possesses any of the qualifications which are desirable in the management of a public body. A nominator nominates B because he has seen B's name a good deal in the papers. He thinks B must be a valuable man to be on the Council. It may actually be that he is nominating a man with merely an unlimited capacity of talking: a man who will impede business, and will possibly contribute not one iota to the good government of the Society. A state of things such as this is common in many public bodies, and the moral of it to members of the R.P.S. who may not be in touch with the nominated persons is to assume nothing, but to vote only for those in whom by their own personal knowledge they have confidence. In particular do they need to weigh the purely business qualifications of prospective councillors.

\* \* \*

### The Proposed Exhibition in Paris.

With regard to the proposed international exhibition in Paris this summer, the prospectus of which we published a week or two ago, we hear from various sources



in the French capital that the chances of its coming to a successful issue are somewhat remote. A photographic exhibition of national character has just been opened in Paris, and the support of the trade and the profession has been extremely meagre, the representation of the manufacturers of apparatus and materials amounting to only about five firms. We also have yet to learn that the organisers of the exhibition to be held in July will have the help and patronage of the Photo. Club, or the Société Française, the two important bodies in France which may be said to represent the pictorial and scientific activities of photography. Under these circumstances it seems desirable to wait for further information from the executive of the exhibition before prophesying great things for the event.

### Colour Photography at the Convention.

At the forthcoming Convention to be held at Southampton, in July, a great feature will be made of colour photography. Several processes will be demonstrated during the week, and at one of the evening meetings specimens of all the more important methods will be shown on the screen. Sir Wm. Abney hopes to be present and to show his latest slides. It may be mentioned incidentally that both Messrs. A. and L. Lumière are coming from France especially to take part in the Convention, and there are therefore hopes that the new direct colour process will be demonstrated. The exhibition, which is to be a strong feature of the Southampton Convention, promises to be unusually attractive, and more than half the space has already been allotted.

### The Puff Premature.

Lord Salisbury's dictum, "Verify your references," must no doubt impress members of the Royal Photographic Society as highly desirable of impression on the writer of a paragraph which occurs in the notes on photography in the "Daily Telegraph" of Friday last. It is there stated, with all the verisimilitude of fact, that a demonstration of his new pigment paper was given by Mr. Page Croft at the R.P.S. on the preceding Tuesday. Considering that no such demonstration took place, the testimony of the writer (in regard to the paper) that he "was not surprised to find when exhibited at Russell Square it gave excellent results," must be peculiarly gratifying to those who espouse the cause of the gum-bichromate process. The incident appears the more regrettable in the columns of a journal which has stood out against the unconfirmed publication of sensational "news," and not long ago vindicated the authenticity of its early intelligence.

### Snap Shots in the Studio.

One of our contemporaries last week printed a paragraph referring to the published statement that M. Lafayette has perfected an arrangement for taking portraits of children in an artificial-light studio with the very short exposure of a twenty-fifth of a second. After briefly describing the type of camera employed, the writer goes on to remark that the exposure of one twenty-fifth of a second by artificial light may seem a stretch of the imagination, but that by bathing a plate in the pinachrome dye solution a speed of 500 H. and D. may be obtained working in artificial light, and that with such a plate Mr. Arthur Payne has photographed stage scenes with ordinary stage lighting in one-eighth of a second, using a lens at  $f/4$ . It is, of course, possible to demonstrate a thing which may be impracticable in everyday work, and we believe the particular photograph referred to required quite abnormal treatment in the dark-room,

the development being prolonged and carried out with a solution at a temperature only a little below that at which the gelatine would have melted. Under such circumstances a granular image was probably produced, and the exhibited half-plate print had, we think, been enlarged, rough paper being used to hide the grain. We do not criticise this production, which was in some ways a tour de force, but it should be noted that the bathed plate used showed the high speed to an artificial light of a yellow tinge, and was employed under the conditions for that express reason. When seeking to cut down the exposure in the studio, we think the most practical method is to use an ordinary plate of extreme rapidity and a light rich in the violet and ultra-violet rays. Such an illuminant is much less trying to the eyes than a more yellow light, and though it brings out the freckles, the retoucher is quite able to deal with them afterwards. With a Westminster enclosed arc-lamp an exposure of one twenty-fifth of a second at  $f/3$  on a 300 H. and D. plate is quite practicable, and there is no reason why such work as snapshots of children in the studio should not be done on small plates with a lens working at  $f/2$ , the picture being afterwards enlarged to cabinet size.

### Variety in

### Backgrounds.

Insufficient attention, we think, is paid to the variation of the background in many studios, and though we do not suggest that new backgrounds should be purchased every month or two, much more might be done to vary the effect produced by the same background. The difference, for instance, between the ground turned to the light and away from the light will be very considerable, and if mounted on a square frame such an alteration in position is easily made. A reasonable length of studio is necessary to allow for the oblique position, and also for a further variation of effect which may be produced by placing the background nearer to or further from the sitter. Still further differences may be introduced by throwing a shadow on a portion of the ground. An effective method of doing this is by placing a wing at the side of the background, attached thereto by hinges, which may be adjusted to throw more or less shadow across the ground. The shadow produced in this way will darken that side of the background behind the lighted side of the head or figure. Apart from the ordinary painted ground, however, a good deal of variety may be obtained in portraits by the use of draperies, either plain or figured. The way in which a fabric is suspended will produce many differences of light and shade. In selecting materials care should be taken to choose something which will fall into graceful folds, and there is nothing of more all-round usefulness than plain woollen serge. If a fabric with a pattern is employed, the design should be somewhat formal, and depend for its effect on the decorative line or form rather than on colour, which, of course, is lost in the photograph. The principal difficulty in selecting will be to find something with very subdued contrast, so that the pattern is only suggested in the portrait. The photographic effect of colours must be borne in mind. Materials with a design thereon will be more effective in use if being with only slight folds, the pattern itself being relied on for relief.

COLOUR Photography.—Rumour has it that Louis Ducos du Hauron, the gifted inventor and originator of colour photography in various of its present-day aspects, has devised and worked out a system of direct photography in colours which embodies the wished reduction to simplicity, so many times announced but so long in realisation. We state the rumour merely as it reaches us from a private source in France, but we have no means at present of subjecting it to verification.

## PRINTING PROCESSES.

XVIII.—CARBON (*continued*\*).

In continuation of our previous notes, we may now proceed to emphasise some points on the exposure and development of carbon prints, in regard to which some uncertainty is often felt by those inexperienced in the process.

It may be as well to explain here that the most suitable negatives for carbon printing are those of a vigorous character, such as yield the best results on albumen paper, or by the platinotype process. Other types of negatives may be employed and yet give excellent prints, but with such it is advantageous to sensitise tissue specially to suit them. That is a point that will be dealt with later on. For the present we are assuming that the ready-sensitised tissue of commerce is being employed, and for this vigorous negatives are the most suitable.

Carbon tissue affording no visible image, we require some sort of guide as to the exposure. There are several forms of actinometers for the purpose on the market, ranging in price from a shilling upward. They are all good, but the most convenient in use are those with a graduated scale of tints. With those dependent upon a single tint, when that depth of tint has passed, it is difficult to estimate how much it has been exceeded: with the graduated number scale, however, there is no such trouble. A strip of P.O.P. is used in the actinometer, and it will be well to always employ the same brand of paper, because different makes vary somewhat in sensitiveness, and a change of paper may lead to errors in exposure. The following is a simple method of arriving at the necessary exposure, supposing the worker has had no previous experience in the carbon process. Select a couple of negatives of similar density and put them in printing-frames. Behind one put a piece of carbon tissue, and behind the other a piece of the same P.O.P. as that placed into the actinometer. Expose three to the light until the P.O.P. print has become nearly as dark as it would be desired to be after it had been fixed, fixed, and dried. Now note the number shown by the actinometer and develop the carbon print. If the exposure turns out to be correct we know that all negatives of density similar to the one used will require the same number of tints—supposing the same brand of P.O.P. be used in the actinometer. Should the print prove to be under- or over-exposed, more or less tints are required. With a very little experience even a beginner in the carbon process will be able to judge at a glance the exposure necessary for negatives of various densities. After there is, in carbon printing, such a latitude allowed that a picture need rarely, if ever, be lost through errors in exposure.

There are, as everyone knows, two methods of working the carbon process—the single and the double transfer. The former, unless the negative be a laterally reversed one, will yield prints that are reversed as regards right and left. Here a large number of prints have to be made it will be better to make reversed negatives, or to take them in the first instance on a celluloid film which can, of course, be developed from either side. An extra operation, namely, the transferring of the picture from a temporary support on which it is developed to a permanent one, is thus avoided. As the manipulatory details are exactly the same in the two systems, we shall here describe them as applied to the single transfer, which the novice is advised to begin with. After the exposed print is taken out of the frame, together with a piece of single transfer paper a little

larger than the tissue, is put into a tray of cold water. The tissue, by reason of the paper absorbing water quickly, and expanding before the gelatine does, will curl up, face inwards. In a very short time, however, as the gelatine absorbs water it will flatten out again. If left longer it will curl up face outward owing to the gelatine expanding more than the paper. As soon, however, as the tissue becomes flat, or a little before, the face of the tissue and that of the transfer paper are brought into contact under the water and removed; tissue upward, on to a sheet of glass or other flat surface and squeegeed together, a flat, or scraper, squeegee being used for the purpose. The prints are then put between blotting paper, or, better, blotting boards, and allowed to remain for ten minutes or a quarter of an hour, when they will be ready for development. Text-books usually say put the prints under pressure as well as between the blotting paper, but that is quite unnecessary, and is never done by professional workers. The blotting paper, or boards, absorb any superfluous water that may be on the backs of the pictures, and that is all that is required.

Most persons have, doubtless, witnessed demonstrations of the carbon process, but a word here may not be out of place with regard to the application of the squeegee. When the print and paper are laid on the plate the tissue should be pressed firmly in contact at one end with a couple of fingers, say, of the left hand, the squeegee being in the right. The squeegee is then passed slowly, and with somewhat heavy pressure, over the print from left to right, commencing the stroke about one-fourth from the end. Then a similar stroke is made from right to left. If the work be neatly done, one stroke each way is quite sufficient, though more squeegeeing does no actual harm. In this way all risk of air bells being imprisoned between the tissue and the transfer paper, which would eventuate in blisters, is avoided.

After the mounted prints have rested for the requisite time, two or three are put into water at a temperature of about 95 deg. Fahr. In a few minutes the gelatinous coating of the tissue will begin to dissolve, and will be seen exuding from the edges. A corner of the tissue is then raised, and the two papers gently separated under the water. The print is then turned face downward. Others are then dealt with in the same way, though the novice will do well to deal with only one or two at a time. When the prints have remained for a minute or two they are turned over and examined. If on lavage the water over them a few times the high-lights show strongly before the shadows begin to clear from the unaltered gelatine it is an indication that the print has had an insufficient exposure. Still, it need not be lost—unless very much under-exposed—if it be immediately put into cooler water, say at 80 deg. Fahr., and the development allowed to go on in that. If the picture is seen to clear about equally in the lights and shadows the exposure has been about right. If, when the lights and shadows are both cleared of the unaltered gelatine, the picture is still too dark, it shows that the exposure has been more or less too long. Still it will yield a good result. In this case the temperature of the water should be increased to, say, 120 deg. Fahr., and in extreme cases of over-exposure it may be increased to 140 deg. or more, but the use of water so hot as that is not to be recommended, as the same end—general reduction—can be attained by longer soaking in water of a more moderate temperature, say, about 125 deg. The longer the picture is left in warm water the more it becomes reduced, so that the reduction is only a question of time. It should be kept in mind during the development that all carbon prints dry up somewhat darker than they appear while in the wet state.

\*The previous article on carbon appeared in the "R.J." of Jan. 12. The processes dealt with in this series of articles are plain salted paper, albumen, bromide gaslight.



There is one point in connection with the printing of carbon tissue that should be noted. The tissue gains in sensitiveness by keeping. Therefore, if it has been sensitised for some days it should receive rather less exposure in printing than if it had been used when it was freshly prepared. When the development is completed—that is, when the print is cleared from all the unaltered gelatine

and is generally light enough—it is rinsed in cold water and then put into a solution of alum—strength immaterial—until the yellow tint on the paper is removed. After rinsing in water to remove the alum the picture is finished. In the development of carbon pictures there is great scope for local treatment, but that will be dealt with in a future article.

## THE INTERPRETATION OF SENSITOMETRIC TESTS.

### I.

[The figures given during the course of last-year in specification of the properties of new gelatine plates, which were submitted to the BRITISH JOURNAL OF PHOTOGRAPHY for review, have been, so we hear, much appreciated by a number of more scientific workers, but were probably of very little value to the great majority to whom mathematical expressions are a strange language. The following short series of articles has therefore been written by Mr. C. E. Kenneth Mees with the desire to familiarise others with the meaning of the various properties of a plate. The first article is devoted to certain general questions of sensitometry. The second will deal with the "inertia" of a plate and plate speed-numbers, and the third will consider the developing, orthochromatic and other properties of a plate and will give some specifications of plates suitable for various purposes.—Eds., B.J.P.]

### The Purpose of Sensitometry.

FROM the earliest days of photography a need has been felt for some method of expressing the relative sensitiveness of the materials employed. There is no necessity here for tracing the historical development of those methods which are at present in use, but it would be desirable to make clear at the outset that there are two entirely different points of view to be considered. They are those of the maker of the materials, and of the user of those materials. In order that a plate-making works shall run as efficiently and economically as possible, it is desirable that the manager shall be able to detect the smallest possible variation in the products. The real problem before plate-makers to-day is not increase of sensitiveness or lowering of price, but reliability; and unfortunately, owing mainly to the apparently inaccurate methods by which gelatine is made, reliability is extremely difficult of attainment.

This is the reason why the larger plate-making firms are willing to spend large sums of money on accurate testing apparatus, and to test not merely their own products, but those of their commercial rivals.

This appears to me to be the real reason, and the only reason, apart from theoretical science, for the development of accurate methods of investigating photographic plates, reliability in manufacture can only be obtained by the use of accurate testing methods. The cause, e.g., as it seems to me, of the great variations in sensitiveness displayed by commercial orthochromatic plates is that there is really no satisfactory and accurate method of testing the colour sensitiveness of a plate which is in general use, the usual method being to employ either a spectrograph, or some form of colour sensitometer, and to judge the result by eye—a distinctly inaccurate method.

### The Sufficiency of Inaccurate Sensitometry.

From the point of view of the user the aspect of affairs is entirely different. The limit of accuracy necessary here is conditioned by the method of checking used, that is by the practical employment of the plate. Almost every practical photographer is aware that it makes no sort of difference to the result whether he exposes a plate for two or for three seconds—most of us know the gentleman who calculates an exposure with a meter with great care, finds it to be 1.5075 of a second, and then adds a second "for luck." Consequently an accuracy of 50 per cent. is quite sufficient in testing for sensitiveness as far as the user is concerned. When one deals with the developing properties of a plate, however, the eye is a much better

judge. There is a considerable difference in gradation between a development factor of 1.0 and one of 1.4, and a plate with limiting factor of 3.0 is visibly superior to one with a factor of 2.5, so that here an accuracy of, say, 20 per cent. will be desirable. Fortunately it is a comparatively easy matter to express the developing properties of plates numerically in such a manner that they may be practically utilised: to express the sensitiveness in the same way would be almost impossible, even if it were desirable. In fact, the sensitiveness of a plate is a complicated function that the relative sensitiveness of two plates can only be *accurately* compared, with respect to a light source, working at a fixed intensity. But a very considerable accuracy can be obtained under much less stringent conditions.

### Speed and Light Variations.

The two respects in which light sources vary are:—

- (i) Their colour.
- (ii) Their intensity.

For example, suppose that we are using two plates, one of which is only sensitive to the blue, while the other is only sensitive to the yellow, and that they have proved to be of equal sensitiveness when measured by mid-day June cloud-light, and we wish to use them for taking a portrait by incandescent electric light containing twenty times as much yellow as compared with blue as the cloud-light did; then it is clear that instead of being of equal sensitiveness, the yellow-sensitive plate will be twenty times as sensitive as the blue plate.

But these conditions are very extreme indeed. The variations in colour-sensitiveness of ordinary unorthochromatic plates are practically negligible, while the best commercial orthochromatic plates are still about six times as sensitive to blue as to yellow.\* Moreover, most plates are used under fairly constant conditions as regards lighting; the variation in spectral composition of daylight is comparatively small.

So that under normal conditions the error in sensitiveness due to colour variation is with ordinary plates negligible, and may amount to 20 per cent. with good orthochromatic plates.

Of course the sensitiveness of plates must be compared with the light which is to be used, if an ordinary and an orthochromatic plate are compared with, say, candle-light, and then with daylight, very big discrepancies may become manifest, this is an avoidable error.

Besides their variation in spectral composition, light sources also vary in intensity. It was shown first by Sir William Abney that if a plate was exposed

\* Neglecting bathed plates, in which the yellow and blue may be nearly equal in sensitiveness (daylight tested).

second to a light source, and then 100 seconds the same source, removed to such a distance that it is only 1-100th of the original intensity, then the same effect could not be obtained. Consequently, if we have two plates, one of which requires 1-10th of the exposure of the other at 4 in bright sunlight, then if we took a photograph in a building such that the fast plate requires one hour exposure, the slow plate may require not ten hours, but possibly twenty hours.

But it will be seen that this again is a very extreme case, and could scarcely occur in practice. I have found, for instance, with a Wratten ordinary plate that the error due to this cause is not so great as was supposed. The error then would be about 2 per cent., so that we may neglect this error.

We see, then, that if we use ordinary plates we can trust the measurements made of their sensitiveness for use in practical work, while if we use orthochromatic plates under widely divergent conditions, we may obtain differences amounting to as much as 20 per cent., and possibly by deliberately choosing conditions even more.

But I think, as I have said, that we do not in practical work get our exposures right to 50 per cent., and consequently need not worry about these errors. In the case of the plate-maker the question is quite a different one, he wants accuracy to 5, or even 2, per cent. if possible, and since what he wants to know is not usually the ratio of two different plates for practical work, but variations in the same plate, in order to promptly detect errors in manufacture, he can always use the same light-source under the same conditions. So that the accuracy he can obtain is independent of the considerations which limit the use of the tests in practical work, and is conditioned by experimental errors only.

This is not the place to discuss the extent of those experimental errors. With regard to sensitiveness determinations, the chief error appears to be in the difficulty of coating a plate accurately. Even with the use of patent plate the errors from this source outweigh all other experimental errors, while if ordinary commercial plates be used the coating errors may be 14 per cent., or even more. In the case of development factors the possible sources of error are far more numerous.

C. E. KENNETH MEES.

## COLOUR PHOTOGRAPHY.

### THE PINATYPE CAMERA.

My notes upon the Colour Exhibition now open at the offices of the B.J., I referred to a set of new screens for three-colour work, with which the exposures were as 1:2:2: for the blue, green, and red respectively. These are fitted in



in which the colour filters are carried. This is actuated by a pneumatic release. The plates are carried in single metal slides, and the shutters of all three slides are withdrawn. The exposure having been made through the red filter, the pneumatic bulb is sharply pressed; and the frame carrying the colour filter drops, bringing the plate behind the blue filter into position for exposure; then the bulb is again pressed, and the frame drops, bringing the plate behind the green filter into position.

The rate at which the change is effected can be altered by the small screw shown at the bottom of the frame on the right. The time taken to change from one filter to another, of course, varies, but the average seems to be about two-fifths of a second.

The repeating back, which is stoutly made of wood and black metal, weighs about 2½ lb., and measures 8 in. by 21 in., and can be hooked on and off the camera, so that the latter can be used for ordinary work. It may also be obtained as a separate fitting, and can then be adapted to any camera with front focussing movement, for obviously it must project above and below the camera top and bed. Three of the metal dark slides weigh, unfilled, 9½ oz. These weights and measurements apply to the 9 by 12 cm. size.

The ratio of 1:2:2 applies only to pinachrome bathed plates, but still this is, I think, a big advance. The camera with fittings is supplied by Fuerst Bros., who also supply these "rapid-filters." Taking the old filters, such as were recommended by Dr. König—who gave the formulæ for them—the ratios with the same plate were 1:4:3, or a total of 8, so that we have a reduction in the total exposures of from 32 to 20, for the blue-violet filter requires an increase in exposure of four times for the same plate unscreened. With the new filters focussing is effected in the usual way, through the red filter, which is the most brilliant of the three. I have not yet had time, nor sufficient sunlight, to determine the absorption of these filters, but there is obviously overlapping in the yellow and blue. From a private communication from Dr. König, I gather that these new "rapid filters" are made with some special new and pure dyes which he has discovered.

E. J. WALL.

new camera, a description of which may possibly be of interest to the readers of the B.J.

The special feature about the camera is the repeating back



### THREE-COLOUR PRINTS ON "AUTOTYPE" TRICHROME TISSUES.

The following is the official description of the method employed in making the two exhibits, Nos. 51 and 51A in the Exhibition of Colour Photography. These three-colour prints, which are excellent examples of trichromy by the carbon process, are on the newly-introduced trichrome tissues of the Autotype Company, to whom we are indebted for placing at our disposal an account of the *modus operandi*. The tri-colour tissues, we may add, have been brought to their present state of readiness for the market by Mr. H. J. Burton, who, for upwards of thirty years, has been connected with the Autotype Company, and for many years its chief technical expert.—Eds., B.J.P.

The brief general principle of this process is as follows:—Negatives of coloured objects are taken on special colour-sensitive plates, which are used with light-filters or screens, by known methods. The negatives are printed on carbon tissues of suitable red, blue, and yellow pigments. The resulting images are then developed and superimposed on one support. To those familiar with the working of double transfer carbon, the process now described will present little difficulty. The tissues, yellow, red and blue are sensitised, dried and printed in the ordinary way, the negatives being provided with safe edges.

The exposure differs somewhat from the ordinary carbon printing, and as the negatives are usually very thin, the exposure is rapid. In our experience we have found the following to be the approximate ratio of exposure:—Blue, 2; red, 3; and yellow, 8.

After exposure the prints are squeezed on special semi-transparent temporary support, and developed in water of about 95 degrees to 100 degrees Fahr. After development they are rinsed in cold water and hung up to dry.

The most suitable support for the final transfer of the prints has from experience been found to be ordinary *single* transfer paper. The pieces of this it is intended to use should be placed in cold water for about half-an-hour, and then immediately before use into hot water about 140 degrees Fahr. for about quarter of an hour. When ready, take a sheet of this paper and place in a dish of cold water and immerse the yellow print at the same time. Place the yellow print face to face with the transfer paper under water, lift both out

together, and hang up to dry. It is not necessary to use a squeegee. When the print has become dry raise the support at one corner with a pin or sharp knife, and then run a paper knife between the two to separate them. The yellow print having been successfully transferred the next step is taken with the red one.

Before attempting to transfer the red print, it is necessary to remove from the yellow print every trace of the waxing solution. This is done by rubbing the print over with a piece of rag wetted with benzole and a little tripoli or whiting. Both the red and blue prints are transferred in the same manner, but a transfer solution (see below) is required to ensure adherence.

The yellow print resting on its final support is immersed in clean cold water, and, when flat, is laid in the transfer solution face upwards. Soak the red print in cold water and place that also in the solution face downwards upon the yellow print, avoiding air-bells. Lift both out together and lay them upon a sheet of glass. The semi-transparent nature of the temporary support allows the prints to be easily examined by transmitted light, and the registration of the superimposed images is easily effected. The images resting on the glass are now stood on one side to drain, the two being then detached from the glass and hung up to dry.

The transfer of the third or blue print is accomplished in exactly the same manner, including the treatment with benzole, etc.

No alum or other hardening substance should be used until the final print has been transferred, then the compound picture may be placed in a very weak solution of formaline.

Absolute accuracy of registration is facilitated by placing on the negatives at diagonal points two tiny black dots, which will appear white in the resulting prints. These white spots are pierced with a needle on the dry prints and brought together during the transfers. If they fit together accurately, it may be assumed that the registration is correct.

The transfer solution is compounded as follows:—Nelson's No. 1 cut gelatine, 1 oz. to 60 oz. of water. It is strained before use and employed at a temperature not over 90 degrees Fahr.

### THREE-COLOUR PRINTING

AMONG the variety of processes which are being used by three-colour workers for the production of prints collotype is almost universally passed over, first because it savours of the mechanical among processes, and secondly because it seems difficult to acquire and unreliable in results. Undoubtedly the old collotype process is a complicated affair and requires working on a large scale to obtain regularity, but with the advent of Sinop emulsion and ready-coated plates, with their smooth free-inking properties, the inherent difficulties of the process are overcome. The emulsion, which is of a whitish hue, is so much more tractable than ordinary gelatine, being so easily brought into condition, by means, in principle, the same as ordinary collotype, that any amateur who is capable of making his three-colour negatives need have no hesitation in adopting it, and so have the satisfaction of being able to see the results of his negatives both in printing ink and pigmented films. Turning to the consideration of the technical details involved, we come to first:—

#### The Preparation of the Negatives.

No doubt collodion emulsion is theoretically preferable, on account of its truer rendering of the curves of sensitiveness, but on account of its longer exposures, and the fact that dry plates are easily obtainable, it is very seldom used. Lumière's "C," Cadet's "Spectrum," "Gem Tricol," are panchromatic in character, requiring only the use of suitable filters to cut off the rays not required. The colour filters must, however, be properly adjusted to these plates, otherwise one or other of the colours will always be predominating. Mr. H. O. Klein, Messrs. Sanger Shepherd, and Dr. Miethe supply filters adapted to each brand of plate. In this connection it is important to find out by experiment the exact ratio of exposure for each of the negatives, for all should develop up to the same density, and if the development of one or other is unduly prolonged, it means the production of a negative false in character to the others, and so spoiling the completed picture.

#### Retouching.

While any retouching whatever is an acknowledgment that we have failed to reproduce the colour sensations correctly, still a little must be allowed in certain cases, say in those parts which we know should

### BY THE SINOP PROCESS.

print white, but owing to the general softness of the negative apt to tone over. And, again, in case where brilliant greens and violets should appear, and we know our printing inks, not being theoretically correct, will render them degraded, a little touching on the red and yellow printing negatives may surely be allowed. The negatives for Sinop printing must not, however, be dense or clogged up; must give an equal rendering of the grey scale, and must, in fact, be a specially even set, as there is no dodging that can be done to help them when once the "Sinop" plate is made.

#### Preparation of the Plates.

The preparation of the plate is identical with that for monochrome printing, but as this is little known we will give a brief outline. The packets of plates as they are sent out by the makers with the necessary instructions are insensitive, and will keep indefinitely. It is only after they are sensitised and dried that their comparative freshness or staleness needs considering. In drying the plates in the light-drying-box provided the usual mistake is to dry them at too high a temperature, so that the coating melts and runs unevenly on the plate. To avoid this, level the box and prop open the gauze-covered lid a little. It is as well to put a thermometer in the box while drying the first few, to see the temperature keeps about 110 degrees Fahr. When the plates are dry withdraw the lamp and let them cool down, but wait till they are cold before placing face to face.

If placed face to face while hot, or even warm, the film will split off the glass. They should have a smooth, glossy, bright yellow appearance; if exposed to damp they will turn matt and become insoluble. The plates are now in their most sensitive condition, and will become slower day by day, till at the end of about a week it would be better to make fresh ones.

So far the operations for preparing the plates are identical with one-colour printing. Having prepared the plates, we will now consider the preparation of the three negatives for them.

#### Printing from the Negatives.

One of the advantages of "Sinop" is the possibility of procuring clean white margins, and as these add greatly to the appearance of the print a word or two of direction should be useful.

If the negatives are films, a great deal of trouble is avoided, as is only necessary to superimpose two of them exactly, and prick rough with a needle at the four corners, and then repeat the same with the third; but in the case of glass negatives, after marking the four corners of one, it is necessary either to measure from some finite object visible in all three, or to make a film transparency from the marked negative and superimpose as before.

Now take strips of thinnest tinfoil, moisten slightly on the lips, and mask round the negative; do not use gum of any sort, as it prevents absolute contact. The correct exposure in the printing frame is a matter of experience. Some prefer to use an actinometer, but to judge from the appearance of the plate looking through the back when it becomes easy. The plate should be exposed till the image is all out, but no more; to expose till there is any depth in the shadows is fatal. One important point which has never been previously mentioned is the temperature of the water in which the plates are washed. In the winter, when the water is very cold, the plates dry with high-lights decidedly glossy, and the prints have a bold, almost hard appearance. In the summer, when the water is often 70 degrees and over, they dry with a visible grain, and give very soft prints, so that it is advisable to reduce the temperature with a little ice to somewhere about 55 degrees Fahr.; this will ensure getting the same class image all the year round.

A properly exposed plate when washed out and dried should have at the extreme high lights glossy; all the rest of the plate should have the appearance of a very fine engraving.

#### Printing from the Plates.

We now come to the "setting up" of the plates in succession on the colour bed-plate. As far as the actual settling of the plate upon the bed-plate is concerned, the instructions in the booklets are clearly and easily carried out, but for three-colour work we must have a pile of paper cut by guillotine to ensure regularity of lay. The actual rolling up of the plate seems to be the operation which all novices fear; they will not master, and becoming bewildered by the behaviour of the rollers which are strange to their handling they give up in despair soon. Let us consider the elementary principle on which the image is formed. It consists, as far as the plate is concerned, in gelatine hardened more or less by the action of light. It follows, then, that when the glycerine solution is placed on this, the slightly hardened gelatine will absorb it and become wet, while those more hardened will remain dry, so that when the plate is mopped up, and the roller applied, ink will adhere to the dry parts and not to the wet, so that the image is formed. Consequently, when the plate rolls up too dark, more water should be added to the glycerine, and further soaking is required. If the plate seems too wet, dry in gentle warmth, and add more glycerine. Similarly with the rolling up. By rolling fast you take off the ink, or by rolling slowly you can make the faintest image ink heavily. Lift the roller after each stroke so as not to have the same surface passing over the same part of the plate every time. On passing through this admittedly trying time for an amateur do not waste temper and energy unnecessarily, and, above all, do not lose time in trying to get a good print from a plate which you know is not good. Far better wait patiently till you have another ready. In printing from the yellow plate it is a good plan to examine the prints through the violet filter, when the image will appear as a black; it is then much easier to judge its comparative strength. The greatest care should be taken to lay the sheets of paper close up to the gauge points, as the least variation will show in the finished print as badly as similar mistakes in the red and blue printings.

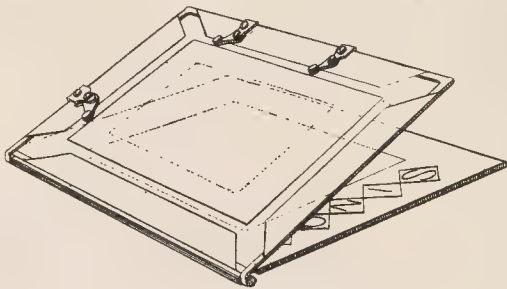
The accompanying sketch shows the bed-plate, with the mask slightly raised, and the sheet in position. The gauges should be moved up so as to be just stiffly movable.

As there is sure to be a number of accidents, etc., in the three

#### THE EXHIBITION OF COLOUR-PHOTOGRAPHY.

We may remind those who may not already have visited the exhibition, that it remains open until March 3 from 10.30 to 4.30, daily, except Saturdays, when the hours are 10.30 to 12.30. At the time of writing some 500 ladies and gentlemen have paid a visit to the exhibition, and the attendance shows no signs of diminishing. On the contrary, there is evidence that many visitors are the cause of the exhibition becoming known among those who may be assumed to be outside the circle reached in the ordinary way by the photographic Press.

printings, it is as well to do enough yellow prints to allow for contingencies. For instance, if fifty yellow prints are done, to finish up with twenty completed good prints is not a bad average. After



the number of yellow prints are done several more should be printed in black ink. These are for use in getting correct register with both the red and blue printing plate.

#### Registration.

Having replaced the yellow plate with the red one, as soon as the plate is in sufficient condition to give a good print pull a print on one of the black prints, and, judging from the amount it is out of register, so alter the gauges accordingly. Then print another and another, until perfect register has been obtained; this will probably use up about six of the black prints. When it becomes necessary to move the gauges an almost imperceptible fraction, the mask should be marked round at the head of the gauges with pen or pencil, when the least movement will be readily perceived. Care should be taken to keep the red prints as even as possible. This is the most difficult colour to print with, and if they are allowed to vary much, the completed prints will vary still more when the blue is added. In fact, this difficulty of obtaining even prints is the main obstacle to be overcome. Both the yellow and the red printing inks at present in use are not so easy to manipulate as ordinary black. The blue ink presents no special difficulties, hence the necessity for preserving even printing during the yellow and red colourings. It is important also to remember that each printing is but a third of the completed picture, and so avoid getting the yellow and red prints too strong or heavy, or the completed picture will have a crude appearance.

After each printing the prints must be left overnight to dry, otherwise the wet ink of the print will set off on the plate, leaving the print with a mottled appearance.

The makers of colour inks are striving to produce inks theoretically correct and also permanent. The red ink seems to be the least perfect, but there are several reds to be obtained which, while not absolutely permanent, are sufficiently so to outlast the interest any prints done with them may create.

The density of the inks must also be taken into consideration, so that the yellow being the bottom colour should be printed fairly strong, in order to take its proper place in the composition of the picture.

In conclusion, while no doubt a little patience is necessary to acquire the requisite skill in rolling up the plates, the other advantages of the process are well worth considering. The softness of gradation, the brilliancy of colouring, the ability to print on almost any kind of paper, and produce almost any desired effect, all tell greatly in its favour. The writer has himself produced numbers of prints in the way here described which have been greatly admired by such experts as have seen them.

S. G. YERBURY.

Among those whose names are to be found in the visitors' book since we last inspected it, may be mentioned:—Geo. Bankart, Lady Lockyer, T. Sebastian Davis, T. C. Turner, Major-General Waterhouse, H. J. Burton, C. G. Zander, H. H. O'Farrell, F. T. Corkett, C. Phipps Lucas, W. Saville Kent, H. Holcroft, Dr. Albert Norman, William Grove, F. F. Hollyer, W. E. Brewerton, Dr. B. Jumeaux, J. T. Ashby, J. W. Marchant, J. A. C. Branfil, F. A. Bridge, J. Turnbull, Dr. W. H. Perkin, F.R.S.



## PICTURE POSTCARDS.

In the course of a lecture delivered before the Bolt Court School of Photo-Engraving on Thursday in last week, Mr. F. T. Corkett, of Messrs. Raphael Tuck, brought forward a number of facts and experiences of the postcard publishing trade, the repetition of which cannot fail to be of interest to photographers and others who may be regarded as providers of the raw pictorial material from which, to a very large extent, the postcard maker works.

### The History of the Picture Postcard.

The first picture postcard, it appears, was produced about 1870 by a French stationer in commemoration of a visit of a regiment to the town in which the stationer resided. Until 1894 no picture postcards were issued in Great Britain, the postal regulations forbidding the issue of any printed postcards other than the official ones. In fact, the first picture postcard to be issued in Great Britain was an official halfpenny card published in commemoration of the Naval Exhibition of 1891. It bore an impression of the Eddystone lighthouse, a model of which was erected in the exhibition. In 1894 three British firms only were in the business. In 1899 the Post Office authorised a card of  $5\frac{1}{2}$  by  $3\frac{1}{2}$  inches, a concession which at once gave an impetus to the postcard trade which had already assumed fairly large dimensions on the Continent.

### Postcard Facts and Figures.

As instancing the enormous strides which the sale of postcards had taken, Mr. Corkett compared the difficulty of getting a stationer in a South Coast resort to take into stock 1,000 cards. That was in 1899. Last summer the same stationer confessed to having disposed of 100,000 cards in the course of a year.

In the Postal Union returns for 1903, the entry against Great Britain is for no less than 613 million postcards, three-quarters of which it is estimated, or 450 million, were of the picture variety.

A census of the postcards passing through this office was taken last year by the Blackpool postmaster during the holiday season (July and August), from which it was found that an average of

215,000 picture postcards *per week* were despatched from Blackpool during the period, while in one week (the first week in August), as many as 300,000 picture postcards were posted.

It is estimated that two-thirds of the postcards published in Great Britain are views and of photographic origin. Just at present there is also a wave of popularity for the bromide card of actresses' portraits, and the output of one firm who specialize in this line has been estimated at 1,000,000 per week, equivalent to 20,000 yards of sensitive material 34 inches wide.

During 1904 over 2,500 million postcards went through the post in Germany, Great Britain and America alone. The figures for 1905 are not yet available, but it is anticipated that the total for these three countries will reach nearly 5,000 million.

### The Future of the Postcard Industry.

Mr. Corkett took no pessimistic view of the future of the picture postcard. The prosperity and permanency of the industry, he strongly felt, were dependent on the supply of a good article, which did not transgress the laws of decency. There was little demand for cards which were technically poor and vulgar in subject. Their presence in the trade was, nevertheless, a menace to the growth of the business, and stationers and all dealers in postcards could not be cautioned too seriously to taboo them utterly. Once the mind of the public became prejudiced against the postcard all efforts to acquit it of the charge of vulgarity would be fruitless, and the end of its prosperity would inevitably follow.

### Subjects for Postcards.

Mr. Corkett's position as studio manager and reproductive expert of Raphael Tucks gives authority to his advice on the submission of photographs and other originals for publication as postcards. "Have some definite object in view. Specialize some particular line of objects, but do not fly from landscape to portraiture, from animal studies to flower prints, from breaking waves to cloud effects. Remember the publisher requires a set of six similar designs to a series of subjects. They (the six photographs) should be consecutive, and should convey something as a homogeneous whole."

## A MACHINE FOR PHOTO-COPIES OF LONG TRACINGS.

A COMMITTEE of the Franklin Institute, Philadelphia, has reported on a machine, the invention of a Professor L. F. Rondinella, by which tracings up to 70 ft. in length are printed on sensitive papers, such as ferro-prussiate and ferro-gallic. The adjustments of the machine, which appear to be provided very satisfactorily, are for the printing of short as well as of long tracings, and for the correct exposure of papers of different degrees of sensitiveness. The committee, of which Mr. Louis E. Levy was the chairman, has recommended the machine for the award of the John Scott Premium and Medal, which is within the gift of a Committee of Science and the Arts of the Franklin Institute. The following extract from the report explains the construction of the machine.

The form of the apparatus under present consideration, to which the inventor has given the name of "Star Photo-Printing Machine," is designed especially for the practice of the blue-print and paper-negative processes, and was patented March 19, 1901, No. 670,349. The machine is adapted to print by sunlight or artificial light as may be most convenient, and accordingly comprises two independent parts, the printing machine proper and the electric lighting apparatus upon which it is supported.

The printing mechanism is contained in a casing which is provided with ball casters so as to be easily rolled out from its support upon tracks arranged for the purpose through a window for sun-printing. The casing is made of well-finished oak, and contains all the requisite materials of the printing process throughout, and also all the mechanism of the apparatus except the small electric driving motor and its reducing gears. These are fixed on the exterior on one side of the machine. The casing is curved on top, whence it runs down into a slant of about 45 deg., and then projects to form a receiving compartment at the front. The covers of the slanting and horizontal

parts are hinged together and to the front edge of the casing, forming a two-leaved lid which, when lifted and brought forward, opens the machine and at the same time forms a projecting work table. This hinged cover may also be brought to rest in two other positions, leaving the machine only partially open and the work table out of the way. The curved section of the casing is covered with a roll-top

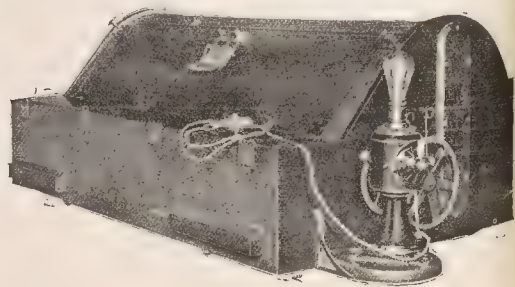


Fig. 1.

shutter which serves as a covering slide over the exposure opening, permitting this to be varied in extent up to 150 deg. for rays from the sun, and up to 120 degrees or more for those from the electric lamps.

The printing is effected through a transparent covering-sheet which holds the tracing and sensitive paper down upon the surface of a felt-covered drum that revolves under the exposure opening concentric-

ally with the curved top of the casing. The transparent cover consists of a strip of the best tracing cloth over seventy feet in length, permanently fastened at one end to the drum and passing around this to a winding roll under proper tension. The tracing cloth is carefully prepared so as to wind true from roll to drum and back again, and its edge is spaced off into feet and marked with numbers which indicate the maximum length of print which may yet be made when part of the cover has been wound off. The cover-strip passes from the winding-roll up under an idler and then around this down to its contact with the drum, the material thus forming an inclined feed-

ments of any considerable drafting room or of a commercial blue-printing establishment, be regarded as of primary importance. The support is so wired as to be ready for connection to the mains of either a two- or three-wire system carrying 110 or 220 volts, direct current. The lighting arrangement consists of enclosed arc lamps, four, five or six of them for the three respective widths of the machine, or of a set of three or four Coper-Hewitt mercury lamps of the requisite length.

The most actinic rays of light from an arc lamp radiate in a beam outward and downward from the crater formed by the arc in the upper carbon, and the idea is to so reflect all the rays as to bring

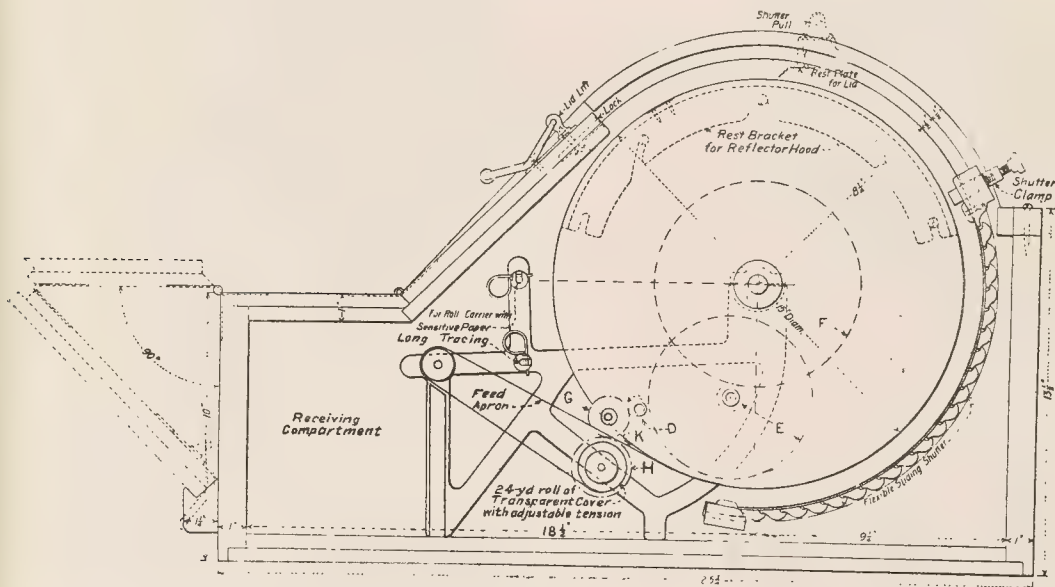


Fig. 2.

on down which the tracing and sensitive paper are carried into contact with the revolving drum, and thence around with it under the exposure opening. The printing is continued on the return of the drum, and after the printing the tracing and prints are carried up an inclined plane and delivered over the idler into the receiving compartment in front. The tension of the transparent cover can be varied by means of a friction brake at one end of the winding and can be effectively controlled so as to insure a close contact of sensitised paper with tracings on thick or rumpled tracing cloth at any desired printing speed.

The drum is actuated from the outside by means of a reducing gear-le from the motor to a driving spindle which passes into the drum and carries a small pinion on its inner end. This spindle is adjustable laterally so as to carry the pinion into mesh with either of two sets of reducing gears on the inside, one set serving to move the drum forward at a certain speed, and the other to move it backward at a faster speed. The spindle is held in either position by means of a spring catch which fits into either of two grooved collars carried by the spindle on the outside.

Three different speeds are provided, the return in such case being faster than the forward motion. The exposure goes on during the forward and backward movement of the drum. The combination of these various speeds affords a gradation of nine different speeds of exposure, and these may furthermore be varied by changing the lamp resistance attached to the motor. The use of cone pulleys or of an external rheostat for this purpose is thus advantageously avoided.

The machine, together with its electric-light supporting frame, is in three widths, affording prints up to thirty, forty-two and eighty inches wide respectively, all three being adapted to make numerous prints up to a length of seventy feet.

The electric-light support of this machine, though an extraneous part of the apparatus, must yet, in view of the practical require-

about a zone of uniform actinic force over the entire surface of the exposure opening of the machine. To this end the lamps are placed directly over the axis of the drum, under a reflector-hood (fig. 3) es-

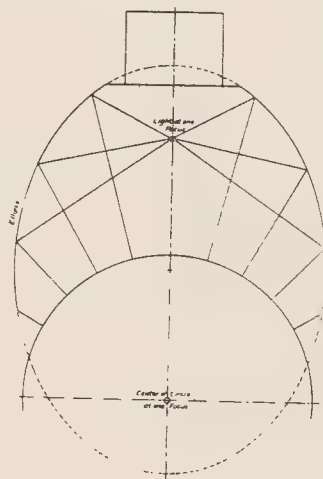


Fig. 3.

pecially designed for the purpose upon the principle of reflection from the surface of an ellipse, as first demonstrated by the present inventor before the Franklin Institute at its meeting on December 21, 1904. The lamp and the enclosing reflector-hood are both hung from a sus-



pension beam adapted to be raised and lowered on a support over the machine, the lamps being held to the beam in a fixed position and the hood by chains that permit its being raised and lowered about the lamps. Through sight-holes placed for the purpose the hood can be adjusted over the lamps so that the arcs coincide with the focal line of the elliptical inner surface of the hood. In this position the rays that strike the inner surface are reflected towards the opposite focus of the ellipse. The suspension beam with its lamps and hood is then lowered until the ends of the reflector hood rest upon the brackets at the two ends of the machine casing. Thus placed, the reflected light is intercepted by the cylindrical surface of the drum, reaching it (and its overlying tracing and sensitised paper) in rays of equal length and in directions uniformly normal to the surface, thus producing the desired area of uniform illumination. For the long tubes of the mercury lamps, the same principle is applied in a form modified for the purpose. In either case the uniformity of illumination which is produced is such that tracings coming within the area of the opening can be effectively printed without moving the drum.

## Patent News.

*Process patents—applications and specifications—are treated in Photo-Mechanical Notes.*

The following application for patents were made between January 22 and 27:—

**DEVELOPING DISH.**—No. 1,883. A non-splash developing dish. Samuel Dawe and James Cook Thompson, 23, Elm Grove, Southsea.

**THREE-COLOUR SCREENS.**—No. 1,938. An improved process for producing three-colour screens for colour photography. Robert Krayn, 33, Cannon Street, London.

**PAPERS.**—No. 2,057. An improved process for making photographic papers. Ignaz Hoffsummer, 6, Lord Street, Liverpool.

**FILM CARTRIDGES.**—No. 2,136. Improvements in photographic film cartridges. Thomas Macwalter and Elliott and Sons, 322, High Holborn, London.

**CINEMATOGRAPH-PHOTOGRAPH.**—No. 2,157. Improvements relating to the synchronous operation of combined cinematographs and phonographs. Oskar Messter and Leon Gaumont, 7, Southampton Buildings, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

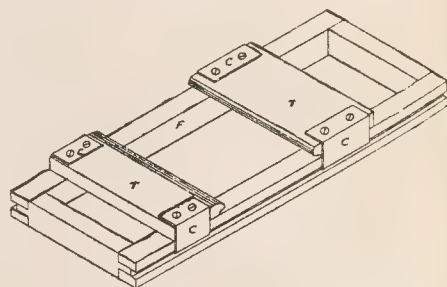
*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**COLOUR PHOTOGRAPHY.**—No. 7,557, 1905. The claim is for the use of a number of dyes possessing a sharp difference in their powers of dyeing hardened and unhardened gelatine—that is to say, dyes which are taken up by unhardened, but not by hardened gelatine. Many dyes do not distinguish sufficiently in this way, but excellent results may be obtained if certain dyestuffs are used. For instance, the mikaado-dyestuffs obtained from paratrotoluenesulphonic acid, the soluble azo-dyestuffs, derived from dehydrothiotoluidine, primuline, or their homologues and substitution products, natural carmine, and sulphonic acids of induline and nigrosine, naphthazine blue and some of the diamine colours, like diamine pure blue, dianil blue, dianil yellow, dianil garnet (made from benzidine naphthylamine, disulphonic acid, and amidonaphthol sulphonic acid), and others. Of the anthraquinone dyestuffs may be used the aekylidoanthraquinone-sulphonic acids and their derivatives. For example, to produce a blue image, a gelatine layer sensitised by immersion in a 4 per cent. solution of bichromate may be exposed to light under a diapositive and excess of bichromate removed by washing with water. The layer may then be immersed in an aqueous solution of fast blue (indulinesulphonic acid) of say 4 per cent. strength, rinsed with water after fifteen minutes and then brought into intimate contact with a moist gelatine paper. After about ten minutes the paper may be removed from the layer, when it will be found to exhibit the image in blue. The original layer, without being re-dyed, may serve several times for reproducing the image or may be coloured again by immersion in a dyebath.

This process is of special importance in the manufacture of three-colour photographs. The operation may be conducted, for instance, as follows:—From the three negatives are made three diapositives under which are exposed the bichromate gelatine plates as described above. The gelatine plate, which corresponds with the red-screen negative, may be then dyed by immersion in a solution of about 4 per cent. strength of, for instance, diamine pure blue, and the image may be transferred to the gelatine paper as hereinbefore described. The gelatine plate, which corresponds with the green negative may be dyed by immersion in a solution of about 4 per cent. strength of carmine or of the azo-dyestuff from primulinesulphonic acid and 1: 4: 7-*a*-naphtholdisulphonic acid and afterwards washed. The previously obtained blue, still moist or re-moistened image may then be placed on the red plate in such a manner that the outlines cover each other, and closely pressed; after about ten-fifteen minutes the image is removed. The gelatine plate, which corresponds with the blue screen negative, may be dyed in a solution of about 4 per cent. strength of dianil yellow R (azo-dyestuff from primulinesulphonic acid and phenylmethylpyrazolone), excess of the dye-stuff removed by rinsing with water and the blue and red image laid on so that the outlines cover each other. After about fifteen minutes the finished image is removed from the plate. O. Imray, for Meister, Lucius, and Bruning, Hoescht-on-Main, Germany.

**PROTECTING PHOTOGRAPHS.**—No. 639, 1905. The claim is for a method of protecting finished photographs, consisting in applying a transparent film—which is supplied mounted in a carrier, as an article of commerce—the film being secured to the surface of the photograph by a coating of gelatine or shellac, which becomes adhesive by moisture or heat. The film is prepared by coating glass or other support with a solution of the transparent medium, such as celluloid, varnish, etc., and it may bear any design by which to ornament the photograph. Frederick Elijah Blaisdell, 15, Langland Gardens, London.

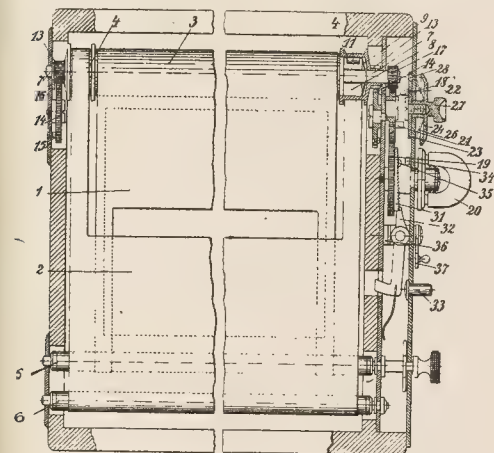
**PRINTING FRAME.**—No. 11,365, 1905. The invention consists of a printing frame, in which the negative is held by the rebated or chamfered edges of sliding pieces attached to the front of the frame. Negatives of various sizes can thus be accommodated.



in one frame. Walter Charles Grubb and Albert Nixon, Eagle Works, Durham Grove, Hackney, London, N.E.

**FOCAL-PLANE SHUTTER.**—No. 16,593, 1905. Details are given of the mechanism of a focal-plane shutter in which, among other movements, the slit is covered as the shutter is re-wound after exposure. The working of the shutter is as follows:—When the device is to be wound up and an exposure to take place, the handle 20 is turned and the winding-up rollers 3, 4 rotated thereby, so that the curtains 1, 2 are wound upon these rollers. During this movement the roller 3 moves the friction discs 8, which, in their turn, transmit their movement, through the rollers 11, to the winding-up rollers 4. The rotation of the winding-up rollers of both curtains continues until the pin 15 of the wheel 14 strikes against the projection 16. This stops the further rotation of the rollers 4. If now the handle 20 is turned further, the curtain 1 is moved further and displaced with relation to curtain 2 until the projection 21 strikes against the projection 22. According to the adjustment of the disc 24, the slit between the two blinds 1—2 will be more or less broad. If now the disengaging lever 32, by a pressure on the button 33, is moved out

of the teeth of the segment 31, the curtains are moved under the action of the spring stretching-rollers 5, 6. Both curtains are moved simultaneously, until the pin 15 of the wheel 14 strikes, from the other side against the pin 16, the same as during the winding-up. As soon as this takes place, the rollers 4 can no longer rotate. But the roller 5 can wind up the blind 1 still



further, as the coupling-rollers 11, when the friction discs 8 are turned in this direction, enter into a widened part of the inter-spaces 10 within the rollers 4 and thus uncouple the rollers 3, 4. During this movement of the curtain 1, independent of the curtain 2, the slit is closed, so that when the shutter is wound up again, no light falls upon the plate. Ernst Brauburger, Steglitz, Berlin and Optische Anstalt C. P. Goerz Akhengesellschaft, Berlin.

**STEREOSCOPY WITH ONE LENS.**—No. 21,909, 1905. The invention consists of two glass prisms placed as near as possible to the front of the lens and enclosed in a dull black casing. The two rectangular equilateral prisms 1 and 2 are so placed together that their hypotenuse-surfaces *a b* and *c d* are parallel. The length of the small sides *a c* or *b d* or *c b* is preferably 34 millimetres, that

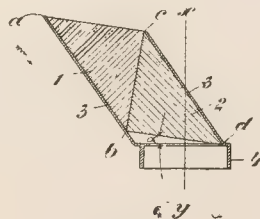


Fig. 1.

is to say, a little more than half the distance between the eyes, for the purpose of obtaining the desired stereoscopic effect. The two prisms 1 and 2 are arranged in a casing 3, which is dull black inside and which is provided at the back with a socket 4 for the purpose of placing it on the lens of a camera. The front and the back surfaces of the attachment are uncovered for the purpose of admitting rays of light to the lens. In order to do away in this combination of prisms with chromatic phenomena due to the rays striking hypotenuse surfaces *a b* and *c d* at a smaller angle than 42 degrees (Figure 1), and to bring the image produced exactly into the centre of the sensitive plate of the photographic camera, the combination of prisms is arranged slightly outside the centre of *x y* of the socket 4 of the prism casing 3, and at an angle *α* to the object glass lens (Figure 1). The size of the shifting and of the angle of the combination of prisms relatively to the object glass, depends on the kind of glass

used. In the diagrammatic horizontal section (shown in Figure 3) through the camera with the stereo-attachment mounted in the centre of the lens, no attention has been paid to the shifting and to the angle of the prism combination required on account of the chromatic phenomena. If no attention is paid to the lines in that figure representing the camera, then the thick full lines

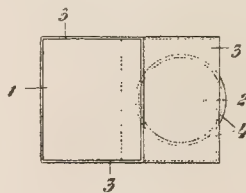


Fig. 2.

show the prism combination in one position and the thick dotted lines in the other position. The thin full lines and the thin dotted lines indicate the path of rays in the two positions of the stereo-attachment. By following the path of the rays, it will be seen that the hypotenuse surfaces *a b* and *c d* of the prisms, act as full reflectors, and further that the two surfaces in Figure 3 represented by the lines *a c* and *e f*, correspond to two lenses of the well known stereoscopic camera. The images produced,

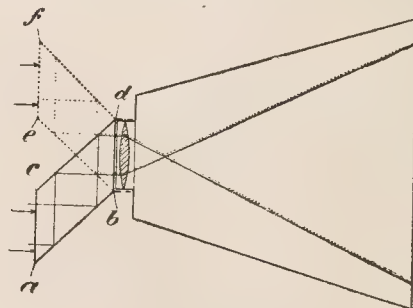


Fig. 3.

formed by the reflection, fall, however, on the same spot of the sensitive plate, and not, as in the well known stereoscopic camera, on two arranged side by side. When using the stereo attachment, the camera is first sharply focussed. Any plate, film, and instantaneous camera of any size can be used, as long as it can be secured to a stand. The stereo-attachment is secured by its socket 4 to the lens, so that the projecting part *a* points, say, to the left hand side, see Figure 3 full lines, and then a photograph is taken. Then the sensitive plate is changed and the attachment is turned through an angle of 180 degrees, in such manner that it projects to the right, Figure 3 dotted. Then the second photograph is taken. Wilhelm Salow, 31', Neue Nordstrasse, Elberfeld, Germany.

**COLOUR PHOTOGRAPHY.**—No. 9,449, 1905. The present invention which is an improvement on that of Patent No. 1,008, 1904, consists in an optical apparatus of an optical system common for all three images, consisting of a double system of lenses separated by a highly dispersive analysing set of prisms, and provided with a shutter in front focal plane of the lens, or in the plane conjugate to the system, for the purpose of parallelising the elementary light pencils. The other part of the apparatus consists of three identical separate optical systems, each of which consists of a lens, a set of highly dispersive synthesising prisms, and, if desired, of another lens, for the purpose of enlarging or reducing the image, each set of synthesising prisms having a symmetrical position to the analysing prisms, while the intermediate lenses form a telescopic system. This in Figure 1 *a b* is common to all three pictures and the central part of it forms the analysing prism device, one of three lens-systems which



may be referred to as *c* (Figure 1) which direct the ray-pencils through rearward synthesising prisms; in some cases a further lens system *d* (Figure 1) is also provided, which serves for enlarging the image. For each picture four intermediate sets of prisms A, B, C, D, (Figure 1) are provided, the relative positions of which, with regard to each other, are such that the homogeneous rays due to the dispersal of each of the composite axial rays  $R, R', R''$  by the first prism A are parallel after passing through the second prism B; after passing through the third prism C the rays coincide in a point, and after passing through the fourth prism D they travel on together. A prism-system of this kind has the advantage that it may be optically corrected independently from the lenses used in the apparatus, since the pencils of rays passing through the prisms are subject to aberrational effects which neutralise each other. On the other hand the complication of the system, and the consequent absorption of light, are disadvantages. The method for simplifying the system,

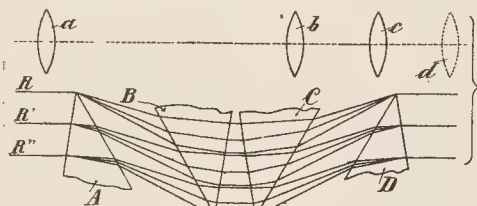


Fig. 1.

to which the present invention relates, is based on the fact that by a special arrangement of the central lens-system *b* and *c*, the number of prisms in each branch of the system can be reduced from two to four, the optical correction of the whole being nevertheless preserved. The apparatus is provided in front of the lens *a* with a focal plane shutter *s* which renders parallel the main rays of  $R, R', R''$  and so on before they enter the prism A. Let the central lens-system *b, c* (Figure 2) be a telescopic, achromatic system of two lenses having a common inner focal plane. As is known, all rays which intersect each other in one point in the external focal plane of the first lens *b* are converted into pencils of parallel rays in the space between the two lenses, and after passing through the second lens the rays again intersect each other, in one point of the external focal plane of the second lens *c*. If, with a given prism, the point of intersection is determined for the outermost spectrum-rays, belonging to a given image and

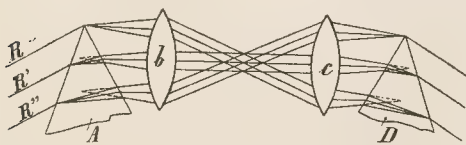


Fig. 2.

due to the analysis of the multicoloured main-ray—i.e., *R*, and also the points of divergence of the spectral pencils corresponding to other main rays  $R', R''$ , and so on, these points will be found to lie in a certain plane peculiar to the prism tested. If this plane belonging to the first prism A (Figure 2) coincides with the focal plane of the second lens (*b*) and if the last or fourth prism D is given a similar position with regard to the third lens (*c*), both these lenses will have, as regards optical correction, exactly the same effect as the second and third prisms B, C. Figure 1, and the latter can therefore be dispensed with. In case the focal distances of both lenses composing the telescopic system are equal, the coincidence of above-mentioned planes is not necessary; it suffices if the distance of the said planes of divergence of prisms is equal to the distance of the exterior focal planes of the lenses *b, c*. Wernicke rectilinear prisms can be used, or prisms with deflected central rays. For the purpose indicated the separate parts

of the system must have fixed relative positions. The synthesising prism-sets cannot, therefore, be displaced for the purpose of dividing the beam into three beams of equal actinic power corresponding to the different degree of intensity of the plates, and it is in this case necessary to use auxiliary devices, such as can also be employed in apparatus comprising four prisms. These devices may consist of small mirrors or prisms producing total reflection, or the purpose of branching off the beams in three directions in the optical system can also be effected by deflecting the rays by means of small refractive prisms *p, p* (Figure 3). Since these small prisms have very small indices of refraction, the aberration due to their use is negligible. For producing larger deflections it is, however, desirable to make these small prisms achromatic, or to neutralise the effect of each small prism by an opposite effect due to small prisms introduced into the rearward branches of the system; for the same purpose the refractive index of the fourth prisms  $D^1, D^2$  can be increased. With the aid of these devices and by repeatedly deflecting the optical axis of each system, the pictures can be given any desired positions as regards the distances by which they are separated from each other, and they can also be brought into one plane for the purpose of being focussed on a single panchromatic plate. This latter position is

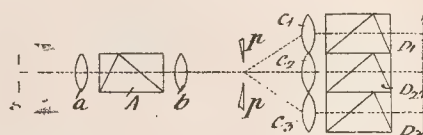


Fig. 3.

particularly useful when the purpose of the apparatus is reversed, that is to say, when instead of making three complementary negatives of an object, a projected image in natural colours is obtained, by synthesis, from three complementary colourless positives. The fixing of all three pictures on a single panchromatic plate facilitates in this case the obtaining of uniformity in the exposure to a powerful source of light required for the projection, and obviates the inconvenient centering of the separate pictures. This is more particularly important for the projection of a series of successive pictures, for instance, when the apparatus is used in combination with a cinematograph. Charles Julius Drac, Marienzstadt 21/23, Warsaw, Russia.

**EXPOSURE METERS.**—No. 19,962, 1905. The invention is an improvement of meters of the type specified in Letters Patent, No. 17,642, 1892. Four scale-marked discs are employed, giving readings for plate speeds, light values, diaphragm apertures, weather and subject. The meter may be constructed so that it is more compact, and may be supplied with projecting studs to facilitate the rotation of the movable scales. Ilford, Limited, Britannia Works, Ilford, and Rowland Samuel Potter, 97, Belgrave Road, Ilford.

MISS BEATRICE TONNESON, the Chicago photographer who has specialised in advertisement photography, is out with a new conceit. The idea is to surround a central picture with a cordon of smaller ones, in various poses and diversified costumes, "From décolleté to high stock gowns and garments, grave or gay; or, on gently pathetic expressions, set off those of a different kind," success or failure depending on the subject, the clothes worn in the various enveloping pictures and the care taken to see that they combine well together. It is even hinted that very interesting effects may be produced by margining the central photograph with former pictures of the present subject, who, if she be up-to-date in attire and the spirit of the time, represents merely perfection, not age; her former pictures besides being interesting reminders witness the gradation from the simpering maiden to the serene, self-possessed woman.—"The Photographer" (New York).

THE annual meeting of the Yorkshire Photographic Union will be held at Batley on April 7. The eighth annual excursion will take place on June 23, 1906, to York.

## Exhibitions.

### PHOTOGRAPHS BY ALVIN LANGDON COBURN, AT THE R.P.S.

As we announced last week, the house exhibition of the work of Alvin Langdon Coburn opened at the premises of the Royal Photographic Society, in Russell Square, on Tuesday last. The exhibition will be open daily from 11 to 5 (Saturdays inclusive) until March 31 in presentation of card. The walls hold 120 photographs, nearly all mounted in passe-par-touts, and therefore a little monotonous for this season. Of these 120 forty-four are portraits, and it is this portion of the exhibition which will be most worthy of study by our readers. We hold no brief for the latest thing in portraiture; neither do we for the oldest. We are quite prepared to be told that by those who have been in photography for years that many of Mr. Coburn's portraits are technical blunders, crimes in lighting, and demonstrations of ineptitude in the making of a print. We would ask studio critics such as these to assume—as we believe they may assume—that Mr. Coburn gets the effects he exhibits—on purpose. They may transgress the unwritten laws which photographers have striven to obey in portraiture since the profession of portrait photographer has existed, but there they are, and the fact remains that people well qualified to judge of them as portraits applaud them in no half measures. We suppose our professional readers do not care one brass farthing about the opinion their customers may entertain of them as technicians in photography so long as they esteem them as portraitists. And this is why professional photographers should visit the exhibition. It is one of the first opportunities they have had of seeing the work of one who discards conventions to portray the man who photographs to please himself, and, in spite of mannerisms, astonishes his sitters with the freshness and perceptions of his photographic portraits. Take two portraits which hang together—those of Mr. Fredk. Evans and Mr. George Davison. The former is alive with the bubbling volatility of the secretary of the Linked Ring. There you have Evans to the life, and one wonders whether such a long exposure of thirty seconds, which Mr. Coburn is in the habit of giving even to his sitters in sunlight—his lens aperture must be guessed at—is made without destroying the “go” of the portrait. It might have been given in the case of the equally characteristic portrait of Mr. Davison, who appears just as much at ease before the camera though Coburn were merely Swinfen-Eady. We like best the portraits in which a strong lighting has been used, and in the landscapes as well Mr. Coburn, it seems to us, excels in the handling of extremes of light and shade. But he will not avoid abnormal lighting merely because they are usually credited with being useful, and his catholicism in this respect sometimes leaves him with effects such as No. 4, a portrait of Robert Barr, which are unpleasant. Part of the secret of the success of many of the portraits is the fine sense of proportion shown by the photographer in placing his portrait in the space of the printing paper. We notice a number of instances where the height of the sitter is conveyed in this way, and the same skill can be seen in the landscapes.

The visitor whose lot it is to earn a living with his camera will be filled with the big question:—“Can photography of this kind be made profitable?” If prices are anything to do with it, Mr. Coburn sets a bright example to those in the rank and file of photography who lower the standard for all of us by cheapening the photograph in public estimation. The price of single copies (10 x 8) of many of the portraits in the exhibition is £5 5s. each, and though we have no idea what Mr. Coburn's charges are for sittings in the regular way of business, we have no reason to think that they are anything like as low as the high prices of a first-rate studio. If the man show at the Royal does this one thing, therefore—if it demonstrates that the production of an individual photograph at a round sum is a feasible proposition commercially—it behoves professional photographers to consider whether such a movement does not open up a new description of business; a business which at present appeals to the cultured few, but which assuredly will grow just as fast as taste in photographic production has been shown by the public in recent years.

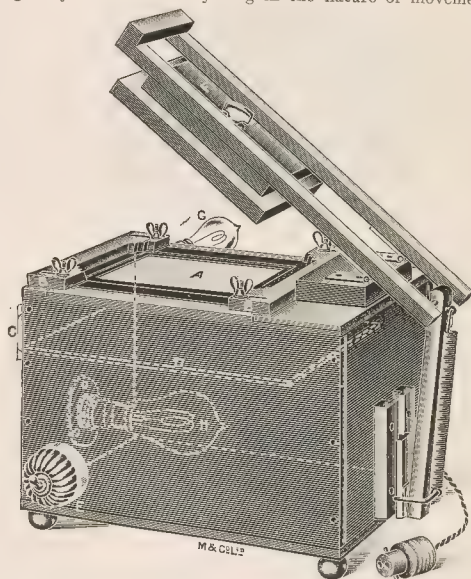
Of Mr. Coburn's landscapes we are compelled to speak in a few

words. One characteristic of nearly all of them is the natural bigness he contrives to impart to representations of objects and scenes which are dwarfed by their surroundings. Show Coburn your back garden, with the request to give you a photograph of it (with water butt) of pictorial quality, and he would do it as Mr. Bernard Shaw says, “without effort,” or if you had no garden the water-butt alone would probably provide him with a “motif.” What a man to have about a studio, when photographing persons such as the individual who, at Penge, not long ago thrice confused the police by impersonating a small dust-bin! That is what impresses one in his landscape work, the way he singles out the most varied bits of a scene, and rescues them from pictorial oblivion in their surroundings. His eye for the picturesque is keen and discriminating. Nature as a whole, he seems to think, is all right, but let me select for you one or two delicate morsels from the profusion of good things. As a result we have some quite novel renderings of scenes familiar to all of us, so familiar, in fact, that we have never seen precisely the aspect of it which has given Coburn his picture, or, perhaps, having once caught a suggestion of it, have not had the patience to wait and expose and re-expose until the effect was secured.

## New Apparatus, &c.

The “Renaud” Quick Bromide Printer. Sold by Marion and Co., 25, Soho Square, London, W.

Designs of apparatus for the rapid production of bromide and gaslight prints and postcards have evidently occupied inventors' minds of late, a diversion of inventive genius for which the startling figures representing the sales of picture postcards is no doubt responsible. The modes of construction of these new pieces of apparatus are as different as the results they are called upon to turn out. The one before us, which Messrs. Marion call the “Renaud,” is singularly innocent of anything in the nature of movements or



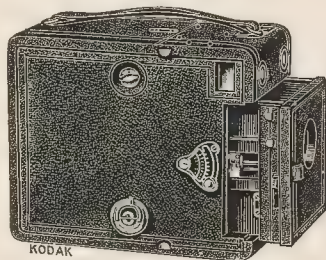
machinery. It is assumed to be one person's work to look after an apparatus of this kind, and that therefore the printing of the negative may just as well involve the intervention of some primitive type of human intelligence such as may be assumed to be the possession of a hired boy or girl. Things are adjusted at the start by some one of experience, and the cards can then be taken off very rapidly from the negative by anyone who is able (1) to lay a piece of paper in a frame, and (2) count five. The apparatus consists of the box seen in the drawing and containing an electric lamp. Above the latter is a ground glass screen (D shown dotted in the figure), and on the top of the box a ground glass bed on which a negative up to



whole plate in size can be clamped. The clamping boards, B B, are adjustable for  $\frac{1}{2}$  plate, cabinet and postcard sizes, and prints from papers of these dimensions can thus be made from any negative between whole plate and the smallest sizes. Masks can be placed in the negative and vignettes or the ground glass shelf below. These and all other preliminary operations are performed with the light on, the switch E maintaining contact for this purpose. When ready for exposure, this switch is turned off, and the only way then of switching on the lamp inside the box is by bringing down the pressure board, F, on the card or paper which is laid on the negative. This movement at the same time cuts off the safelight G, and on pressure being released from the board after sufficient exposure has been given, the board rises, cutting off the light inside and re-establishing that outside. Hence the operator's hands are free to replace a new card for the exposed and to proceed in this way without any loss of time. The apparatus, as we have said, is simple in the extreme, and is sold at the price of 25s. complete with three masks, pressure boards in 5 sizes and wiring, and adapter to fit any household fitting.

The Quick Focus Kodak. Made by Kodak, Ltd., 57-61, Clerkenwell Road, London, E.C.

Quite a novel feature in hand-cameras is embodied in a new instrument brought out by the Kodak Company under the above descriptive title. The camera is a Kodak of the box pattern, and the novel movement lies in the focussing arrangement. A notched scale is provided on the side of the camera, and by means of it the instrument is made ready for focussing on an object at any distance between 6 and 100 feet. The lens, however, is not moved into the selected position until a button just below the scale is pressed, when the front of the camera flies forward and is held in the position. The exposure made, the front is pushed back flush with the camera



body and is so carried with all its working parts enclosed until a second subject presents itself, when it is again drawn forward to the same extension or to any other which at any moment before exposure may have been selected. There is an indescribable snap and smartness about the movement which should enhance its selling powers quite apart from the actual assistance which the device affords in accurately setting the camera to scale. The way in which the movement is worked out recommends itself to the purchaser, and the dealer's task in demonstrating the points of the camera is assuredly a light one. The Quick-Focus Kodak takes a  $5\frac{1}{2}$  by  $3\frac{1}{2}$  (postcard) picture, and possesses all the usual accessories in the way of finders, stops, time and instantaneous shutters. The price of the camera is 50s.

The "Togo" Printing Frame. Made by the Birmingham Photographic Company, Criterion Works, Stechford.

It is something to the credit of the Criterion Works that they have been able to design a printing frame distinctly different from the numerous patterns on the market. The "Togo" is as slim as its name implies—24 of it make a pile 6 inches high—and its construction is such that in mahogany it costs 6d., or it can be obtained in "leather board" for 3d. This is quarter plate size; it is made as well in the standard sizes, including, of course, the inevitable postcard. It consists of a frame in a rebated aperture in which the negative lies, and a double-hinged back which is clamped to the frame by a travelling brass spring. It affords a full view of the print.

An incandescent oil-light, said to be 400 candle power, is being placed on the market by Messrs. Van Wart, Son and Co., 106 and 108, Queen Victoria Street, London, E.C. It is known as the "Blanchard," and though advanced as a portable light for the use of builders and in workshops has obvious qualifications for purposes of photographic printing, etc. It burns paraffin at an estimated cost of one farthing per hour.

The Zeiss "Universal Palms" Camera.—In reviewing this camera last week we should have mentioned that although the body of the camera is built for 9 x 12 cm. plates, the dark-slides, film-pack adapters, and other exposure apparatus are made in quarter-plate size, and hence the instrument is immediately at the disposal of British workers.

Two patterns of Reflex cameras have been issued by Messrs. Houghtons, Ltd., as the "Holborn" Reflex, Nos. 1 and 2. The cameras are of the magazine type, carrying 12 plates in sheaths, and are made only in quarter-plate size.

RECEIVED.—The Wellington Light-Filter. (Wellington and Ward, Elstree, Herts.) To be reviewed in a later issue.

### CATALOGUES AND TRADE NOTICES.

A book-post card from H. and W. Green, Rotherham, reaches us as a reminder of the mount specialties of this active firm.

An immensely interesting book reaches us from Valentine and Sons, Ltd., Dundee. It is a collection of plate illustrations of the firm's various works, and gives a most striking and graphic account of the large dimensions to which the photographic and "process" publishing business has grown. Messrs. Valentine, we learn, turn out between one and two tons of picture postcards daily, and are producers of the postcard in every particular saving the cardboard and the ink. A new department of theirs is set apart to produce 1,000 coloured postcards of a view within a month of order. The book, which is a most vivid sidelight on the business doing and to be done in postcards, can be had for the asking.

A FIRM of enlargers and artists, exclusively for the profession, which has recently extended its circle of operations, is that of C. Corn, whose show rooms and London house are now open at 9, High Street, Islington. Enlargements in bromide, carbon, and platinotype, with finishing in oils and water colours, are the stock lines in which we have seen some extremely good work; but as that fact alone cannot be taken as any kind of testimony to a firm's services, we may be allowed to record our unqualified satisfaction with a purely personal piece of work—a water-colour enlargement—done for us by Mr. Corn, with a regard for the subject and to a degree of perfection which speaks volumes for the ability of his staff. A large variety of enlargements, with and without artist's finishing, is before us as we write, and if we refer to it at all it must be in terms of the sincerest commendation. Mr. Corn charges a fair price, one which obviously permits him to retain a skilled staff, and he maintains a standard of quality which must be for the good of those who entrust their work to him.

### New Materials.

A VERY attractive variety of title on mounts has been recently shown to us by Messrs. E. Osborne, 26, Red Lion Square, W.C. The name and address of the photographer is produced in embossed lettering on a tiny panel, surrounded by a line the same colour as the ground of the panel. The whole of the work of this two-colour embossing is done by Messrs. Osborne, and the effect is altogether a noteworthy distinction to a photographer's mounts. A sample mount from Messrs. Osborne's is the best means of appreciating the novelty.

SUNDERLAND Photographic Association.—The entries for the forthcoming exhibition should shortly be with the executive. Intending competitors who have not already secured entry forms (which include a facsimile of the handsome plaques which are being offered), should apply to the hon sec., W. E. Kieffer, Stirling Street, Sunderland.

# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

Feb.	Name of Society.	Subject.
9.....	Photographic Society of Ireland	"The Use of a Camera on a Holiday." Mr. J. Stittard.
9.....	Bromley Camera Club	Lantern Evening. Affiliation Prize Slides, lent by R.P.S.
9.....	Aberdeen Amat. Photo. Assn.	"Velox, and its New Applications." Mr. W. Sadler.
9.....	Colne Camera Club	Yorkshire Photographic Union Members' Slides.
9.....	Loughton Photographic Society	"Mounting, &c." The President.
9.....	Sutton Photographic Club	"Exposure and Development." Mr. A. P. Hoole.
9.....	Leicester Lit. and Philo. Society	"Micro-Photography." Illustrated. Mr. J. W. Watts.
10.....	Aberdeen Photo Art Club	"The Principles of Artistic Selection." Mr. J. A. H. Hector.
12.....	Leek and District Photo. Soc.	"Carbon." Demonstrated. Mr. Howarth.
12.....	Oxford Camera Club	Exhibition of Members' Slides.
12.....	Dewsbury Photo. Society	"My Impressions of America." Mr. Herbert Day.
12.....	Scarborough and Dis. Ph. Soc.	"American Observations." The President.
12.....	Southampton Camera Club	Pocus. "Stories without Words." R.P.S. Affiliation (1905) Slides.
12.....	Cripplegate Photo. Society	"Marine Photography." Mr. F. J. Mortimer, F.R.P.S.
13.....	Royal Photographic Soc.	Annual General Meeting.
13.....	Cardiff Windsor Amat. Ph. Soc.	"Lantern Slide Making."
3.....	Sheffield Photographic Society	"Photographic Illustrations by Means of Process Blocks." Mr. W. J. Bates.
3.....	Darlington Camera Club	"One Thousand Miles in Norway." Mr. H. L. Thomson.
3.....	Rodley, Farsley, & Calverley Dis.	Liberal Club. Conversazione at Farsley.
3.....	Birmingham Photo. Society.	"The Art of Rosetti." Illustrated. Mr. Whitworth Wallis.
3.....	St. Helens Camera Club	"Exhibition Pictures and their Production." Mr. L. H. Chesterton.
3.....	Leeds Camera Club	Conversations and Exhibition of Members' Work.
3.....	Nelson Photo. Society	"Places and People of Westmoreland." Mr. Percy Lund.
3.....	Otley & Dis. Cam. & Art Soc.	"Bromide Printing Processes." Mr. F. Seaman.
3.....	Leeds Photographic Society	"Hand Camera Work." Mr. T. F. Brodwin.
3.....	Holmthorpe Photographic Soc.	"Retouching." Mr. J. Way.
3.....	Worthing Camera Club	"Velox and its New Applications." Demonstrated. Messrs. John J. Griffin & Sons.
3.....	North Middlesex Photo. Soc.	"The Romantic in Landscape." Mr. F. C. Tilney.
3.....	Gateshead Camera Club	"Cameras and Pictures," with Prize Lantern Slide Illustrations. Representative of Messrs. Thornton, Pickard.
3.....	Huddersfield Nat. and Ph. Soc.	"Taste and Selection." Illustrated. Mr. Percy Sheard.
3.....	Tring Camera Club	Exhibition and Discussion on Negatives of the Prize-Winning Prints.
3.....	South Essex Camera Club	"Hand Camera." Illustrated. Mr. W. L. F. Wastell, F.R.P.S.
3.....	Cricklewood Photo. Society	Photography 1905 Prize Slides.
3.....	Coventry Photo. Club	"Lens Making: the Cooke Lens." Mr. W. R. Harris.
3.....	Photographic Club	Focus Prize Slides.
3.....	Everton Camera Club	"Practical Enlarging." Mr. C. W. Childs.
3.....	Leeds Camera Club	Exhibition of Members' Work and Lantern Lecture.
3.....	G.E.R. Mechanics' Institution	"Control in Printing." Demonstrated. Mr. H. W. Bennett, F.R.P.S.
3.....	Acton Photographic Society	Lantern Evening. Mr. E. H. Allis.
3.....	Liverpool Amateur Ph. Assn.	"How I Intensify and Reduce." Mr. Watmough Webster.
3.....	Hull Photographic Society	"Photo-Micrography." Mr. A. Assert.
3.....	London and Prov. Photo. Assn.	"A Regal South Country Minister." Mr. W. Harry Piper.
3.....	Harrowgate Camera Club	Yorkshire Photographic Union Slides.
3.....	Southport Photographic Soc.	"Landscape Photography." Mr. George T. Harris.
3.....	Boit Court Sch. of Photo. Eng.	"The Reproductive Arts in America." Mr. Wm. Gamble.
3.....	Fulsey and District Photo. Soc.	"How to Make Lantern Slides (various processes)." Mr. F. Nicholson.
3.....	Sheffield Friends' Sch. Ph. Soc.	Members' Lantern Night.
3.....	Richmond Camera Club	"The Focal Plane Shutter and its Use." Mr. Walter Kilbey.
3.....	Darwen Photographic Assn.	"In the Fjords of Norway." Mr. W. Phillips.
3.....	Cardiff Windsor Amat. Ph. Soc.	"Tablets." Messrs. Burroughs, Wellcome & Co.
3.....	Chelsea and District Photo. Soc.	Annual General Meeting.

**LEEDS PHOTOGRAPHIC SOCIETY.**—On January 30, Mr. J. Page Croft demonstrated the gum-bichromate process. Although Mr. Croft gave a few hints on the preparation of home-made paper, the interest centred around the specimens of his machine-coated material, several pieces of which he developed during the demonstration. The paper is insensitive and must be sensitised by the user in a solution of bichromate. An ordinary gum-coating treated in this way would dissolve and run, but the "Page Croft" gum is hardened by the addition of methylated spirit and a small quantity of sulphuric acid. As a consequence, development can only be done with warm water containing a small quantity of caustic soda to assist it. A number of prints were successfully developed; several over-exposed ones required the solution boiling-hot before the image would appear, but in every case a normal print resulted. There was no sign of blistering, granularity, or other technical defects, their absence confirming the enormous latitude of the paper and the stability of the coating. The half-tone rendering was remarkably good.

**WHITEY CAMERA CLUB.**—Mr. W. Sadler, demonstrating Velox on January 30, said the point of the greatest importance was to choose the grade of paper most suited to the negative. When in Scotland, the demonstrator found that Dr. Richmond claimed to be the inventor of what was known as the Blake-Smith process, so he called it the Dr. Richmond Blake-Smith bath until the question of the originator was settled.

**CHELSEA PHOTOGRAPHIC SOCIETY.**—In the course of a demonstration on February 1, on enlarged negative making, Mr. A. S. Long explained that the process was very similar to bromide enlarging, but it would be remembered that the plates used were very much more sensitive to light than bromide paper. The yellow cap on the lens was quite inadmissible, and focussing should be done on a ground glass screen or on white paper packed out to the thickness of the plate used. Care should be taken that there was an even lighting over the whole surface of the subject being enlarged, and a slow backed plate should be used.

**ROTHERHAM PHOTOGRAPHIC SOCIETY.**—On Tuesday, January 30, the Rotherham Photographic Society entered into the occupation of new premises in Frederick Street, formerly used as a social club. These permanent quarters adjoin the premises of Mr. J. Leadbeater, and in becoming the tenants the society has expended some £40 in necessary alterations. This sum has been subscribed by the members, and has been devoted to the erection of an outside staircase, the decoration of the room, the re-arrangement of the lighting, including the installation of the electric light (for the use of the lantern), and the provision of a dark room where members can change and develop their plates. It is confidently anticipated that the acquisition of the new room will result in an addition to the membership of the Society, as by its means amateur photographers are now provided with facilities such as they have not had before in Rotherham. This forward step has been taken by the society at the conclusion of sixteen years of existence, during which time, it is satisfactory to record, the society has been entirely self-supporting, and has never appealed for funds outside its own ranks. The society owes much to its president, Mr. J. Leadbeater, and its secretary, Mr. H. C. Hemmingway, by whom at the opening of the new premises, a statement was made as to the council's plans for the society's future prosperity. He believed it was the intention to arrange for more frequent meetings, at any rate bi-monthly meetings; and if some of them partook more of friendly talks on matters photographic than set papers, it might be advantageous. At any rate, it was thought they might devote a little more attention to the more elementary part of the art-science; and he was quite sure that some of the older hands who were experienced in photographic matters would not hesitate two minutes to tender what help they could to those who were in the early stages. Those present had seen what the society had to offer. The dark room was intended to be opened on certain fixed hours on every weekday, and the meeting room also would, of course, be open for photographic purposes. The enlarging lantern would also be available.

We congratulate Rotherham and the society on this satisfactory state of affairs.

**WALKLEY CONSERVATIVE CLUB CAMERA SOCIETY (SHEFFIELD).**—The hon. secretary, on February 1, gave a demonstration of the new Page-Croft pigment paper. A number of prints were developed, showing the ease and simplicity of the process. The lecturer recom-



mended users who sensitised their own paper to take the paper out of the sensitising bath immediately the paper became limp. Much brighter prints had been the result, in the lecturer's hands, through doing this. The paper would yield any amount of detail, sufficient almost to satisfy the amateur who worked glossy P.O.P., whilst it was a *sine quâ non* for the impressionist and artistic worker. Any amount of hand work could be put in, the best way to do this being the one recommended by the maker of the paper, "after development has been carried as far as thought fit, the print should be dried (in the dark), then pinned on a board, dampened, then one could work on it to his heart's content." The lecturer found the paper at least six times as fast as P.O.P.

**SOUTHAMPTON CAMERA CLUB.**—At the meeting held on February 5 the winner of the lantern-slide competition for landscapes proved to be Mr. H. Essex, whose work is rapidly attaining high merit. Mr. R. Robinson was second, and Mr. Essex and Mr. E. E. Rye tied for third place.

**PLYMOUTH PHOTOGRAPHIC SOCIETY.**—At the meeting on Friday, February 2, Mr. J. T. Johnson, president, in the chair, Mr. W. Chas. Johns gave a very excellent paper on "Lantern Slide-Making by Artificial Light." He showed that in slide-making it was necessary to have a theoretically perfect negative, one full of detail, without great contrasts, and with delicate gradation everywhere. Having obtained the right negative the method adopted consisted in using Wynne's printing meter to obtain the test number, and this secured, correct exposure was obtained, if the same lantern plates and developer were used. It was advised that one plate and one developer should be always the practice. In connection with exposures, the list of lantern plate speeds compiled by Watkins, was considered desirable to use. A series of experiments which he had made enabled the lecturer to say exactly how much light should be used for varying negatives as tested under the Wynne print meter, and this, once settled, always remained good for the purpose. Magnesium wire was the source of illumination, and the length of the piece necessary for any given exposure had been worked out.

## News and Notes.

**BERMUDA ARROWROOT**, which is often recommended in preference to others for mounting purposes, is the subject of a letter to the "Chemist and Druggist" from W. T. James, of Bermuda, wherein it is pointed out that he is the sole maker of arrowroot shipped from Bermuda to England to his agents, Messrs. George Harker, 101 and 103, Upper Thames Street, E.C. He writes:—The purest arrowroot in the world is grown and manufactured in Bermuda: it is different in almost every respect from the arrowroot starches prepared in other countries. The purity of the Bermuda arrowroot which I manufacture is the result of the special care and attention which is exercised in every detail of the various processes of preparation from the root to the finished starch, all of which are carried on under my personal supervision. The water used in connection with the washings through which the pulp passes is an important factor in the purity of the starch. This water is rain, caught and stored in specially constructed stone tanks, and as there are no factories or other sources of atmospheric contamination in the Bermuda Islands, the result is a water of unquestionable purity, absolutely free from the foreign substances usually found in that procured from springs and rivers. The crop of arrowroot for 1905 was an exceedingly small one, and with the consequent limited supplies going to London it has undoubtedly given the opportunity to certain unscrupulous people to work this fraud upon the unsuspecting grocer or druggist, who in all innocence passes it on to the public. This year, however, the crop will be larger, and I trust to be able to ship a quantity sufficient to enable dealers to procure their supply of the genuine article.

**THE Northern Exhibition.**—This important exhibition, held annually alternately at Manchester, Liverpool, and Leeds, will this year be held at Manchester, and be open from April 27 to May 7 inclusive. It was hoped that the Manchester City Art Gallery would have been available for the exhibition in the same manner as the Art Galleries at Liverpool and Leeds, but after negotiations lasting over eleven months the Art Gallery Committee found that

the space at their disposal would not permit of their allowing any of the rooms for the purpose of a photographic exhibition. This has caused the date of the exhibition to be delayed in announcement. The fine room at the Manchester Athenæum has been secured, and every endeavour will be made to ensure a first-class exhibition. The Rev. H. W. Dick has been appointed chairman of the executive and various committees formed for carrying out in an efficient manner the details. Much energy is being shown by the Manchester men, and we feel sure their results will be satisfactory. We may say there will be no local selection committees as at Leeds; all pictures will be selected by the judges only. The prospectus will be ready in a few days.

**FATAL Photographs.**—Advices from the Baltic provinces state that many of the Lettish revolutionaries have been captured owing to the fact that, during the early stages of the insurrection, armed national militias were formed in different places, the members of which indiscreetly displayed their enthusiasm for the cause by having themselves photographed in groups in uniform. These photographs subsequently fell into the hands of the authorities.

## Commercial & Legal Intelligence.

**CUTTING Copper.**—In the City of London Court, last week, before Judge Rentoul, K.C., a claim was made by Mr. Henry W. Puetz, 4, Savage Gardens, against the Farringdon Works and H. Pontifex and Sons, Limited, Shoe Lane, to recover £3 13s. 1d. under somewhat peculiar circumstances. The plaintiff had a large sheet of beautifully polished French copper which he wished to have cut into pieces for the purpose of photogravure, and he sent it to the defendants to cut. They charged him 1s., and now the plaintiff said that they had spoiled the copper sheets completely, and that they were valueless to him. The copper had been scratched and dented and cut badly.—Mr. Godley, defendants' counsel, said they took no responsibility in the matter, and they told the plaintiff's representative when he brought the copper. That was denied.—Mr. Osborn, plaintiff's solicitor, said the copper was only fit for scrap copper now. It had been dogs-eared.—Mr. Godley said the defendants were in the habit of cutting great masses of copper. Had they known the plaintiff's copper was for the purposes of a photogravure they would have declined to have anything to do with it.—Judge Rentoul inspected the copper on the bench, and said it seemed to him to be scandalously cut altogether. No firm ought to undertake such a job and spoil men's goods, even if it were done cheaply. The defendants fixed their own price. The copper was not now fit even for a fire screen.—Mr. Osborn said it was worth nothing to the plaintiff.—Mr. Godley said it must be worth something. It weighed 45 lbs., and copper was worth 1s. 2d. per lb.—Judge Rentoul said the defendants held themselves out as copper-smiths, and they could not free themselves from having to act with rational workmanlike skill, which had not been done in that case. He could not hold that the work was properly done, and he must find for the plaintiff for the amount claimed, with costs. Of course, the defendants could appeal if they liked.

**A PHOTOGRAPHIC Operator's Claim.**—In the City of London Court, on January 26, an action was brought by Mr. A. G. Field, 20, Bishopsgate Street Without, operating photographer, against Mr. Zelter, of the New British Art Studio, photographer, 84, High Holborn, to recover £1 13s., a week's wage, in lieu of notice.—Mr. Martin O'Connor, plaintiff's counsel, who appeared at the instance of the Photographic Society, said the case was one of some importance, affecting, as it did, the whole 15,000 members of that society. The plaintiff had been discharged without any notice, and the reason given by the defendants was that operating photographers were daily servants and could be sent away without any notice. The plaintiff's society was anxious to have the custom maintained by which operating photographers, people who touched up photographs, etc., were entitled to a week's wages in lieu of notice. The defendant now informed the Court that he would not contend that the plaintiff was not entitled to a week's wages unless he was wrongly dismissed. He discharged the plaintiff because he was insolvent, having snapped his fingers in his (defendant's) face, and said his business was a "dish rag." The

plaintiff said that was quite untrue. He had been dismissed on the ground that he was a daily servant and was not entitled to notice. There was an altercation between the defendant and himself, and the defendant spoke very sneeringly of the fact that he was an operator. The next night he was told to go, having been kept on for two days after the supposed insolence, which he denied.—Judge Rentoul, K.C., said if the defendant had dismissed the plaintiff for insolence immediately after it happened, there might have been something in his statement, but the plaintiff had been allowed to work for two days after behaving, as the defendant said, rudely. The defendant had waived the offence, if any had been committed, and he would not decide there had been any. Judgment for the plaintiff for the amount claimed, with costs on the higher scale, because the action was of importance to all photographic operators.

**INDECENT POSTCARDS.**—At Bow Street, last week, Ivan Paperno, a stationer and tobacconist, of City Road, Shoreditch, was summoned under the Vagrant Act for exposing indecent picture postcards in his shop window.—Mr. Muskett, who supported the summonses on behalf of the Commissioner of Police, said that in the course of the last few months there had been an undoubted recrudescence of the traffic in indecent pictorial postcards. Many prosecutions took place a year or two ago, and it was hoped that the sale of such postcards had been stopped; but the trade was now reviving, and cases were coming under the notice of the Commissioner of Police from all parts of the metropolis. Having regard to all the warnings which had been given by previous prosecutions of this kind, he ventured to suggest that it was time to consider whether an example should not be made in such a gross case as this was by committing the defendant to prison as a warning to others.—Sub-Divisional Inspector Coles gave evidence of the seizure of a large number of pictorial postcards at the defendant's shop, as to 846 of which he applied for an order for destruction.—Mr. Fenwick said that, with the exception of one or two of the cards, which were on the border line, they were obscene or indecent. He made an order for the destruction of the cards, and imposed the full penalty of £25 and 5s costs, with the alternative of two months' hard labour. He refused to allow the defendant time to find the money.

**BANKRUPTCY at Brentford.**—The official receiver for the Brentford district has issued particulars in the failure re Francis Crichton Temple, residing at "Cassillis," St. Margarets-on-Thames, from which it appears that the debtor has filed a statement of affairs showing gross liabilities amounting to £4,124 12s. 2d., of which £1,500 is expected to rank against the estate for dividend. The assets are estimated to produce £1,199 3s. 8d., from which £13 15s. has to be deducted for the claims of preferential creditors payable in full, leaving a nett assets at £1,175 7s. 10d., and disclosing a deficiency of £324 12s. 2d. The report and observations of the official receiver are to the following effect: The act of bankruptcy on which the receiving order was made was the failure of the debtor to comply before the 25th day of November, 1905, with the requirements of a bankruptcy notice duly served upon him. The petitioning creditor is Mr. C. A. Nussey, of 1, Great Winchester Street, E.C. The debtor, who has been adjudged bankrupt, states that from September, 1904, to the date of the receiving order, he was managing director of a limited company at a salary of £100 per annum, commencing from March, 1905. He has now no occupation. The debtor's affairs were liquidated by arrangement about the year 1880. The debtor states that nothing was paid under the liquidation, but that he has since paid all the creditors he could find in full. The unsecured liability is in respect of money lent. The debtor has omitted the petitioning creditor's claim, amounting, it is understood, to £3,600, from his statement of affairs. The creditors stated to be fully secured hold first and second mortgages for £1,500 and £800 on the freehold house, "Cassillis," where the debtor resides; first, second, third and fourth mortgages for £1,350, £500, £460 16s. 4d., and £700 on land at Egham and Staines, and a mortgage for £100 on land at Shepperton. The creditor stated to be partly secured holds a bill of sale on the debtor's furniture. The contingent liability is in respect of £800 partly paid-up shares in the company of which debtor was managing director. The debtor attributes his insolvency to "being compelled to compromise an action owing to insufficient funds to contest to the end a claim he disputed." He admits that he was aware that he had not sufficient property to pay his debts in full in May,

1905, and has furnished the following account:—Bad debts, £47; household expenses from 19th December, 1904, £252 12s. 2d.; interest on borrowed money, £100, making a total of £399 12s. 2d.

**A PHOTOGRAPHIC ELECTION CARD.**—Before Mr. Justice Darling, in the King's Bench Division last week, Mr. W. A. Bird was granted relief under the Corrupt and Illegal Practices Act, 1883, for an offence against section 18. It appeared that Mr. Bird, agent for Sir F. Dixon-Hartland, M.P. for the Uxbridge division of Middlesex, sent out picture postcards bearing photographs of the member and his wife. At the suggestion of the printer, the word "Vote" was put upon the card, which, without its being recognised at the time, constituted the card a bill within the meaning of the section, and rendered it necessary for it to have had an imprint of the printer and publisher. Omission of the name of the printer constituted the offence.

**THE SITTER'S RIGHTS IN FRANCE.**—A case of great interest to photographers and popular actresses came before the courts on January 30th. In 1902 Mme. Nadille de Buffon, the statuary artiste, was photographed in the costume of the Queen of Saba, the photographer executing his work at a reduced price—the "prix d'artiste," as the custom is called. In the following year Mme. de Buffon was greatly surprised to find that her photograph figured on postcards, with her name at the foot. She complained to the photographer, who replied that as she had paid an artiste's price she had been treated as an artiste, and that in virtue of this reduced price he had the right of reproduction. Nevertheless, he added that he would give the necessary orders for the sale of postcards bearing the photograph in question to cease. At the end of several months, however, Mme. de Buffon saw that the photograph was still on sale, and she took action against the photographer. The Court found that the photographer could not make use of the photograph without the authorisation of the person concerned. Mme. de Buffon, the judgment ran, went to the photographers of her own accord, and though she had been favoured with special terms, she had not given her permission for her likeness as Queen of Saba to be reproduced. As to the declaration of the photographer that the "prix d'artiste" implied the right to reproduce, that was only a question of custom, and not of law. The Court granted an injunction against the sale of the photograph, and ordered the photographer to pay Mme. de Buffon 500 francs damages.

## Correspondence.

- \* \* *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \* \* *We do not undertake responsibility for the opinions expressed by our correspondents.*

### PHOTOGRAPHING THE EYE.

To the Editors.

Gentlemen,—Can you suggest a method of taking life-sized or enlarged photographs of the human eye, so as to give all the finer delineations of the iris? I find the ordinary direct method almost useless on account of the difficulty of obtaining definition, and the long exposure. The recent discovery that every portion of the body has its representative portion in the iris of the eye, makes it highly necessary to obtain reliable photographs thereof, and the discoverer (H. E. Gane, M.D.), says that photography fails to record the finer markings.—Yours faithfully,

ARTHUR WHITING.

February 1, 1906.

[We believe the best photographs of the eye have been taken by flashlight in a way such as that of Dr. Walter Thorner described in our issue of February 3 last year.—Eds., B.J.P.]

### COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—Presumably on the old legal axiom "qui fecit per alium fecit per se," Dr. Grün saddles you with my criticism of the exhibition of colour photographs. Whilst this may be good law,



it is not always justice. I therefore claim permission to reply to one or two points in your correspondent's kindly letter.

I fully recognised that many of the Brighton results must be only considered as experiments, and the conclusion I came to and expressed was that they were not satisfactory as modifications of known processes which do give good results. I am glad to see that Dr. Grün has come to the conclusion that "the results must be on one surface," but if by his next definition he wishes to infer that three superimposed films cannot give perfect results, then I differ entirely from him, as must everyone who examines the late-hung portrait by the Rotary Photographic Company's superimposed carbon tissues. I have had the opportunity of examining this at leisure more than once, and I certainly should now place this far above any other exhibit in the room—as a portrait from life. On further consideration of No. 11 by the Sanger Shepherd imbibition process, I begin to have qualms as to whether this is not a copy of a water colour or pastel drawing.

If Dr. Grün uses the term "films" as confined to a colour print on a celluloid base, then I am quite in accord with him.

I had not the slightest intention of being unduly hard on any exhibitor by pointing out specific faults such as want of superposition, except that I accepted the exhibits as the best which could be made by the process of which the exhibitor was for the moment the authority. With this in view, any defect such as this can, I think, be legitimately laid stress on, because it may or may not be the fault of the process. If it is the former, then it is the duty of a technical critic, and it was solely as such I wrote what I did, to point this out; if, on the other hand, it is not the fault of the process, but purely an accidental failure, then I am bold enough to say that the result should not have been shown or an explanatory note appended.

With regard to Dr. Grün's remarks re paintings not being "exposed to criticism as to brush marks or peculiarities of pigment," I would say that this is entirely a matter of personal opinion, and I think I can prove my statement by relating a little experience which befell me some years ago. I was in extremely friendly relations with an artist, who one day complained most bitterly of some photographs of his pictures. Even then, and it is now fourteen years ago, I knew a little about colour and its reproduction, and offered to make a satisfactory result of one picture. On submitting the print to him he said, "Yes, the colours are better rendered—they're nearly right—but, man, you've wiped out the brush marks—the technique—of the thing," and this after I'd spoilt four or five plates in getting an even surface, for I always believed this man squeezed his tubes on the canvas and then worked the paint as squeegee as possible, so that he left not ridges but mountains of pigment.

The next point is, Are we to reproduce nature as we see it in colours, or as it is? If, as Dr. Grün says, different observers see the same subject in nature differently, then I contend if we can give an absolutely faithful reproduction in colours of nature as it is, the same observers will also see the reproduction differently, and we shall have obtained our aim.

Now, I am not aware whether you, gentlemen, possess one or several black kittens or any kittens at all; but the black kitten referred to belongs to me, or at least to my little daughter, and as I belong to her I presume that the kitten belongs to me. Now this kitten is black, there is no question about that, it is the one point on which he prides himself and on which his little and big owners pride themselves. It may be egotistical, but I really do pride myself on the fact that this is the blackest kitten I ever did see. He is in no way brick-red, and Dr. Grün's assumption that he had a red reflection is erroneous; why, he does not even wear a collar. But I would like to point out that Dr. Grün's statement as to the negro's face is entirely beside the mark, for he should know that a negro's face is to some extent a reflective surface, secondly it is not black, and thirdly the surface of a cat is entirely different to a skin. In the former case we are looking on a smooth, more or less transparent surface, with a dark coloured pigment; whereas in the case of fur we are looking more or less on the ends of transparent tubes filled with a black fluid, in which by repeated reflection there is absolute absorption of light. A moment's consideration will at once reveal the fact that the man who first made black velvet merely copied a black cat's coat, and this is why black velvet is so black.

Dr. Grün's charge of unfairness cannot be upheld. I did not criticise the exhibits by what I thought they ought to be, but rather from what I know of nature, and I still maintain that the majority of the Brighton exhibits are false in colouring judged from actual knowledge of many of the places actually portrayed.

With regard to the letter from the Rev. Mr. Barker, my duty was to comment on the exhibits and not on what had been described in the press, but which did not materialize. Had I done the latter should have had to write a text book on colour photography, and we should all of us have been most abominably bored.—Yours faithfully,  
E. J. WALL.

Sidcup, February 3, 1906.

## PHOTOGRAPHING FURNITURE.

To the Editors.

Gentlemen,—I would like to supplement your paragraph in last week's "Ex Cathedra" re photographing furniture. For the last six years I have been employed professionally in this work. There is no doubt about its various difficulties pointed out by you, especially about the inlay (or banding) work which photographically is often the same colour as the woodwork; mahogany often being very red and the inlay a dark yellow and often very much stained with the polish. You speak of photographing it before the polish is applied. This is hardly practical, as you spoil the appearance totally, as the whole thing then looks dull, and quite unlike mahogany (more like cast iron). With reference to reflections the piece must be placed in such a position or the light so cut off as to have as little light play as possible. I never use a light-filter, but always an ortho' plate, unless, as in some cases, the contrast would be lost by so doing. A rapid plate and short exposure with long development will be found best in most cases. My reason for not using the screen is that time (commercially) won't permit of such prolonged exposures. I enclose a few specimens of mahogany inlay work so that you may pass judgment on this method.—Yours faithfully,  
F. G. WILLIATT.

157, Gordon Road, High Wycombe.

February 5, 1906.

[The inlay work is well rendered in some of the specimens sent by our correspondent, though we must own ourselves at variance with his method of short exposure and forced development. His negatives would benefit in gradation, we believe, by a fuller exposure and easier development, but the prints before us are nevertheless interesting as showing the amount of contrast obtainable without a filter.—Eds. B.J.P.]

## FLASHLIGHT PORTRAITURE.

To the Editors.

Gentlemen,—We enclose you herewith three photographs, examples of flashlight work. They are three of a series of nine taken by us on Saturday evening last at the final dress rehearsal of the "Hildenborough Village Players," whose first performance of last night (February 5) has been noticed by the principal London daily Press.

They were taken on Saturday night, and we used three Todd-Forrest lamps placed about 15ft. from the stage upon high step-ladders, two lamps on the right and one on the left. The camera was in the centre and about three or four feet behind the lamps, which we shaded from the lens by suspending pieces of old scenery from a cross-bar in the room. Lens used, a Dallmeyer Triple Achromatic, old pattern stop  $f/16$ . The exposures varied from one to two seconds, using about one drachm powder in each lamp, and Barnet "Red Seal" plates (not backed). You will understand the prints sent you, with the exception of the one marked No. 1, are quite rough, and have not been dodged, and are open to improvement by treatment.—We are, gentlemen, yours faithfully,  
ESSENHUGH CORKE AND CO.

39, London Road, Sevenoaks.

February 6, 1906.

[The three photographs are excellent examples of fully exposed groups, and the number of persons, from nine to sixteen, included demonstrates the illumination over a considerable area obtained by the means described by our correspondents.—Eds., B.J.P.]

## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

L. Harris, Wesley House, Merthyr Tydfil. Two Photographs of D. A. Thomas, Esq., M.P. Photograph of J. Keir Hardie, M.P.

Thorncroft, 45, Wardlaw Avenue, Rutherglen, N.B. Three Photographs:—Baby Lying in a Fancy Cot. Little Girl Standing on a Stair. Little Boy Standing on a Seat with a Whip in his Hand.

Field, 38, Rowland Road, Leeds. Photograph of Sir J. L. Walton, K.C., M.P. amilton Toovey, 36, Royal Parade, Jersey. Photograph of Pottery, Flint, Tatchets, &c., Discovered in the Cromlech near Mount Orgueil Castle, Gorey, Jersey.

Argreaves, Fair View, Dalton-in-Furness. Photograph of Declaration of Poll at Ulverston on January 24, 1906.

R. Nichols, 30, St. Peter's Street, Stamford. Photograph of Opening of the Public Library, High Street, Stamford, by Earl Brownlow, January 25, 1906.

**DARK-ROOM LIGHT.**—Will you kindly inform me which is the safer light—red or yellow, for the above—specially, of course, for the chromatic or other fast plates? My dark room has two windows, with shutters to curtail light, or shut it out. One window has two plates of yellow glass, the other, one plate of dark red. At night I use a fairy paraffin lamp inside one of the large ruby lamp glasses, such as our womenfolk warm the drawing-room with, but outside this I put a sheet of yellow paper.—H. W. CASE.

We should advise you to get a ruby filter for rapid plates, and a yellow one for bromide papers. Better have these fitted to a good lamp and work entirely by artificial light. If you look among the notices of "New Apparatus" in the "Almanac," you will see several such.

**A.**—You will find the dextrine mountant given on page 984 of the "Almanac" perfectly satisfactory if you follow the directions closely.

**JOHNSON.**—We have forwarded your letter as suggested.

**NOTION.**—The studio as shown in the sketch is about the best you could build under the circumstances. In reply: (1) Yes. (2) Yes. If you had the studios raised more from the ground—say three or four feet—you would not be so much shaded by the wall. (3) We should suggest light green for the blinds.

**WRIGHT.**—(1). Yes, but a foot or two wider would be advantageous if many large groups have to be taken. (2). That shown in sketch "B," is very suitable. (3). All things considered, we should say that according to sketch "B." (4). Ground-glass, if kept clean, is very good for a south aspect. (5). Yes. Very well. (6). Yes. (7). We should recommend a dark green for the blinds.

(8). These would be very useful for both the sides and top, more especially if they were arranged so that they could be set at an angle if desired.

**WRIGHT.**—Will you kindly inform me if in making a series of postcards copyright it is necessary to register each one separately, or in the series, say six or more, be reproduced on one sheet so that one registration fee would cover the lot?—PYRO.

Each must be registered separately.

**JOHNSON.**—It is contrary to our custom to answer questions such as those you put to us.

**WRIGHT.**—Would you inform me if I am at liberty to copy a photograph? There is no name on the photograph or mount, and I don't know where to send for permission.—J. W. H.

You have no right to make a copy. If you do so you must take the risk of action, though it is not likely that any will be brought. Are you certain that the copyright is the photographer's? If he was paid for his work it is the property of the person who paid him.

**SHER.**—You were very unwise, in the first instance, in accepting

the prints at all. They should have been returned at once as being bad. As you have sold them, although at a reduced price, you will have, we suspect, some difficulty in recovering much of your money back, except that from the unexecuted part of the order.

**POSTCARDS.**—Will you kindly say what is considered about the average price paid by publishers of popular local views and picture postcards for whole-plate view negatives, selected from stock by them?—OPERATOR.

There is no average price. It is always a matter of arrangement between buyer and seller. Of course, views that can be repeated any day are not paid so much for as those taken under exceptional circumstances, and which cannot be again taken. You surely can better assess the value of your work, and the influence the publication of postcards from it may have on your future sales of it, than any one else can.

**SHARP PRACTICE.**—We shall esteem it a great favour if you would kindly give us your advice to the following:—We engaged a photographer in another town to take a certain quantity of negatives for us, and paid him so much per dozen. The actresses

would not have gone to him if it had not been for us. This photographer, instead of taking the quantity ordered, took double that. He sent us what we ordered, and he kept the others, without mentioning a word to either the sitters or to us. One of the sitters asked him when she could see a proof, and he answered that it had nothing to do with him, as the negatives were ordered and paid for by Messrs. ———, and she could only get proofs from them. A few days later, this photographer produced postcards of these actresses, in different positions than he sent us, and put them on sale in stationers' shops all over the town, without the consent of the sitters and us, before we had a chance of producing our own. The sitters strongly object to him selling their postcards, and it has greatly interfered with our business. What we want to know is: Can we claim damages for loss of business, and for producing postcards of these people, as we would have been the only firm to produce postcards of these actresses in these particular dresses?—GLASGOW.

It seems to us, according to the ruling in the Crooke-Irving case, reported in our issue of July 21 last, that the copyright in all the negatives taken belongs to you, and that you can restrain the publication of any copies from them. You can also recover damages for the injury done to you. We should advise you, without delay, to put the matter in the hands of a solicitor, and bring the ruling in the above case before him.

**COPYRIGHT.**—I should be pleased if you would answer the following:

I photographed a group; I copyrighted it; then gave a print to each person on group "as asked for." Sometime after one of the members of the group buys a copy in the ordinary way as a customer would. Could he then give permission to anyone to publish it without my permission?—A SUBSCRIBER (Norwich.)

If you were not paid for taking the group the copyright belongs to you, and to you solely. The mere fact that one of the party purchased a copy of the picture does not give him the right to publish it without your permission. If the picture is thus published you can proceed against the publishers for infringement of copyright.

**WATER FOR PHOTOGRAPHIC PURPOSES.**—Our premises are heated by a hot-water apparatus—iron pipes. When the water boils it is rusty in colour, but when not boiling is apparently quite clear. Is this water, when not boiling, suitable for use in washing prints, silver, i.e., to take the chill off tap water? Of course, the toning baths are not made up from this water; if injurious, how can the water be made suitable? Could this be done by the use of a filter, and what sort? I may say that I have a supply over the dark room sink and use the hot water frequently when not at boiling point in developing negatives, and find no ill results, and have also known the "demonstrators" from a leading firm use this hot water from the same supply, and not offer any objection to its use.—FERRI.

We should say that it is undesirable to use this water for any photographic purpose, unless it were filtered to ensure the removal of iron particles. If it is used, we should advise that the taps be covered with two or three thicknesses of close flannel,



tied loosely on so as to form a sort of bag to keep the particles of iron oxide back. This bag should be frequently renewed. In this way the water may be utilised.

**POSTCARDS.—ARTIFICIAL LIGHT.**—I should be greatly obliged if you could answer me the following:—1. How are postcards and midgets from wet negatives (while you wait) done? Is a plate the size of a midget used, or so many taken on a larger size plate? 2. Name and address of the makers of the Aristo arc lamp? 3. What illumination for enlarging is more powerful than incandescent gas? I have electric light installed. If that would be more suitable what form of lamp should be used?—O. B.

(1). Usually several are taken on the plate. The negative, after a good rinsing, has a piece of bromide paper squeezed upon it, with the interposition of a thin piece of clear celluloid, then exposed, and developed in the usual way. (2). Kodak, Ltd., 57-61, Clerkenwell Road, E.C. (3). The electric light; any simple arc light arrangement will do, as the exposure will be short, or the Nernst high-power lamp.

**STUDIO.**—Would you be so good as to enlighten me on a few studio queries? I am thinking of building the studio for professional portraiture. What size would you recommend for best work? I have plenty of room at my disposal. I thought one about 30 ft. by 15 ft., or do you think a smaller one, in length, would answer the purpose? Would a three-quarter span roof be preferable to a half-span roof. Here again, I have plenty of light at my disposal, the situation being very open. Do you think a portable studio would be an advantage over a stationary-constructed studio, and just as reasonable in price? Which would be the best position for glass side of studio to face? If north, or north-east, what colour blinds would you recommend for top and side? Could you recommend a book or studio building?—**STUDIO QUERIES.**

The dimensions given would be excellent for professional purposes. A half-span roof, with this width, would be quite as good, if not better, than a three quarter one. As regards a portable studio, you would be able to take that away in the case of your removal, but if it were made a permanent building you could not. A local builder will give you an estimate for the two forms. Either north, or north-east, would be a good aspect. Medium green or dark blue blinds would be suitable for either. Bolas's book on "Studio Construction," published by Marion and Co. Price, 2s.

**DESPERATE OPERATOR.**—We do not think there is any doubt as to the cause of the spots on your postcards, and that they are due to metallic particles of some sort in the washing water. We can only suggest that you flush the meter and pipes thoroughly so as to clean them. It is quite possible that immersing the prints in salt and water after fixing would help you. We presume you are not washing too long.

**CURIOS KEW.**—We will comply with your request in due course.

**FINISH HUDD.**—(1). "Retouching," by R. Johnson, published by Marion and Co., 22-23, Soho Square, London, W. (2). No.

**RETOUCHING.**—I respectfully beg for your consideration as far as to answer me one or two questions in knife-work in retouching. I cannot get along with it at all, and I am anxious to know if I am doing the thing in the right way. I have in my possession two surgical scalpels and two patent affairs in the pencil-cases, points which are absolutely rotten, or else I don't know how to use them. Can you give me a few hints, or tell me if I can buy a book with the information in?—**TOM W. WILKINSON.**

The chief points to be observed in knife-work are, viz.:—To keep the edge of the knife itself properly set, holding it at the correct angle, and to make the strokes properly and in the right direction. Presuming that your surgeon's scalpels have been correctly ground for retouching purposes, the setting may be accomplished on an oiled stone, finishing off upon a good razor strop. The edge must be without the slightest "burr" on either side, as sharp as a razor, and perfectly free from gaps and irregularities. If the knife picks up the film or scratches, it is not properly ground or set. The angle at which it should be held to the film is nearly 90 degrees (right angles), but inclining slightly to the left. Different kinds of strokes are used, most of them being light, oblique ones from right to left. Whiting's book on

"Retouching" (published by Dawbarn and Ward, Ltd.), explains how to make, set, and use retouching knives.

**C. W.**—(1). Sharp and Hitchmough, 101, Dale Street, Liverpool. (2). The lens is an excellent one. Its aperture is not as great as one might be wished for portraiture, but it is a universal lens for outdoor and indoor work.

**STAND DEVELOPMENT.**—I should be glad if you will tell me if instantaneous exposures are best developed by stand development, and can you give me a good formula for rapid-shutter exposures (focal plane). I have tried glycin as advised in answer to "A.C.S.," but cannot get good results, except with fully exposed plates. What advantage is there in stand development over the ordinary way other than developing several plates at once?—**STAND.**

In stand development, as in other methods, a "long-factor" developer such as metol is best suited to instantaneous exposures. Rodinal with, say a little extra sulphite, will be found an excellent developer, using one part of the stock solution as purchased in 100 to 150 parts of water. The chief advantage of stand development is the facility of dealing with a number of all kinds of exposures at once without the need of constant attention.

**E. W. B.**—Certainly, it is possible, but the exposure is much longer. It is impossible to give a rough idea of the length, as we do not know the aperture of the lens, but if the latter is an R.R. working at f/8, the exposure will most probably run into several minutes unless the negative is an extremely thin one. We should advise you to get a condenser.

**INTERESTED SUBSCRIBER.**—(1). We are unable to account for the markings from the facts stated, but the cause must be, we should say, in some chemicals, inadvertently gaining access to the slab. (2). Kodak, Ltd., 57-61, Clerkenwell Road, E.C.

**URGENT.**—Any carbon tissue—see those advertised in our pages. The methods of toning bromide prints to the colour are not very satisfactory, and absolutely unfitted for commercial work.

**"STAINS OF C. C."**—Slow drying of the prints is one of the causes of such spots, and so is inferior blotters. Better not to use blotters at all. You should look up the letters on this subject which appeared in our columns in the latter part of last year.

**ROTINE.**—(1). Our own preference is for an amidol developed—the normal formula, such as that on page 976 of the "Almanac," diluted with twice or three times its bulk of water. Almost all the developers will give grey tones when diluted. (2). Equally permanent. (3). Soft negatives for preference.

**TINTING (Reply to Anxious).**—Your main fault lies in lack of strength and warmth in the shadows, and so your effect is rendered gradually flat and unconvincing. Darken with warmer colour the shadow beside nose, under the nostril and chin. With a cooler tone match the depression and form of socket under light side eye, so that it is in better balance with the other. If a heavier and warmer shadow is worked into the neck it will bring the face out to much greater advantage. The lights on the hair are too similar in strength. Wash a few folds and shadow into the drapery—it is all too white and glaring, and catches the attention to the detriment of the face, which you must always remember represent the point of interest, and that the dress and background are subsidiary only.

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## The British Journal of Photography

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## SUMMARY.

A comparison of the cost of sensitive materials for half-tone plates it is shown that, per half-plate, the cost is 2½d. for dry 1½d. for collodion emulsion, and 1d. for wet-plate, against have to be placed differences in waste, etc., incurred in these cases. (P. 124.)

A German writer has attributed spots in collodio-chloride prints to chemical impurity of the baryta coating on the raw paper. (P. 124.)

Colour Photography.—An appreciation of the forthcoming process of one-exposure one-plate colour photography is given from the pen of M. Leon Vidal, who writes after a visit to the factory at Lyons. (P. 125.)

The meaning and method of ascertaining the "inertia" of a plate is the second article on sensitometric tests of plates by Mr. Kenneth Mees. (P. 125.)

The Photographic Convention, to assemble at Southampton in July, have presented to it a series of eight papers, will undertake a number of attractive short excursions, and will celebrate its centenary in company with photographic visitors from the Continent. (P. 129.)

An American photographer's scheme of making business during the winter season is reported on p. 128.

Some interesting side-lights on the canvassing system and on the use of picture postcards were thrown during the hearing of two last week. (P. 129.)

The annual meeting of the Royal Photographic Society passed off successfully on Tuesday last. The officers elected for the current year are announced on p. 135.

The new chamber dark-room lamp, developers for films and plates, and a system of electrical long-distance photography are among the subjects of the week. (P. 132.)

## EX CATHEDRA.

### Colour Photography.

The exhibition of colour photography at these offices, which has now two more weeks to remain open, has brought us many evidences of the practical and business interest which is being taken in the subject. We have had instances of professional photographers who have convinced themselves that in the immediate future photographs in colours will be required of them, and are preparing themselves for the task. More than one retoucher for the profession has made it his business to inquire how far his special work was likely to be utilised in making sets of three-colour negatives, and we have met with other technical photographers who have already made arrangements to supply three-colour prints of such subjects as flowers and fruit to wholesale horticulturists, and of vegetable produce to large seed merchants. The exhibition also has brought us in touch with several inventors of processes of colour photography, from certain of which more may be heard before long. The complete outlook at the present seems to presage the imminent establishment of colour photography among the strictly commercial photographic processes.

\* \* \*

### An Artist as President.

The Bristol Photographic Club have for their president Mr. John Fisher, Hon. A.R.C.A.Lond., a gentleman who is an artist by profession, and not a photographer at all. Mr. Fisher regularly criticises the monthly portfolio of the club, and gives an annual address, in which he reviews the work done in the previous twelve months. In this year's address he specially warned would-be pictorial photographers against "harshness" in their prints, and the absolute necessity of getting a feeling of "atmosphere." The members find this outside criticism very valuable, and other societies might do well to follow the same lines.

\* \* \*

### Indecent Postcards.

Most persons will be pleased to learn that the police authorities are now taking vigorous action against shopkeepers who vend picture postcards of an improper character, and that magistrates are inflicting heavy fines upon the evil-doers. On Saturday last a man appeared on a summons at the Marlborough Street Police Court for selling improper postcards, and the substantial fine of £25 and costs were inflicted. The cards were ordered to be destroyed. A few fines of this kind will no doubt act as a warning to others and put a check on this abominable trade, for it will take the profit on many thousands of cards to realise £25, with the costs in addition. During the hearing of the case the defendant's solicitor remarked that it would be a good thing if the authorities would prosecute the publishers



of these cards. This is precisely the view we have expressed on more than one occasion, and there would, we should say, be little difficulty in discovering them. It is a surprise to us that shopkeepers should show such things, or even have them on their premises. Quite recently we saw in a shop window not far from Blackfriars Bridge some cards of a most objectionable description. Productions of this kind will certainly bring the picture postcard into disrepute.

\* \* \*

### The Keeping Properties Of Collodion Paper.

It will doubtless be remembered by all our readers that towards the close of last year some correspondence appeared in our pages with regard to the occurrence of spots on C.C. prints. In the current number of "Die Photographische Industrie," a German trade paper, there appears an article by Karl Buisson, in which he details his experiences as regards the keeping of collodion paper before printing, which, whilst it does not seem to us to throw any light upon the formation of the yellow spot on the finished prints, may be of sufficient interest to record. The author points out that, by keeping, the back of the paper in nearly all cases becomes more or less grey or yellow. One firm of paper-coaters submitted samples of the raw baryta paper to the author for testing, and, though the paper was reported to be pure, it was found that after storing it for three months, it did not keep so well when coated with the collodion emulsion as at first. The baryta was then tested, and a sample of technically pure barium carbonate was found to be richly contaminated with sulphides. The author expresses the view that these bodies were produced by the use of sodium sulphate containing sulphuric acid to precipitate the barium from its nitrate or chloride, and the subsequent reduction of the sulphate to sulphide, during the dry process. But the highly stable character of barium sulphate is against such an explanation. The author may be right in his finding of sulphides, but they are certainly not produced in the above manner under ordinary conditions of preparing baryta paper. It is alleged, as to the yellowing of the unused paper, that the acid emulsion acts on the sulphur compounds and thus gives rise to sulphur compounds of silver. This may be one of the explanations of the trouble, but we would also point out that most, if not all, gelatines are bleached with sulphurous acid, and that it is very rare to come across a sample of gelatine free from the same. Naturally this defect cannot be obviated by the users, but manufacturers can insist on baryta papers being free from sulphurous acid and sulphides.

\* \* \*

### Placing of The Portrait.

One of the commonest defects met with in the portrait work of beginners is the incorrect placing of the picture on the plate. The most obvious mistake is the leaving of too much space above the head, which usually dwarfs the figure, conveying the suggestion of a short person. This is not only the case where a half or three-quarter length is being produced, but applies with equal force to head and shoulder pictures. The head is the highest part of the human figure, and even in a vignette if a good deal more space is left below than above the face, one feels that it might have been occupied had the artist desired it. The decorative effect of a portrait is much greater when the space at the command of the photographer is properly occupied, no part being left empty-looking and no part overcrowded, while the various parts should be properly held together by lines,

the character of which largely depends on the sex and individuality of the sitter. The portraits by Mr. Alvin Langdon Coburn at present on view at the R.P.S., 68 Russell Square, W.C., are very suggestive from this point of view, and while a superficial examination by older fashioned professional workers might lead to the idea that mere eccentricity was practised as a means of attracting attention, we think a little careful attention and thought will in most cases discover a satisfactory reason for what has been done. At all events, we would counsel such tolerant and sympathetic inspection of the work, for we think that though it is too individual in treatment for the everyday sitter at present, there are many points to be learned from a study of it which would have a practical everyday use. We say a "tolerant" inspection, because so much is lost by passing over what is not understood with a half-contemptuous disdain. Work, the qualities of which are obvious at a glance, is usually work which ceases to interest very soon. There is nothing vague or obscure in Mr. Coburn's portraits, and that is why we suggest that an effort should be made to find out why any particular treatment has been adopted.

\* \* \*

### Treatment in Portraits.

We may perhaps assist some of our readers in that study of Mr. Coburn's work to which we are urging them if we slightly indicate what is meant by treatment of a subject. Suppose photographs are required of an oak tree and of a silver birch. To the oak we assign the attributes of strength, vigour, and sturdiness, and so our negative would be fairly sharply focussed and fully developed, and our print a vigorous one on a rough surfaced paper. We should prefer to photograph the tree when not in full leaf, possibly during the winter, when the gnarled branches, giving evidence of stress and storm, would be most prominent. On the other hand the silver birch is the "lady of the woods," with its delicate tracery of fine twigs, its little twinkling leaves, and its silvery grey bark. This negative should be one with delicate contrasts of light and shade, the definition good, but not too perfect, lest the feathery effect of twigs and leaves be lost, and wiriness obtained. The print might be made on a smooth paper in a pearly gray tone of carbon, or on a smooth black platinotype paper. In this way the character of the print is in keeping with the character of the subject, and no inharmonious note is struck. It is quite recognised by most portrait photographers that the lighting suitable for the strong head of an old man is not at all appropriate to the rounded contours of a little girl, but we think the principle of appropriate treatment might be carried much farther than it often is. The omission of glaring incongruity is, after all, a negative quality, and much of the portrait photography of the present day would be vastly improved by the introduction of positive qualities.

\* \* \*

### Postcards.

The figures of postcard sales published in our last issue doubtless proved instructive reading to many readers, and particularly to those who have put the question to us as to the charge they should make for the right to reproduce their photographs in postcard form. As we have often pointed out, it is to the photographer's interest to take the production and supply of cards intended for local sale into his own hands. He will find it a sale a profitable side line, and his name on every card will mean a certain amount of advertisement of distinct value to him. He need not necessarily actually make the card himself. Collotype and half-tone postcards are printed at a low cost from photographers' negatives, as also

omides. The latter description of card, however, can-  
l should, be made by the photographer's own staff, a  
ck being accumulated in spare time for the season's  
es. Obviously, if a postcard publishing firm finds it  
th while to purchase rights of reproduction in al  
views, it will pay the photographer to look after the  
iness himself and supply the stationers and other trades-  
n in his town. A publishing firm seeing proofs of  
activity in this direction in the windows of  
stationers will probably not move further in the  
ter, and the local publisher will be left with the trade.  
happen to know of the surprise which postcard publish-  
firms have felt at photographers' lack of enterprise in  
ering the local competition field.

\* \* \*

**phide  
ling.** Considering the degree of popularity  
that this method of toning has attained,  
seems to us that an investigation of the actual results  
the process is highly desirable. There are several  
btful features that require elucidation, as will be seen  
reference to Dr. Chesterman's letter in our issue of  
uary 19, and to Mr. E. J. Wall's article on the use of  
zol, which appeared on February 2. It seems to be  
monly assumed that the result of the sulphiding pro-  
is the conversion of the silver into silver monosul-  
le, which is well known to be a very stable compound.  
process as usually carried out is a very rapid one, so  
d that there is much reason to doubt if anything more  
a very partial conversion takes place. Further, there  
other possible sulphides beyond the monosulphide.  
Chesterman states that "rapid toning causes the forma-  
of a silver sulphide which is not the monosulphide,  
yellow whites and half-tones and rapid fading are the  
lt." Mr. Wall has noted that the new reducer "San-  
appreciably affects the toned image, and others, we  
ve, have observed similar effects with different  
cers. As silver monosulphide is somewhat readily  
ised it is not difficult to understand that a reducing  
tion may affect the sulphide in the image, at the same  
it is possible that the effect of the reducer is due to  
ylent action on residual silver salts. The complete-  
of the sulphuretting action may perhaps vary with  
silver salt to which the sulphide solution is applied,  
it is not impossible for sulphur to be deposited in the  
hiding process. Dr. Chesterman advises that the sul-  
ing process should be continued for at least a quarter  
hour in the case of fixed P.O.P. prints, and it appears  
that it would be as well to adopt the same precaution  
bromide prints. If complete action is possible the  
onged application of the sulphide solution is most  
ably necessary to secure it, but we are so much in the  
as to the actual mechanism of the process that all  
are more or less rules of thumb. More definite know-  
e of what really happens is therefore distinctly desir-

\* \* \*

**Iris  
phragm.** An important practical matter often ig-  
nored by photographers is the existence  
backlash" in the iris diaphragm. In many cases the  
of any particular aperture varies according as you  
p down" to it or "open out" to it, and the variation  
ually enough to affect exposure materially in the case  
he smaller apertures. We have just had occasion to  
this matter in three different lenses. No. 1 was a  
ern anastigmat of the highest class by a German maker  
reat repute, No. 2 was an old type of rectilinear by a  
known English firm, and No. 3 was an old German  
igmat of unknown make. No. 2 was the only one that

revealed no backlash, and this had a metal iris with very  
exactly fitting moving parts, and was, moreover, fitted with  
a spring catch acting at each aperture. No. 1 revealed  
more backlash than was expected after examination of its  
very perfect workmanship, and it is quite possible that the  
defect in this case was due to the binding of the leaves,  
which appear to be of vulcanite. As no catch was pro-  
vided, at least three separate measurements were made for  
each aperture, and wherever an error of over one-tenth of  
a millimetre was detected fresh readings were taken. A  
maximum and minimum value was found for every aper-  
ture, but the differences proved to be negligible in all aper-  
tures except  $f/32$ , which had a maximum value of  $f/32.4$   
and a minimum of  $f/36.3$ , the measured difference being  
four-tenths of a millimetre. The aperture marked  $f/16$   
varied only from  $f/16$  to  $f/17$ , and that marked  $f/22$  from  
 $f/21.8$  to  $f/23$ . No. 3 lens had a very badly made iris, and  
the apertures were marked with mysterious numbers that  
could not be identified. The smallest aperture, marked 72,  
varied from  $f/41.3$  to  $f/50.7$ . The next smallest, marked  
48, varied from  $f/22.5$  to  $f/25.8$ . In the one case the expo-  
sure variation was approximately 2 to 3 and in the other  
as 10 to 13, the error of the smallest stop being un-  
pleasantly large. Obviously, when using an iris, it is  
advisable always to make the adjustment in one direction.  
Stopping down, when possible, in preference to opening out  
to any particular aperture.

\* \* \*

#### The Accurate Marking of Apertures.

In the experiments previously described  
upon backlash a very unsatisfactory  
state of things was noted in regard to the  
accuracy of the markings. In lens No. 1, stops  $f/8$ ,  $f/11$ ,  
and  $f/16$  were accurately marked, and so were  $f/22$  and  
 $f/32$  if we make allowance for error due to backlash. But  
 $f/45$  turned out to be really  $f/48$ , while  $f/6.8$  was only  $f/7.2$ .  
There is no doubt as to the accuracy of the measurement  
of the largest aperture, as no less than seven determina-  
tions were made at different times, while the accuracy of  
five out of the seven apertures proves the correct adjust-  
ment of the apparatus. The error in this largest stop may  
be justly styled inexcusable in a lens of such a class. In  
the English No. 2 lens the full aperture of  $f/5.6$  was correct.  
As the iris was found free from backlash the measurements  
were not repeated, but those obtained were  $f/7.5$ ,  $f/10.3$ ,  
 $f/14.7$ ,  $f/20.6$ ,  $f/32.5$ , and  $f/39.4$ . It is remarkable that  
most of these are larger than the marked apertures,  $f/8$ ,  
 $f/11$ ,  $f/16$ ,  $f/22$ ,  $f/32$ , and  $f/45$ ,  $f/32.5$  being an insignificant  
exception. The error in the smallest aperture might be  
inconvenient, as there is a considerable difference between  
 $f/39.4$  and  $f/45$ . From these experiments we may learn  
that time spent in testing apertures will, in perhaps too  
many cases, be time well expended.

\* \* \*

#### A New Aspect of Depth.

In the current number of "Knowledge"  
Dr. S. H. Bryan, F.R.S., draws attention  
to a simple rule for estimating the defini-  
tion that will be obtained on near objects when the camera  
is focussed for infinity. Briefly, it is this:—Assuming  
sharp focus to be secured on infinity, then any two points  
on a near object will be separately represented on the  
plate, provided the distance between them is greater than  
the diameter of the stop. If the distance between the two  
points is equal to or less than the diameter of the stop their  
images will merge into each other or overlap. This is, of  
course, quite correct. It is an undoubted fact that if the  
aperture has a diameter of, say, one inch, then any two  
object points separated by a distance greater than one inch  
will be separately represented on the plate, whatever their



distance may be from the camera. The separate images will, however, only be sharp when the object is beyond a certain distance. If near, both images will be blurred, and though they will never merge into each other, they will undoubtedly merge into the images of intermediate object points. If the object consisted of a series of separated points we could understand that the rule would be a useful one. It would only be necessary to know the minimum distance between the closest dots, and to stop down until the diameter of the aperture was somewhat less than that distance, to ensure the separate representation of every dot. But, considering that natural objects are not made up in this way, we confess we do not quite see how the rule is to be usefully applied in practice, though Dr. Bryan says that he found it to be of great service on his recent trip to South Africa. He gives a second rule for use when the camera is focussed on a near object, but in this case, as in the other, we fail to see the mode of application. We are inclined to think that we have heard of similar rules to these before, and it would appear that they agree practically with the old theory that considered depth to vary with aperture alone. The result of looking at the matter of depth from this point of view is that while the amount of confusion produced is always proportional to the scale of the image (which is a somewhat doubtful advantage), there is no set standard of depth to base calculations upon. The theory is all right, in theory, but in practice it is somewhat vague and unsatisfactory. It is true that depth is itself a vague and unsatisfactory subject, as the real facts seldom agree with estimations, but, for all that, we consider the most workable method of estimating depth is the usual one based upon a fixed amount of allowable confusion.

#### DRY PLATES, COLLODION EMULSION, AND WET COLLODION IN PROCESS WORK.

It is sometimes a matter of controversy as to which is the more economical negative-making material in photo-engraving, dry plates, collodion emulsion, or wet collodion. There are several factors to be taken into consideration, though the cost of material is the most obvious.

We may take as unit of size the half-plate (i.e., 12 by 16 centimetres, or 192 square centimetres), inasmuch as the larger portion of photo-engravers' work could be done on this size. Often it is not, where wet plates are used, but a larger size taken when the work is of such a size as to approach the edges of the plate. Larger sizes, however, will be more costly, though not quite in proportion in the case of emulsion and wet plate, but a little dearer relatively in the case of dry plates, the standard price of which for dry plates is 2s. 3d. per dozen. We take no account of possible discounts in either material.

Coming now to emulsion, a litre costs 25s. Taking three ccs. to cover a half-plate, this quantity will cover 333 plates. We have not been able to use less quantity of emulsion than this with ease, though M. Calmels, in "Le Procédé" for October, 1905, says that a litre should cover 8 square metres (i.e., or 416 half-plates). However, taking it at 333, the cost is .72d. per plate. To this must be added the cost of glass. A reasonably good glass, not patent plate, will cost 2d. per piece, and though this can be used again and again, it costs something in labour to prepare it, which must be considered, and some allowance must be made for wear and tear. Perhaps it would be fair to say cost of glass and the value of the time occupied in

coating the emulsion plate would not be less than making a total of, say 1½d. per half-plate. This is a saving of 1d. on the dry plate; against this, however, must be put the larger amount of waste with emulsion, firstly, from the frequency with which a larger plate would be used than would be thought necessary with a dry plate, and, secondly, from greater variations in the film than are found in the dry plate of commerce.

Turning now to wet collodion, the standard price for iodized collodion may be taken at £1 per Winchester quart, which equals 8s. per litre. We may again take 3 ccs. necessary to cover a half-plate, though Dr. Eder quotes Kleffel (Ausführliches Handbuch, page 232) as saying that 2 ccs. will cover 13 by 18 cm., i.e., 234 square cm., but from our experience it will generally take a little more than 3 ccs. for 192 square cm. Then the silver bath must be considered. A plate put into the bath, and withdrawn, will take with it from 1 cc. to 1½ cc. of solution. To be liberal, let us say, 2 ccs., and let us assume that the bath contains 10 per cent. silver nitrate. In comparison with the solution used up, the amount of silver nitrate converted into silver iodide may be neglected. Then 333 plates, which one litre of collodion will cover at 3 ccs. per plate, will take 666 ccs. of bath, that is 66½ grammes of silver, or roughly, 2½ ounces. Reckoning silver at 1s. 8d. per ounce, the cost is 4s. 2d. Add to this the 8s. for collodion, and equals 12s. 2d., which gives per plate .43d. Now to this must also be added the cost of glass and the value of the time taken in sensitising the plate. This cannot take less than five minutes per plate, and if performed by the skilled operator himself, as the coating with collodion emulsion would be, costs at least 1d. per plate, but inasmuch as it is done in most houses by apprentices or learners, it is perhaps not fair to reckon more than we did for emulsion on this account, namely ½d., or, roughly, say wet plate costs 1d. per half-plate. Since the time of sensitising (or coating in case of emulsion) is the same whatever size is used, this cost will decrease in proportion on this account.

Our next question is: Is there any difference of expense in manipulation? In exposure the advantage will rest with the dry plate, therefore there is some saving in electricity current and in cost of the labour. In the after-treatment of the plate, if the work be done in batches, the advantage rests with dry plates because they can be dealt with in numbers in big dishes, while emulsion or wet plate must be treated individually. If, however, individual jobs have to be done, then dry plates take somewhat longer, though in skilful hands exceedingly little. The cost of chemicals may be disregarded, as though dry-plate developers may be slightly dearer, chemicals will not need to be used so frequently in intensifying, or may be cheaper than those used in wet plate.

As to results, the wet-plate worker will say that nothing can equal his process, but results from dry plates leave little to be desired, when once it is understood how to get what the dry plate will give.

From the above consideration it would appear that the wet plate is the cheaper process, but, on the other hand, everyone knows of baths going wrong, of spots, comedoes, oysters, of dirty glass, and other wet-plate troubles, while for the time being are a source of worry to the operator and expense to the employer, and there are probably more certainty and fewer repeat exposures in an establishment that has systematised the use of dry plates, which must largely balance the cost of this material. In any case, it should be remembered that the cost of material in half-tone work is a small proportion of the total. It was recently stated by Mr. Arthur Cox (a dry-plate user, we believe) that he estimated it did not exceed 10 per cent.

## ANOTHER FACTOR AFFECTING DEPTH.

we disregard the effects of aberration and of inconstancy of aperture, it is apparent that the depth available with any particular lens must be governed by the angular aperture of the light pencils forming the image. Angular aperture is, indeed, the only factor commonly taken into consideration in calculations concerning depth; but it is generally forgotten that these calculations only consider the angular aperture from an arbitrary and unpractical point of view. The existence of Gauss planes is assumed, and this assumption compels us to regard the intensity of the lens (or ratio of aperture to focal length) as equal to twice the tangent of half the angular aperture. As a matter of fact, this is not the case, excepting in very unusual conditions. The actual existence of Gauss planes is avoided as far as possible by the lens designer, who aims at fulfilling the sine condition, which condition introduces an approximately spherical virtual refracting surface instead of a

plane one. If the focus is the centre of this spherical surface then the intensity equals twice the sine of half the angular aperture instead of twice the tangent, which means that the angular aperture is increased and the depth diminished. It is, therefore, possible for two lenses of equal intensity to have different angular apertures, and on that account to show different qualities as regards depth. Thus a very highly corrected anastigmat in which the sine condition is fulfilled must show less depth than another lens in which that condition is ignored. In the case of a single landscape lens the virtual refractive surface may even be convex to the image, and in such a case the angular aperture is diminished, and the axial depth attainable may be increased beyond that allowed for by calculations.

It does not appear that this factor alone is sufficient to account for the considerable difference commonly observed in the depth given by anastigmats and rectilinears, but it must certainly be a contributing cause of variation.

C. WELBORNE PIPER.

## COLOUR PHOTOGRAPHY.

### THE LIPPMANN AND LUMIÈRE PROCESSES.

in arranging the exhibition of colour work, the Editors of THE BRITISH JOURNAL OF PHOTOGRAPHY desired to show a specimen of the new method of obtaining colours direct, as described last year by M. Lippmann (see B.J., June 30, 1905). M. Lippmann, who, as is well known, is excessively modest, invited to send a specimen, for although the results were obtained by a new method, he did not think it of such relative importance. I made an appointment with him to insist on interest which the BRITISH JOURNAL attached to being able to show a specimen of this last research. As I pointed out to M. Lippmann, the process may not be of practical importance at present, but it would be well to show that one may have an effect of interference with transparent sensitive films of various kinds, with bichromated gelatine as with the others. It should be noted here, that the results given by a film of bichromated gelatine show extremely brilliant colours, and exhibit very clearly the complementary colours when viewed by transmitted light.

This fact should be of importance immediately we have a film which will give us the desired result at a very short exposure.

It must not be forgotten that bichromated gelatine is in every way orthochromatic on the one hand, and on the other that its sensitiveness to the light reflected in a camera is very low, which means that the exposure is very long. These two conditions, however, only attract further notice to M. Lippmann's experiments, as the forerunner of more practicable methods.

From the fact that the complementary colours could be so easily seen by transmitted light, M. Lippmann concluded that it would be possible to print by contact in a printing frame results which showed this particular character.

It is known that practically white and black are reciprocally complementary. Every positive printed under a black and white negative is its complementary in white and black. In the same way, every colour seen by transmission is printed in its complementary on plates which have the necessary panchromatic qualities.

Some day we shall certainly reach this stage. In science nothing is negligible, and it should be known that M. Lippmann, with all his modesty, is always trying to perfect his

discovery of photography in colours by the direct method, by the photographic production of thin luminæ of a wave length equal to that of the vibrations of the natural colours.

### The New Lumière Direct Process

As regards the Lumière process, we have quite another thing. In one word, we have the three-colour reproduction of colours, but with one exposure and on one and the same sensitive plate. On a journey to Lyons at the end of May last year, I had occasion to see MM. Lumière, and they were good enough to show me the results of their first trials. I admired stereoscopic views, lantern slides, also 13 by 18 cm. transparencies viewed directly by looking through them. My impressions were such as cannot be expressed except by superlatives. I certainly did not expect such a bewitching spectacle of pictures so sharp, true to colour, and at the same time so striking.

Evidently we have here actually the process of the future for everybody. That every reader of the BRITISH JOURNAL may know what this process is, it will be as well to recapitulate its principles. By the aid of the minute grains of potato starch, suitably separated, and coloured red, orange, violet, and green, MM. Lumière have produced on one plate a multiple screen. The coloured starch grains are sifted over the surface of the plate, so that there are from 40 to 50 grains to the millimetre. The result is that one has a plate covered with an infinity of trichromatic colour filters.

If on a plate thus prepared the white interstices be covered with a black powder and the film be then insulated by a convenient varnish of the necessary refractive index, and if an emulsion, as free from grain as possible, be then coated, nothing more is required to obtain an image in colours than to place this plate in the dark slide in the camera, with its glass to the lens, and to expose and develop as usual. This development, however, must be supplemented by a reversal of the image, the negative must be converted into a positive, and one then has a polychrome image which renders absolutely the true tints of the original. I was absolutely astounded at the numerous results which were shown me. One must necessarily consider the extreme delicacy of manufacturing such a plate. These plates with multiple screens evidently constitute a difficulty, the industrial solution of which would appear to us to



be insurmountable, if it were not in the hands of investigators as wise as they are ingenious. I am absolutely convinced—time will prove the truth of my prediction—that they will be overcome, and that MM. Lumière are equally confident it is shown by the fact that they have undertaken the construction of a special factory for the construction of these plates.

### THE JUMEAUX PROCESS.

SOME words of explanation are due to Dr. B. Jumeaux in reference to the exhibits by himself, Nos. 12–17, in the present exhibition. By a misapprehension of the description of the process sent by Dr. Jumeaux, one example was described as a two-colour result. Space did not permit of our giving in extenso in the catalogue the description of the method which should be identified with these particular exhibits, but we may do so now. The copy of the portrait of the King, made on the Cadett "Spectrum" plate with Sanger Shepherd filters, was printed by the following process:—An opal is printed from the red sensation negative, washed, dried, and resensitised, after which it is printed under the green screen negative.

By this process we should have pictures which could only be viewed by transmitted light, or projected by means of lantern, or seen in the stereoscope. But we do not despair of seeing MM. Lumière discover a process by which the colour photographs first taken could be multiplied indefinitely.

LEON VIDAL.

When sufficiently printed it is washed in a solution to get completely rid of the sensitiser, then washed and stained red. It is then allowed to stand in running water until just enough colour is left to complete the picture, when the yellow was placed over it. The red colour is only retained where light has affected the film through the negative and in proportion to this action.

The yellow image is made by fixing out a plate or film which, after sensitising and drying, is printed under the blue screen negative, after which it is treated as was the red, except that the dye used is yellow.

In the case of the other prints, the base is bromide paper stained blue with films stained red and yellow superimposed.

## THE INTERPRETATION OF SENSITOMETRIC TESTS.

### II.—THE INERTIA OF A PLATE.

In order to express the properties of a plate the following constants have been found useful in practical work. It is necessary that, as far as possible, all the properties should be expressed in numerical constants. For instance, the statement that one plate is "soft-working," while another "gives density easily," is far less satisfactory than the statement that their respective  $\gamma$ 's, for example, are 1.6 and 3.55, because this last method of expression makes comparison much easier, even though no attention be paid to the relative accuracy of the two methods of expression.

The constants which appear convenient for practical purposes are:—

The Inertia dealing with the sensitiveness.			
$X$	"	"	colour sensitiveness.
$\gamma_{\infty}$	"	"	density giving power.
$\kappa$	"	"	velocity of development.
$tv_1$	"	"	speed of development.
(Note.—These last constants are not identical, as is explained later.)			
$O$	"	"	latitude.

Three other measurements of importance should deal with the fog, the grain, and the accuracy of coating.

#### The Inertia.

The inertia of a plate is the insensitiveness of the plate. It is practically found in the following way:—If we expose a plate to a single source of light for a series of differing times, and then develop it, we shall get a number of blacknesses corresponding to the different exposures. If now we optically measure the amount of silver which corresponds to each of these blacknesses we may construct a curve by plotting on a piece of squared paper the amounts of silver (usually termed densities) against the exposure. If this is done, it is found that a large portion of the line so obtained will be a straight line, if, instead of the exposures themselves, we use their logarithms. For instance, if we give exposures of 1, 2, 4, 8, 16, etc., candle-metre seconds, their logarithms will be in the proportion 0, 1, 2, 3, 4, and so on. Thus, taking an actual example, last season the Barnet Red Seal plate was tested for THE BRITISH JOURNAL OF PHOTOGRAPHY, and one of the plates measured then gave the following readings:—

Exposure.	Log. E.	Density.
10	1.0	2.80
5	.70	2.27
2.5	.40	1.65
1.25	.10	.992
.625	-.80	.600
.3125	-1.50	.280
.156	-2.20	.127

The exposures are given in candle-metre seconds. A candle-metre second is the measure of the amount of light received by one metre distance from the standard candle in one second. If the light be half a metre distant instead of one metre, it will have an intensity of four candle-metres, since the intensity of a light (for a small source) varies inversely as the square of the distance.

The method of exposing is by the use of a sector which gives exposures each of which is half the preceding one. If, then, we plot these figures as shown in Fig. 1, we shall

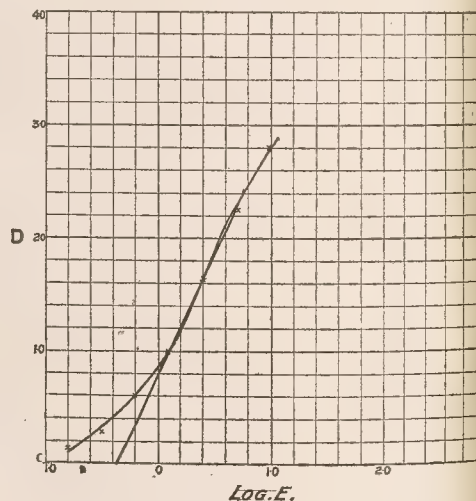


Fig. 1.

obtain a line which consists of two curved portions and a straight central portion, in which the points are approximately in a straight line. Joining these central points and producing the line so obtained to cut the axis, we term the exposure corresponding to the cutting point the inertia of the plate; thus in Fig. 1 the logarithm of the inertia is  $\tau.64$ , corresponding to an inertia of .408.

Since the smaller the inertia the faster the plate, inertias are usually expressed by dividing the inertia into some number and giving the result as the sensitiveness number.

### Light Sources.

Before we discuss this sensitiveness number, it is necessary to consider the light source employed for finding the inertia, because the value of the inertia obtained will depend on the light source employed. Messrs. Hurter and Driffield originally used the British standard candle as their standard light source. This candle has, however, generally given way to the pentane standard, which is defined as the light given by a flame of fixed dimensions produced by burning air which has been drawn over a fixed surface of pure pentane. While the pentane standard forms a convenient primary standard, it is not at all convenient as an actual working light source, because regulation is frequently necessary; and, moreover, pure pentane is expensive. So that in practical sensitometry various secondary standards are used, and it appears to be due to this fact that the measurements which are made of inertias differ so greatly.

As far as I know, the following primary and secondary standards are being, or have been, used in practical sensitometry:—The amyl-acetate lamp (Hefner-Attenneck); the benzine standard (the Scheiner standard in Germany); the Carcel standard (in France); the Vernon Harcourt pentane standard; the fish standard candle; electrical glow lamps (either controlled by a rheostat or not controlled); the crater of an incandescent arc; acetylene flames (screened and unscreened); flames (screened and unscreened); magnesium wire and lamp; phosphorescent tablets; daylight, in conjunction with an actinometer. Until some agreement is reached as to the standard, it is clearly impossible to hope for agreement in the inertias of plates.

The standard adopted for the sensitometric tests given of plates in THE BRITISH JOURNAL OF PHOTOGRAPHY consists of a screened acetylene burner, which is modified by means of a blue screen, so that it has a spectral composition in approximate agreement with that of daylight (necessary in order to avoid errors in testing orthochromatic plates; for details see "Phot. Jour.," November, 1904), and this acetylene burner has been calibrated against the mean of two standard pentane burners of different makes, which agreed to 2 per cent.

Readings of inertias made upon this standard agree very well with each other, and also with the results obtained upon other burners of the same type which have been calibrated against it—for example, that used at Harrow by Messrs. K. & L. Ltd.

### The Sensitiveness Numbers.

Messrs. Hurter and Driffield, for practical use in the actinometer, expressed the results of their tests by means of numbers obtained by dividing the inertia into 34; so that the actinograph

expression  $\frac{34}{\text{Inertia}}$  This is what ought always to be meant by the expression H. and D. No.

It must, however, always be remembered that this value depends on the light source used, and the statement that a plate has a H. and D. No.  $\alpha$  does not always imply an absolute test. As a matter of fact, plate makers are, I believe, hampered by the publishing of speed numbers, because of a quite erroneous popular impression that a faster plate is necessarily better than a slower one. There are even stories of plates being issued with an ascertained speed-number being found to be unsaleable because that speed-number was slightly less than that given by a rival plate, which in reality was no different, and then being re-issued with a different label and an altered speed-number. The number adopted by Mr. Watkins for his P number is obtained by him by doubling the H. and D. numbers he finds. But Mr. Watkins usually gets rather lower H. and D. numbers than I do, and I find that I get a better agreement with his P number by dividing the inertia into 50.

The F values given by Mr. Wynne appear to be the square root of the Watkins number multiplied by 8.

### Accuracy.

The accuracy of inertia determinations appears to call for notice at this point. Assuming the light source to be constant, there are two sources of error to be considered: (1) Errors due to the method of development used; (2) purely experimental errors.

(1) The question of the effect of the developer used upon the inertia obtained is a very difficult one to discuss, and I should like to say that any statements here upon this point are simply the results which I have obtained, and may at any time need to be modified after further evidence. In the first place, if bromide be present in the developer the inertia will depend upon the duration of development. This fact, which was first made clear by Messrs. Hurter and Driffield in 1898, is exemplified in Fig. 2, in which a plate has been developed in a bromide developer for four, ten, and sixty minutes. The inertia gradually decreases as the development is continued, until it reaches the figure which would have been obtained if the plate were developed in a developer free from potassium bromide. Occasionally plates are found in which the potassium bromide has been left in the film itself, and

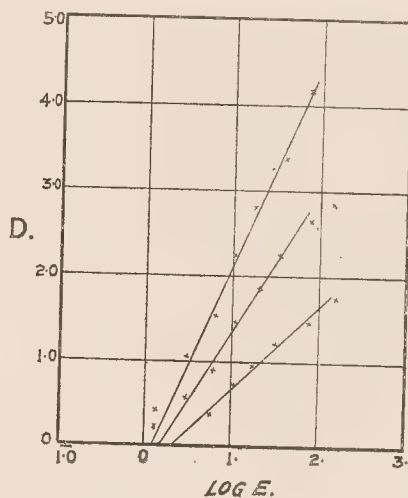


Fig. 2.

in this case the same phenomenon occurs. The inertia then can scarcely be said to have a definite value; that usually given is the value obtained when development is prolonged as much as possible.

If developers free from potassium bromide be employed, the reducing agent may, or may not, exert an influence on the inertia obtained. With many plates ferrous-oxalate always gives a higher figure than any organic reducer; with many other plates this is not so. I have never met a plate in which different inertias were obtained with different organic reducers, but I have had several examples of such plates shown me by friends. At any rate there are no definite constants which can be given to convert an inertia found with one developer into that found with another, and as a general rule all organic developers give the same inertia, providing that the concentration of the reducer is not too great. In the same way there appears to be no definite evidence for any alteration in the inertia produced by altering the temperature of the



developer. The developer most generally adopted for finding the inertia is probably that introduced by Messrs. Hurter and Driffield as a standard pyro-soda developer.

(2) Purely experimental errors. These, with accurate exposing and measuring apparatus, are due to (a) unevenness of coating; (b) the fact that a plate curve is not really a straight line at all, and that consequently the personal error in graphic plotting is considerable.

This last error amounts to about .01 on the log E axis for an evenly coated plate, which makes an error of about 2 or 3 per cent. on the inertia, but a slight unevenness of coating may raise this error considerably, and on commercial plates

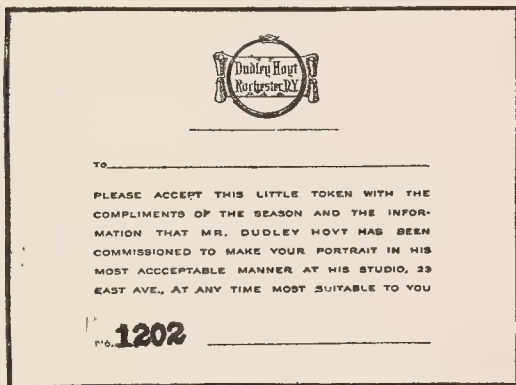
inertias are usually doubtful to at least 10 per cent. This for instance, two tests of a somewhat uneven plate may give 450 and 500 (a difference of only 10 per cent.) for the inertia. This explains the care necessary to obtain plates coated carefully as possible on patent plate for experimental work. It also shows the absurdity of choosing a plate marked 2 in preference to one marked 180 when there is no further reason for the choice. And, as I hope to show, the speed of a plate is by no means its most important property, even when the plate is being used in such a way, that, the retention of detail with the minimum of exposure is all-important.

C. E. KENNETH MEES.

## HOW A PHOTOGRAPHER "RUSHED" THE SLACK SEASON.

New wrinkles in advertising are always welcome to the progressive photographer, and when the wrinkle has been tried by a good business man and found profitable, it becomes doubly interesting. For this reason we may quote from our New York contemporary, "The Photographer," the account of a scheme adopted by Mr. Dudley Hoyt, a well-known and respected photographer, of Rochester, U.S.A., during a season when photographic business in America is very nearly at a standstill.

Briefly, the plan consisted in sending to a carefully selected list of names a circular and an engrossed card to be used as a presentation card or order for photographs at Christmas. The accompanying engraving is an exact reproduction, colour excepted, of the card used by Mr. Hoyt:—



The circular was printed in black and gold on thick Japanese tissue. The gist of the subject matter follows:

### Something New for Christmas.

A Holiday Suggestion from the Studio of Dudley Hoyt.

FEW GIFTS can compare in interest and future satisfaction with a present of an order for a dozen good photographs, and the pleasure that accompanies such a gift has a tinge of anticipation that lasts long after more material presents have been inspected.

To reduce the making of such a present to a practical basis the enclosed card, printed and embossed on vellum, has been prepared. To use the card simply fill in the name of the person you intend to present it to, sign it and hold it until Christmas. Then fill out the blank and send it to the studio at once.

The following brief descriptive list will be of assistance in selecting the class of pictures it is desired to present:

The price list, which included everything from baby pictures at \$8 a dozen to large carbon prints at \$100 each, was inserted here, followed by a few paragraphs headed "Special Notes":—

All of Mr. Hoyt's portraits are printed in platinum with the exception of Class H, printed in carbon, and every print is per-

sonally inspected and signed by Mr. Hoyt, no matter in what class.

Ample opportunity for modification in the selections will be granted so that absolute satisfaction to the recipient will be assured.

Additional cards will be furnished on request.

Special presentation cards for weddings and birthday presents can be supplied.

Specimen prints in all classes are on exhibition at the studio and additional information will be gladly furnished.

On the back of the four-page circular the following blank, bearing a serial number identical with that of the card which accompanied it, was printed:—

Note.—In filling in this blank, to be sent to the Studio, be sure to indicate the class desired. It is not necessary to place anything on the presentation card except the name of the recipient and your own. The number will be sufficient to identify the order.

(Cut this page off and mail to the Studio.)

No. .... Rochester, N. Y. .... 1906.

MR. DUDLEY HOYT,

23, East Avenue, Rochester, N. Y.

I intend to present the card numbered as above to M. ....

Please enter ONE and on

for ONE DOZEN of Class ....., for which I enclose my check

\$..... Please charge to my account.

(Strike out the line not used).

Name.....

Address.....

It will be seen that the plan differed from other Christmas schemes in that instead of the purchaser being obliged to call and pay for the order it was mailed him and laid before his or her eyes for several weeks before Christmas.

The card itself was a very fine specimen of printing and engraving and was enclosed in a tinted envelope with a plain, embossed design. The whole was enclosed in a large square envelope and sealed.

The expense of the campaign was summarized by Mr. Hoyt as follows:—

3,000 envelopes for cards.....	\$6.00
3,000 envelopes for mailing.....	4.50
Stock for cards and folder.....	42.00
Printing .....	24.00
Embossing (labour).....	10.00
Addressing (labour).....	4.00
Mailing .....	60.00
	\$150.50

The direct returns from the campaign to and including December 28 were \$1,968.00. To this will be added such orders as were received without notification to the studio.

The plan was not advertised in the newspapers, and indeed no notice was done to take away from the scheme the idea of exclusiveness.

It will be seen that Mr. Hoyt accomplished several very decided and interesting moves in the professional field. He has provided a fair measure of work for his force during a month in the year

red to be as dry, as far as business is concerned, as August; he planted a carefully-worded price-list in the homes of three hundred people and has called the attention of his people in an unusual manner to the value of photographs as Christmas gifts. A large proportion of the cards used," said Mr. Hoyt, "were wanted by members of the family who could not be persuaded under ordinary circumstances to visit the photographer. The cards were also liberally by young men who wished pictures of their best girls who adopted this method of securing what they wanted."

### THE PHOTOGRAPHIC CONVENTION.

PRELIMINARY circular of the proceedings of the 21st meeting of the photographic Convention of the United Kingdom, which will take place at Southampton in July, under the presidency of Mr. E. J. Humphery, M.A., has been issued by the honorary secretary, Mr. J. Bridge, East Lodge, Dalston Lane, N.E. The headquarters of the Convention will be the Philharmonic Hall, High Street, in which the meetings will take place and the exhibition be held. The programme will include a very representative display of modern apparatus, arrangements are completed for demonstrations of portraiture, printing by electric light and of other photographic processes. Colour photography will be made a prominent feature of the Convention. Sir William Abney has expressed his intention to exhibit a selection of his projection colour photographs. Mr. E. J. Wall is arranging an evening to be devoted to colour photographic printing processes, and it is hoped that MM. A. and L. Lumière will demonstrate their new direct colour process, of which M. Vidal is enthusiastically on another page this week, after a visit to the home of the Lumières at Lyons. Photographic record and the aspects of modern photography will likewise form part of the Convention.

The papers to be read at the evening meetings include:—

"The Differentiation of Bacillus, Coli Communis, and Bacillus typhosus, by Means of the Photographic Plate." By Mr. Walter C. Anderson.

"The Photographic Film Ionised on Exposure." By Mr. Henry J. B.A.

"Useful Negatives from Poor Ones." By Mr. C. H. Bothamley.

"The Ordnance Survey Department." By Colonel S. C. N. Grant, R.E.

"Old English Manners and Customs." By Sir Benjamin Stone.

"Clouds." By Mr. A. W. Clayden.

"Combination Printing." By Mr. A. Horsley Hinton.

"The Application of Cinematography to Natural Science." By Mr. F. Martin Duncan.

The excursions, we are glad to say, will be short, and will be arranged to leave ample time for photography. They will include to:—

Wessex, Carisbrooke, and (if possible), Osborne House.

Wessex, New Forest, Beaulieu, etc.,

Wessex, Winchester, and St. Cross,

Wessex, and the vicinity.

In addition, the members will have the exceptional privilege of using the department of the Ordnance Survey, an opportunity which is rarely afforded, and for which the thanks of the Convention have already been extended to Colonel S. C. N. Grant, C.M.G., R.E.

Attention should also be made of the unusual yachting facilities of Southampton, and of the fact that the President's "At Home," on Wednesday afternoon, will take the form of a yachting party.

Mr. Humphery's leisure for many years has been spent aboard his yacht, and, without anticipating the announcement of his plans for the entertainment of the Conventioners, on July 11, it may be said

that the occasion will mark the zenith of enjoyment in what promises to be a most enjoyable week. The Earl of Crawford also hopes to visit his yacht, "Valhalla," at Southampton during the Convention, and to take part in the meetings.

Finally, the "coming of age" meeting of the Convention is to be celebrated by the visit of a number of members of Continental photographic societies and bodies. The "entente cordiale" is to acquire a new meaning in photographic circles, by the presence of a large number

of photographers from France, which country, however, is not the only one to join English Conventioners in celebrating their 21st year of life. There seems every prospect of the meeting being the most notable one in the history of the Convention.

### ALLEGED POSTCARD FRAUDS.

A CASE which throws light on the business to be obtained in photographic picture postcards, came before the Shepton Mallet Petty Sessions on Friday, February 2, after adjournment. A photographer named Joshua William Humphreys, was charged with having obtained from Fred. C. D. Hurd, of Shepton Mallet, also a photographer, the sum of £2 7s. 6d. by false pretences, with intent to defraud. In September last the prisoner called on Mr. Hurd and solicited orders for picture postcards, representing that he could do them at £2 7s. 6d. per 1,000 for cash with order, or £2 17s. 6d. for cash on delivery. He stated that these low prices were due to his special arrangements with London firms, whose usual prices were known to be £4 10s. per 1,000. The prisoner had his photographic apparatus outside on a bicycle, and he agreed to take eight photographs of views to be selected by the witness, and supply a thousand postcards with these views for the sum named. Witness gave him a cheque for £2 7s. 6d. in order to take advantage of the discount. Prisoner gave a receipt, produced. He gave witness to understand that he had a large business in Blandford with assistants turning out several thousands of postcards per week. There was an address printed on the receipt. It was on the faith of these representations that he parted with his money. Prisoner showed him other orders he had had in the neighbourhood. Proofs were to have been sent in seven days. Witness would not give the order without the proofs. He did not receive the proofs, and wrote twice to the address given, without receiving a reply. Afterwards he remembered that the prisoner, though he had the apparatus all right, had only three slides, and that when he was about to cross the cheque prisoner said, "Don't cross it," and explained that he could pass it on to pay for the cards he required. In cross-examination he said that he had received a letter from the prisoner's wife about Christmas, and one from the prisoner from Devizes goal, about the middle of January.—P.S. Pike, of Blandford, said that he had known the prisoner just over two years. He went to the prisoner's house on October 3. It was a small cottage, and there was a small studio. There were a few blank postcards about. He estimated the number at about twenty. There was a small dark room, and about three dozen printing frames stacked up, but none in use. The household consisted of his wife and two small children, and two females, one of whom was engaged, he found, as a domestic servant. He found a duplicate receipt book, which showed that the prisoner had received orders for about 50,000 postcards, and had received £113 1s. 3d. He did not think from the appearance of the place that the prisoner had space enough to execute the orders.—The prisoner, on oath, made a long statement to the effect that he had been in business at Blandford at three different addresses. Finding he was not doing much business, owing to not being very well-known, he took up outdoor photography, and travelled for orders. He had visited a number of towns in Dorset, and taken orders. He narrated the attempts he had made to get the postcards for printing from different firms, and the prices quoted by London firms. He produced a number of letters from various firms from whom he had been receiving cards, but explained that he had been unable to get postcards in the quantity he required in the time he agreed with the firms to send them. He also stated that when arrested for a charge at Stroud he had an assistant, who, though she had only been with him a short time, had picked up a great deal about the printing of the cards, and his wife assisted with them. During September he had turned out 10,422 postcards, and was in a position to turn out more than that. He had sixty-three printing frames, and could turn out 3,000 cards per day, and had turned out cards at the rate of 2,000 per day. During ten weeks he took orders for 50,000 postcards. He had been arrested for something he had done at Stroud, and had been induced to plead guilty, and throw himself on the mercy of the Bench, and he had consequently been in prison, or the orders of Mr. Hurd and others would have been executed before. He was arrested before the time that Mr. Hurd's proofs were due. His assistant was taken back to Stroud



by the police, or went back, and left his wife, or the work would still have gone on, as he had intended and arranged it should.—Prisoner was committed for trial at the next Quarter Sessions, and in reply to his request for bail to be given a chance to execute these and other orders, the Bench decided to admit him to bail on his own recognisance of £20, and two sureties to be approved by the police in £10 each.

#### HOW THE CANVASSING BUSINESS IS WORKED.

THE conclusion of a case which has been twice adjourned, came before the Cambridge Borough Police Court last week. The previous hearing was reported in our issue of December 22 last, from which it will be remembered that a young man, by name James McBirnie, an agent, in the employ of the Crown Art Company, who lived at 1A, Hertset Road, Seven Sisters Road, London, was charged with having embezzled certain sums to the extent of £1 9s. 6d., the moneys of Alfred Margand, a photographer, who traded as the Crown Art Company. At the previous hearing the prosecutor did not appear, and the solicitor who appeared for the prisoner made certain allegations against the prosecutor, and the case was dismissed. A further charge was taken out, and the case was several times brought before the magistrates, but either the prosecutor or the prisoner did not appear, and it was adjourned until Tuesday, when the majority of the magistrates gave their decision in favour of the prisoner.

In opening the case, the prosecuting solicitor explained that the prisoner was employed by the prosecutor as a canvasser and collector, and that he did business in Cambridge. The prisoner's duty was to canvass people for orders. When he got the order he entered a record on a card with the amount the people who gave the order had paid towards the debt they had incurred. It was further his duty to send to the prosecutor a sheet containing the payments made. When the prosecutor examined these sheets he found that several payments had not been entered. They had prisoner's entry upon the cards showing the amount received in several cases, initialled by himself, and they further had the daily sheets from which these payments were omitted. The whole charge was based on documentary evidence furnished by the prisoner himself, and the evidence of the people who paid the money.

Alfred Margand, 115, Seven Sisters Road, London, bore out his solicitor's statements, and stated that on a card produced there was a sum of 4s. not entered in the sheet of accounts produced. Prisoner had never accounted for the 4s. On other cards there were sums of 6d., 2s. 6d., 2s., and various other items which had never been accounted for. Whilst prisoner was in Cambridge he lodged with a Mrs. Bass. She gave witness some numbers of cards and a postcard, but witness had never received the money tallying with the amounts on the cards. The postcard was read by the prosecuting solicitor, and it directed the landlady to collect certain sums with which to pay her debt. The daily reports which prisoner sent to prosecutor contained several entries of sums for the hire of a porter, but in that business a porter was not required. Another entry was "carriage on goods" 3s. Witness had himself paid that sum at the station when he was in the town.

After a number of women had given evidence as to payments made to the prisoner, Mrs. Alice Bass, of 51, Norwich Street, said that the prisoner had lodged with her for some time, and when he left he owed her some rent. Witness was shown the postcard, and she stated that she acted upon the instructions given, but after her debt was paid she told the people to send the money to the head office.

Jack Bass, 14, son of the last witness, stated that he collected sums up to 9s. for the prisoner, and was paid 4d. in the 1s. commission. The prosecutor was recalled, and stated that the prisoner's wage was 35s. a week, which he received every Saturday.

At this point the magistrates retired, and on their return, the prisoner elected to be dealt with summarily and pleaded not guilty. He said that he was not a canvasser, as the canvassing was done by a number of young ladies, and he followed them and submitted proofs to the customers. After the proof had been passed it was returned to London. He also collected money from the customers, to whom he gave a receipt. In placing the money to the credit of the customers that were at times mistakes. He admitted receiving all the amounts from the customers who had appeared as witnesses. The

reason he left Mrs. Bass's house was because he was recalled to London by telegram, and when he arrived he found there was work for him. As he could not return at once he sent the postcard to Mrs. Bass's son to collect the money in order to discharge his debt to Mrs. Bass. No mention of these shortages was made at the time, and he knew no more.

Miss Ethel Hughes, of 307, Camden Road, gave evidence on behalf of the prisoner. She stated that she was now employed by the People's Art Company, but was formerly a bookkeeper in the employ of the Crown Art Company, whilst the prisoner was working in Cambridge. Her evidence supported the prisoner's statement that mistakes occurred in the crediting of amounts received by all the collectors.

The magistrates again retired, and on returning the Chairman said that the majority of the magistrates thought the prisoner should have the benefit of the doubt which existed, and he was then discharged.

## Photo-Mechanical Notes.

### Some of the Less Known Properties of Bichromated Gelatine.

IN a lecture recently delivered at the London County Council School of Photo-engraving and Lithography, on "The Use of Bichromate Salts in Photography," Mr. E. W. Foxall alluded to some points in connection with bichromated gelatine that are not very generally known to some. One was that although the bichromate of potash renders gelatine insoluble on exposure to light, also spontaneously by long keeping, the bichromate was actually more soluble in a solution of the bichromate than it was in plain water of a similar temperature. For example, in very hot weather, in sensitising carbon tissue, unless the bichromate solution was cooled artificially, the gelatinous coating would run or partially dissolve, or perhaps drain off the paper when hung up to dry, but with plain water the coating would not be disturbed. He also mentions that in the manufacture of carbon tissue in hot weather there was a great difficulty in getting the pigmented coating to set when it was made in the sensitive condition—that is, containing the bichromate salt—than when it is made in the insensitive state. During the lecture he explained that the so-called "continuing" action of light was due entirely to moisture in the tissue, and that it could be very greatly accelerated by increasing the temperature. In illustration of this, a series of examples was shown. In one set the prints had received one-half the proper exposure. One was developed immediately afterwards, and others were kept for different periods in an atmosphere saturated with moisture at a temperature of 85 Fahr. At the end of an hour one of these was developed, and it proved to be too dark as if it had been over-printed; the others were all very much too dark. Another set had been given one-fourth the proper exposure, and kept under similar conditions. That kept for half-an-hour proved to be nearly dark enough; that for an hour just right; the others for longer periods proved to be much over done. In another set the exposure had been reduced one-sixth the normal, and it was seen that after an hour and a half keeping the print was nearly dark enough, and with three hours by far too dark. It was noteworthy with this series, even with the darkest, that the lights were hard, thus showing that the exposure in the printing frame had been too short. He set up an action through the densest portions in the negative. In all the other series shown, the gradation from the highlights for the deepest shadows were as perfect as if the prints had received their full exposure in the printing frame. Another series were treated differently. They received one-half the proper exposure and then made thoroughly dry in a dry closet. They were then sealed up in a metal case and kept for different times—fifty days, one hundred days, and six months.

—and there was no difference between any of them, and the one that was developed directly it was taken from the printing frame. This shows that without moisture there is no continuing action whatever.

### Wet Collodion Problems.

The following series of questions, addressed to us by a reader in Milwaukee, Wis., U.S.A., are not all of them susceptible of a direct answer. We would ask our querist to accept the information as the experience of a practised worker in the wet collodion process:—

1. What is the chemical salt forming the image on a plate that has been treated in the following manner? A plate is exposed, developed, and fixed as usual, intensified with copper and silver, and then treated with a solution of iodine and iodide of potash in water. This changes the image into a bright yellow colour, apparently iodide of silver. We will call this "Plate A." If a piece of zinc be placed on this moist plate it will form a black deposit, apparently reducing the silver haloid to a metallic state, and also forming iodide of zinc. If another plate—what we will call Plate B—be exposed, developed, and washed (without having the unaltered iodide of silver dissolved with a solution of cyanide of potash, or, in other words, fixed), a piece of zinc be applied to it, as with Plate A, no reduction of silver will take place. This leads me to think that there must be a difference (otherwise than quantity) in the iodide of silver on these two plates. Now, on Plate A, is there a sub-iodide present with the regular iodide of silver? If so, what proportion does it bear to the other? Are the two kinds intimately mixed, or does the sub-iodide lie on the surface?

2. What is the chemical action on Plate A of a combined cutting or reducing solution made by adding to a solution of iodine and iodide of potash in water, enough of a solution of cyanide of potash to just discharge the red colour and turn it clear?

3. It has been said that by varying the quantities of the constituents of a combined cutting solution, described in Question 2, that a solution can be obtained which will cut or open the high-light dots in a half-tone negative faster than the shadow dots are reduced, thus decreasing contrast, and that by mixing the solution in a different manner, a liquid is made that will hold the high-light dots (without opening or cutting them, or causing them to become any larger), and at the same time will reduce the shadow dots, thus increasing contrast. Can you tell me how this action takes place, and what proportions to use in making up the solutions?

4. What action would pyrogallie acid, in conjunction with cyanide of potash, have upon Plate A? I have been told that such a solution would both cut (or reduce) and intensify at the same time.

5. What contaminating salt is it (other than carbonate of potash) that is present with cyanide of potash, and causes it to have a dissolving action upon the silver image of a wet plate during the process of fixation? I had it occur with several samples of potash, though I used the solutions very weak and washed the plate thoroughly as soon as it was fixed.

6. How does diffraction affect the high-light dots in a half-tone negative? I understand its action upon the shadow dots, and have read U. Ray's article in a recent year-book, but am still unable to understand its action on the high-lights.

7. Which gives the finer silver deposit, or grains, in collodion? A mixture of iodides and bromide, or a combination of iodide and chloride? In what other manner, if any, do these two mixtures differ?

8. Is there any other way besides the following of removing the iodide of silver from the combination of iodo-nitrate of silver in an old silver bath?

Dilution with water.

Fusion.

Addition of muriatic acid and cyanide of potash.

9. What action does cyanide of potash or cyanide of silver have upon a silver bath? If any, does the acidity or neutrality of the bath affect such action?

— HALF-TONE.

[1. We cannot say if there is present, under any circumstances, a sub-iodide with a normal iodide of silver. If we could tell you this we should have had the long-veiled question of the latent image. If anyone has isolated any of it, it may be difficult to settle the proportion it bears to the iodide in a wet plate.

2. The chemical action on the plate is that the iodine changes metallic silver into iodide of silver, which the cyanide rapidly dissolves.

3. We know this statement has been made, but, in our experience, entirely without foundation. That is a thing that could easily be determined by experiment. Why do not you make a negative and cut it up, so that you can try certain portions of it with solutions, and see if the high-light dots are reduced more or less according to the varying proportions of the constituents in solution?

5. I have never heard of any contaminating salt causing the cyanide to dissolve the silver image. It will do this without any contaminating salt easily with some samples of collodion much more than others. It is probably due to the fineness of the deposit of the silver in your case.

6. As far as we understand, diffraction affects the high-light dots very little indeed if they are built up with the use of a very big stop; otherwise diffraction has exactly the same effect on the high-light dots as it has on the shadow dots.

7. It is probable that the iodide and chloride give a finer grain. Chloride is extremely slow, and therefore in practice is not used, except calcium chloride, which is used as much as anything, because of its deliquescent properties, which are supposed to assist in keeping the film moist.

8. It is possible that there is one way, not mentioned by you, of removing the surplus iodide of silver from a silver bath, and that is simple decantation. If the bath is allowed to stand long enough much of the iodide may settle to the bottom. It must be remembered there must be a certain proportion of iodide in the bath before it can be used in sensitising plates. We have never heard of any other way of getting rid of it other than the ways mentioned; surely these are simple enough.

9. Cyanide of potash is sometimes used to clear the bath that is working slightly irregularly. If the carbonate usually contained in cyanide is present, then it would appear to do this by removing the excess of acid. As soon as it is added it forms a quite flocculent precipitate, which has to be filtered, and this may act as a sort of clarifying agent. It is frequently resorted to for clearing a bath, though we have never heard any definite explanation of the action offered.]

### Albumen Half-tones on Zinc.

In the current number of the "Photographische Korrespondenz" L. Tschörner points out that in Austria the albumen process is most generally used for half-tone block making. The actual formula used being:—

Water .....	60 ccs.
Ammonium bichromate .....	3 grammes.
Alcohol .....	9 ccs.
Ammonia .....	q.s.

Enough of the ammonia being used to give a distinct yellow colour. This is mixed in equal parts with fresh albumen, and then the mixture diluted with an equal bulk of water. This is flowed over the zinc, the plate whirled, dried, and exposed, and then inked up. Tschörner lays great stress on the quality of the ink, and states that in the Vienna school the following mixture has been successfully used for some time:—

Asphalt .....	10 grammes.
Melt by heat and add:—	
Yellow wax .....	16 grammes.
Venice turpentine .....	6 grammes.
Stiff illustration ink .....	40 grammes.

When mixed, the whole is poured on to a stone and well worked up with a muller. This gives very thin, smooth, and resistant films, which develop easily. After developing and drying, the plate is dusted with asphalt powder, and this melted. The result is a ground which will not only stand etching well, but also enables one to do retouching with litho-chalk.

THE Derby Photographic Society, among other good practices, has one of producing a wall calendar embellished with some choice examples of the work of one of its members. The present year's production bears an excellent photograph by G. A. Fowkes, and on the back of the calendar are the fixture list and other club notices. We believe the idea is one which could be imitated by societies as a means of local advertisement.



## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes."*

The following applications for Patents were made between January 29 to February 3:—

**CAMERAS.**—No. 2,300. Improvements in photographic cameras. John Boulton Brooks, 24, Temple Row, Birmingham.

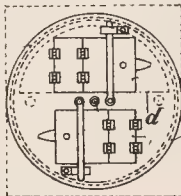
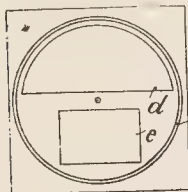
**PAPERS.**—No. 2,609. An improved process for making photographic papers. Ignaz Hoffsummer, 6, Lord Street, Liverpool.

**SHUTTERS.**—No. 2,713. Improvements in photographic shutters. Gustav Dietz, Birkbeck Bank Chambers, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**BROMIDE PRINTER.**—No. 24,964, 1905. The apparatus consists of a box (containing the illuminant), in which are two apertures—one (d) semi-circular, and the other (e) rectangular, and covered with a ruby glass or other light filter. Above these apertures is mounted a circular board, carrying a pair of printing frames. The printer can work with one or both frames, in the latter



case filling one frame while the other is being exposed. In each instance the exposure is made by turning the circular board and thus bringing the printing frame over the semi-circular aperture. Edward Schneider, 92/2, Tölzerstrasse, Munich, Germany.

**FILM-DEVELOPING MACHINE.**—No. 16,218, 1905. The invention provides a portable reel or spool, the end flanges of which are light-tight but admit liquid. The film is wound on this reel, so that liquid has free access to all its parts, the transference of the film to the reel being made without a dark room. Figure 1 shows this reel empty. In Figure 2 it is seen with the film wound

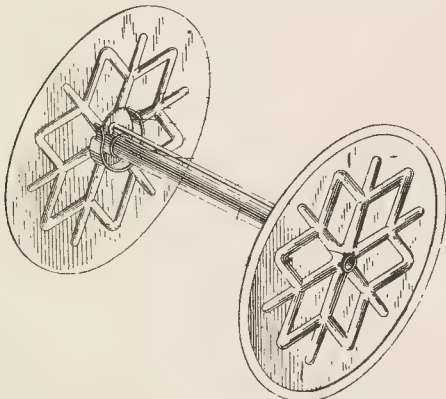


Fig. 1.

upon it by means of a flexible apron, having a corrugated strip along each edge, in order to keep the surface of the film freely,

exposed to the developing and other liquids. The film is wound on to the apron, as in other machines, for development, and is then removed bodily from the winding box and immersed in the

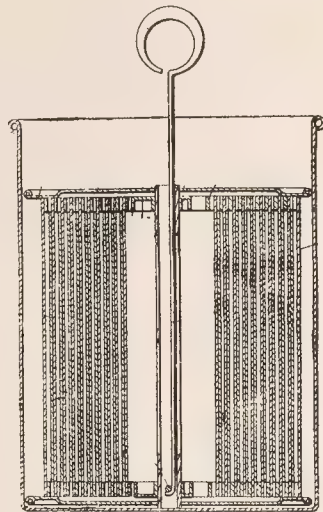


Fig. 2.

developing tank seen in Fig. 2. Frederick Wayne Barnes, 925, St. Paul Street, Rochester, U.S.A.

**DEVELOPING APPARATUS.**—No. 7,319, 1905. The claim is for the system, and apparatus thereof, of transferring the dark slide containing an exposed plate to a light-tight receptacle, and there admitting developer to the plate as it remains in the slide, other solutions being afterwards applied (after the withdrawal of the previous liquid) for washing and fixing. The apparatus consists of a box or chamber, provided with a slit (closed by a light-tight valve), for the insertion of the dark slide, and a second aperture for the admission of developer. George Edward Hawkes Rawlins, 6, Victoria Road, Waterloo, Liverpool.

**SHUTTERS.**—No. 1,740, 1905. The invention relates to a diaphragmatic ever-set shutter, and includes the following features, for the explanation of which the detailed drawings in the specification must be consulted.

The sectors of the shutter and the driving piece for the sectors are in a casing, made in one piece.

The lens mount is made in one piece, and forms at the same time the cover of the shutter, the diaphragm plates and the driving mechanism being arranged in the cover.

The shutter is made with three sectors or blades. Wilhelm Kengott, 64, Rue de Saintonge, Paris.

**DARK ROOM LAMPS.**—No. 9,661, 1905. The invention is a new type of dark-room lamp, divided into two or more separate com-

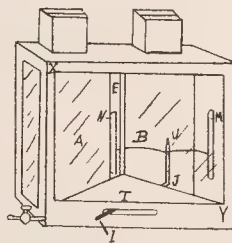


Fig. 1.

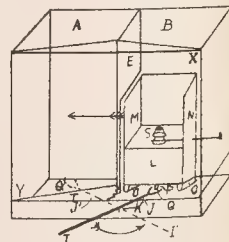


Fig. 2.

partments, so that these different chambers may be fitted with light filters of different colours. Provision is made for the transference of the source of light from one compartment to another,

and the inventor also includes the fitting of the front of the lamp with glasses at an angle to the front, the latter itself being glazed with a diffusing screen. Instead of transferring the light, two lights may be provided, and turned on and off to illuminate one or other chamber. Fig. 1 shows the construction of the lamp for gas.

The gas supply pipe is fitted with a swing gas joint K, carrying a gas pipe J, and burner U, and lever arm I, fitted in line with pipe J. By moving the arm I, the light is transferred from one part of the lamp to the other. The wings, M and W, are carried on arms, and serve to fill up the opening in the division E made for the passage of the burner. Fig. 2 shows the lamp as constructed for oil. Here the movement of the arm I-J, pivoted at K, causes the passage of the lamp from A to B, and vice versa. There is an arrangement for the lamp to slide on feet or rails from one part to the other. Frederick Thomas Parsons, 27, Southdown Gardens, Wimbledon.

**ELECTRICAL LONG-DISTANCE PHOTOGRAPHY.**—No. 16,796, 1905. The invention consists of apparatus for the electrical transmission of drawings, photographs, etc. The transmitter consists of a rotatable transparent cylinder, carrying the photographic film, and of a box outside the cylinder, having a cell of selenium connected to the live wire above, and a hole below, which latter permits the passage of light from a source of light inside the cylinder. Both the box and the source of light move simultaneously longitudinally to the rotating cylinder. The receiver consists of a rotatable cylinder, carrying a sensitive film, and a mirror galvanometer connected to the live wire, the mirror of which is arranged to oscillate within the galvanometer and spool, and to reflect the light coming through a lateral passage from an outer source of light upon the sensitive film through a minute passage in the bottom plate of the spool, the galvanometer of the outer source of light moving simultaneously longitudinally to the rotating cylinder of the receiver, and synchronising in action with the transmitter. Henri Carboneille, 66, Chaussée de Ruysbroeck, Uccle, Belgium.

## New Books.

"The American Annual of Photography and Photographic Times Almanac." New York: G. Gennert; London: Jonathan Fallowfield. 3s. 6d.

In this twentieth issue of the American Annual, the present editors, W. I. Lincoln Adams and Spencer B. Hord, have gathered much of pictorial and technical interest. The latter portion of the contents is quite above the average, and includes a goodly dose of the experience of practical men. Articles such as those on "Indexing Negatives," "Sporting Photography," "Photographing Children," "Cameo Relief Printing," may not be entirely novel in matter, but they are sound reading such as can be studied with profit by many photographers. The pictorial contents of the book is an incongruous mixture of good and bad. A great many of the illustrations are of the most ordinary kind. Many others which are not ordinary would be all the better if they were. We turn over page after page of reproductions wondering what qualities decided their insertion. One writer titles his theme, "The Mission of Art," and is good enough to say that "professional photographers intent on material reward ignored both fact and truth, turned out insidious things as meaningless as phrases and more misleading than mirage." However, the few photographs in the volume on which it is a pleasure to look a second time are by American professionals. Take away those by Eickemeyer, Strauss, and one or two more, and we are left among monstrosities and eccentricities, the gloom of which is broken only by a few clever pieces of landscape work, such as that of Thomas A. Morgan, Otto Fullgraff, and Jos. R. Igllick. The latter follows the *metier* of George E. Tingley's "Light Beyond," and is quite a relief from the meaningless studies by which it is surrounded. Our readers will find good technical reading worth all the price of the volume, but we hope they will take some of the reproductions at their proper value.

"Martin's Up-to-Date Tables." By Alfred J. Martin. London: T. Fisher Unwin. 2s. 6d.

The author's aim in this compilation is not so much to bring

together a set of tables for reference, but to demonstrate the appalling muddle of our British weights and measures. In saying that he succeeds perfectly in this by no means difficult task, we would not imply that the most elaborate tasks of tabulation are beyond his powers. In fact, his volume is also something of a triumph in attempting to extract order out of the chaos of the English measures. However, Mr. Martin would bring in by gradual and natural means the decimal or metric system, the simplicity and non-ambiguity of which he demonstrates by example after example. Among other suggestions for familiarizing the public with the metric system is the holding of a metric exhibition, where goods shall be bought and sold in metric measures, carpenters work by metre, and grocers' by kilogramme. We look forward to a Metric Earl's Court. However, to describe Mr. Martin's volume as nothing but a disguised argument for the gramme and cubic centimetre would not be to do it justice. It contains a large number of tables which have no mission other than to save the reader time and calculation.

"*Traité Complémentaire de Photographie Pratique*," by G. H. Niewenglowski. Paris: Garnier Freres. Price 3fr.

This work is an advanced handbook and supplementary to the elementary treatise by the same author which was published last year. Practical details are given for pinhole work, and the latest views on the subject and method of finding the amount of subject included are given. The anachromatic lenses of Puyo and Pulligny are described and figured. The carbon process, and its modifications, such as gum bichromate, the powder process, enamels, and photo-reliefs are then treated of. The various processes of making transparencies are described. Panoramic and stereoscopic photography, lantern work, and enlarging also are dealt with, and the final chapter describes the various direct and indirect processes of colour photography. The information given is thoroughly up to date, and the book will form a reliable text-book to the more advanced worker. A collection of formulæ at the end of the work will also add to its usefulness.

"Telephotography for Beginners." (No. 29 of "The Practical Photographer.") London: Hodder and Stoughton. 1s. 3d.

This book begins with an "Easy Introduction to Telephotography," by the Editor, who describes a number of simple experiments in illustration of his subject, "A Cantab" then deals with "Telephoto Calculations by Simple Arithmetic," and various writers contribute useful notes on focussing, exposure, etc. Some good examples of telephoto work are given, and perhaps the most interesting specimen is one of the Barton airship, taken during its trial (and only) trip with a folding pocket camera and Junior Adon lens. A rather brief historical note on telephoto lenses is included, and would have been more complete if it had mentioned the now forgotten "Orthoscopic lens" of Voigtlander, which was certainly of a "telephoto" form, and the recently introduced non-adjustable varieties of telephoto lenses. The so-called telephoto supplementary lenses seem also to have escaped notice. The book should be a distinctly useful one to the "beginners," for whom it is written, though perhaps some of the matter would be clearer if more condensed. It is interesting to note that "A Cantab" falls foul of the photographic habit of calling convex lenses positive and concave lenses negative. He falls in with the practice under protest, but we are not all disposed to believe that it is a purely photographic practice. Oculists certainly adopt it, and the academic convention that makes convex lenses negative and concave lenses positive is strongly objected to by many optical experts on account of its irrational nature and of the many blunders that it leads to.

The critical review is devoted to the work of Mr. A. H. Blake, and is illustrated by eight of his pictures.

The Editor announces "important developments and new features" in forthcoming numbers, so it is evident that the "Practical Photographer" is moving with the times.

**Jahrbuch Dresdner Gesellschaft zur Förderung der Amateur Photographie.**—This annual is practically the report of the above society, but, besides having a list of members and the business report, a number of readable articles are given, and also some good half-tone illustrations. The articles include such subjects as colour photography, halation, stereoscopy, pictorial work and copyright.



A TRANSLATION of the French work by René d'Helicourt has been issued by Messrs. Iliffe and Sons, Ltd., under the title, "Photographic Enamels." It deals with the production of ceramic photographs by the direct powder process and by the substitution methods. The details of firing and retouching are also considered. The volume runs to ninety pages, and is published at half-a-crown.

## New Materials.

Yvonnettes (Silk eye-lashes). Made and sold by Mdme. Catherine Devrient, 20, Abbey Gardens, Abbey Road, N.W.

A novel aid to the photographer in his meritorious endeavours to supply his feminine sitters with charms which Nature may have denied to them has been brought to our notice in the shape of artificial silk eye-lashes, called "Yvonnettes" by their maker, whose own use of them has been proved in the course of a career on the musical stage. The eye-lash is mounted on a narrow silk rim, prepared on its concave side with adhesive, so that when slightly moistened and pressed on the eye-lid it adheres firmly. The rims are made in a variety of tints suitable for blondes and brunettes, supporting, in each case, a black lash. Madame Devrient has demonstrated to us the justice of the epithet "most becoming," which she applies to them, and has induced us to draw the attention of photographers to them in the belief that they will be found a convenient and cleanly device for remedying deficiencies of nature by other means than those of the retoucher. The "Yvonnettes" are sold in sets of four at 1s. 1d.

A HANDY swivel print trimmer for cutting circles and ovals has been introduced by Messrs. H. and W. Green, Crown Photographic Works, Rotherham, at the popular price of 1s. Zinc shapes are supplied to fit all this firm's oval and circle mounts.

## CATALOGUES AND TRADE NOTICES.

A MOST comprehensive list of photographic requisites reaches us from Messrs. Babajee, Sakham and Co., Esuf Buildings, Bombay, a firm which occupies in India a position of supplier of everything photographic, such as that held here by a few leading houses. The list is a bulky volume of 400 pages.

THE February list of new cinematograph films reaches us from Messrs. L. Gaumont and Co., 22-27, Cecil Court, London, W.C.

A NEW descriptive booklet of the "Swincam" tripod, to which we were able to accord a favourable review some months ago, has been issued by the maker, Mr. W. Butler, 20, Crosby Road, Birkdale, Southport. It illustrates the very wide range of movements of which the "Swincam" is capable.

MESSRS. MARION send us a new booklet of the "Soho" Reflex camera, a new size of which—postcard,  $5\frac{1}{2}$  by  $3\frac{1}{2}$ —they have now ready. The booklet illustrates the use of the camera on the football field for Press purposes in a convincing way.

THE Late H. C. Stearn.—We regret to announce the death, on February 9, of Mr. Harry Cotterell Stearn, a partner of the photographic firm of "Stearn, Cambridge." The deceased never really recovered from an illness which seized him last summer. Mr. Stearn, who was himself a keen sportsman, and fond of shooting, fishing, rowing, billiards, etc., died at the early age of forty-seven, and will be much missed at Putney, Queen's, and other 'Varsity rendezvous.

A REQUEST has been made to the National Photographic Record Association by the late Mr. Robert Pearson Brereton, M.A., who left estate to the value of £19,000 on his recent decease. Under his will the N.P.R.A. acquires all his photographic negatives of churches, and details of ecclesiastical architecture. The late donor was not a member of the Association, and his name was even unknown to the officers until the fact of the bequest was made known to them.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Feb.	Name of Society.	Subject.
16.....	Colne Camera Club .....	"The Wit and Wisdom of Sidney Smith." Rev. C. E. Little, M.A.
16.....	Watford Photographic Society .....	"Flower Photography." Mr. E. Seymour.
16.....	Aberdeen Amat. Photo. Assn. ....	"Enlarging." Demonstrated.
16.....	Sutton Photographic Club .....	"A Tour Round the World." Mr. C. J. Marshall, A.R.I.B.A.
18.....	Sheffield Friends' Sch. Ph. Soc. ....	Annual Concert, Chapter House, &c.
19.....	Scarborough and Dis. Ph. Soc. ....	"Daylight Development of Dry Plates." Mr. C. Ponting.
19.....	Southampton Camera Club .....	Lecturette Competition.
19.....	Dewsbury Photo. Society .....	"Near the Border and Over." Mr. Godfrey Bingley.
19.....	Catford & Forest Hill Ph. Soc. ....	"Holland and the Hollanders." Rev. H. O. Fenton.
19.....	Stafford Photographic Society .....	"Retouching." Messrs. Weiss & Fowke.
19.....	South London Photo. Society .....	"Notes on and Experiences in Architectural Photography." Mr. Edgar R. Bull.
19.....	Widnes Photographic Society .....	"Maentrog." Mr. Leonard West.
20.....	Jersey Photographic Society .....	Selection of a Printing Process.
20.....	Royal Photographic Soc. ....	"Our English Chapter House." Mr. E. W. Harvey Piper, Hon. M.S.A.
20.....	St. Helens Camera Club .....	"Velox and its New Applications."
20.....	Sheffield Photographic Society .....	"Toning of 'Zigo' Paper and the Carbon Printing Process." Messrs. Thos. Hillingworth & Co., Ltd.
20.....	Rodley, Farsley, & Calverley Dis. ....	"A Bit of Old England." Mr. R. Mackay.
20.....	Darlington Camera Club .....	"Talky-Talky." Mr. Embers.
20.....	Otley & Dis. Cam. & Art Soc. ....	"Under Canvas: A Chat on Camping." Mr. J. Marston.
20.....	Cardiff Windsor Amat. Ph. Soc. ....	Competition Night.
20.....	Nelson Photo. Society .....	Y.P.U. Invitation Print Portfolio.
20.....	Brentford Photo. Society .....	Lecturette Competition.
20.....	Halifax Camera Club .....	Y.P.U. Lantern Slides.
20.....	Gloucestershire Photo. Society .....	Demonstration, Mr. S. A. Pichler.
20.....	Newcastle-on-Tyne Photo. Assn. ....	Royal Affiliation Slides (1905), and Members' Lantern Night.
20.....	Sunderland Camera Club .....	Annual Re-union.
20.....	Manchester Amat. Photo. Soc. ....	Lantern Slide Making.
21.....	North Middlesex Photo. Soc. ....	"Gaslight Papers." Mr. G. E. Williams.
21.....	G.E.R. Mechanics' Institution .....	"What Can be Done with a Hand Camera." Messrs. C. P. Goerz.
21.....	Leeds Camera Club .....	"Toned Bromides." Demonstrated.
21.....	Everton Camera Club .....	Mr. W. K. Skipwith.
21.....	Coventry Photo. Club .....	"Velox and its New Appliances." Demonstrated. Mr. A. Webb.
21.....	Cricklewood Photo. Society .....	"Carbon Printing." Mr. H. J. Goodwin.
21.....	Edmonton and Dis. Photo. Soc. ....	"The Chalfont Country." Messrs. Woolacott & Smith.
21.....	Tunbridge Wells Ama. Ph. Assn. ....	"Carbon Printing." Demonstrated.
21.....	Redcar and Coatham Ph. Soc. ....	"Gas-Light Bromide Papers and Colour Photography." Rotary Photographic Co.
21.....	Huddersfield Nat. and Ph. Soc. ....	"Carbon Printing." Mr. W. H. Tayler.
21.....	Redhill and District Cam. Club .....	(The No. 2 Y.P.U. Portfolio (Invitation) of Prints, comprising the best representative Work of the Season.)
22.....	Darwen Photographic Assn. ....	"Sketching with the Camera." Mr. W. R. Stretton.
22.....	Richmond Camera Club .....	"Pictorial Photography." Selection of Subject. Mr. A. W. Cooper.
22.....	Pudsey and District Photo. Soc. ....	Evening provided by Members of the Chiswick Camera Club.
22.....	London and Prov. Photo. Assn. ....	"Pinhole Photography." Mr. J. R. Coulson.
22.....	Hull Photographic Society .....	"Notes on the Almanac." Mr. A. E. Smith.
22.....	Liverpool Amateur Ph. Assn. ....	Y.P.U. Slides.
22.....	Bolt Court Sch. of Photo. Eng. ....	"Worcester and Neighbourhood." Mr. Victor Prince.
22.....	Cardiff Windsor Amat. Ph. Soc. ....	"Artistic Lithography." Mr. Edward F. Strange.
22.....	Rugby Photographic Society .....	"Cherrill Frame and its Uses." Mr. Woodward.
22.....	Woolwich Photographic Soc. ....	"Marine Photography." Mr. F. J. Mortimer, F.R.P.S.
22.....	Wandsworth Camera Club .....	"Sepia Toned Platinotype." Mr. J. B. Panting, F.R.P.S.
22.....	Bowes Pk. and Dis. Ph. Soc. ....	Second Annual Exhibition. Members only.
22.....		Annual Exhibition.

### ROYAL PHOTOGRAPHIC SOCIETY.

ANNUAL meeting held Tuesday, February 13, Major-General Waterhouse, I.A., in the chair. The report of the Council was submitted for discussion. From the report it is seen that the finances of the Society are in a distinctly more satisfactory state than they were a year ago. Increased expenses have been met by the recovery of subscriptions in arrears to the amount of £160. A large number of

members in arrears with subscriptions for two years and upwards had been struck off the roll, making a net decrease of ten in the actual efficient membership.

The application to the Society by the local rating authority for payment of £70 per year rates had been successfully resisted, and it was announced that the Society would be exempt for, at any rate, five years.

In the discussion on the report Mr. Casson suggested that wall space at the exhibition should be charged for to non-members. He thought it anomalous that so few photographs at the annual exhibition should be by members, and he thought that if preference were shown to members in regard to the exhibition charges, the effect would be that many exhibitors who were not members would join the Society.

Mr. J. C. S. Mummery pointed out that the question had been carefully considered by the Council, and the Secretary stated that forty new members had been added to the Society from the last exhibition.

In regard to the forthcoming issue of a catalogue of the Society's library it was announced that a charge will be made for it.

The report announces the abandonment of the scheme of a photographic research laboratory, for the support of which the total promised amounts to only £136. Major-General Waterhouse said in response to a question by Mr. A. Mackie that the Council could not be said to have fairly considered the question, which at a subsequent stage had been submitted to him, and in regard to which he had concluded that the building, from its position among heavy traffic, was not suited to research work; and further, that the cost of a proper equipment and upkeep involved the subscription of a large sum of money.

In regard to a question by Mr. R. Child Bayley on the Affiliation, the Secretary stated that a new financial arrangement had been come to under which the R.P.S. provided the Affiliation with house-room, two or three pages each month in "The Photographic Journal" for reports of its proceedings, and with a copy of "The Photographic Journal" for each Society. The Affiliation receives its own revenues and meets its other expenses.

The report of the scrutineers of the ballot was received and approved. The following were found to be the officers elected for the current year.

*President.*

Major-General Waterhouse, I.A.

*Vice-presidents.*

Sir W. de W. Abney, K.C.B., D.C.L., F.R.S.  
The Right Hon. the Earl of Crawford, K.T., F.R.S.  
J. C. S. Mummery, A.R.I.B.A.  
Sir J. W. Swan, F.R.S.

*Treasurer.*

John Sterry.

*Council.*

A. W. W. Bartlett.	Furley Lewis.
I. W. Bennett.	Ernest Marriage.
Leslie E. Clift.	Prof. R. Meldola, F.R.S.
Douglas English, B.A.	F. J. Mortimer.
E. Freshwater, F.R.M.S.	C. H. Oakden.
John H. Gear.	E. Sanger Shepherd.
Sir W. J. Herschel.	C. Winthrop Somerville.
Red Hollier.	J. Spiller.
Lindsay Johnson, M.A., M.D.,	H. Snowden Ward.
B.Sc., F.R.C.S.	B. Gay Wilkinson.
Rev. F. C. Lambert, M.A.	

The following were elected judges in the technical section at the forthcoming exhibition. The selection committee in the pictorial section is appointed by the Council:—

Thomas Bolas, F.I.C., F.C.S.	Sir J. W. Swan, D.Sc., M.A.,
Douglas English, B.A.	F.R.S.
Chapman Jones, F.I.C., F.C.S.	Major-General Waterhouse, I.A.
Sanger Shepherd.	

## THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at 51, Baker Street, W., on Friday, February 9. Present: Messrs. F. A. Bridge, Alfred Ellis, E. C. Elliott, S. H. Fry, Wm. Grove, H. E. Hull, Martin Jacquette, Alex. Mackie, H. S. Mendelssohn, D. Prodder, E. Scamell, Lang Sims, P. Lankester (Tunbridge Wells), and H. C. Spink (Brighton). In the absence of the President, Mr. Alfred Ellis, Past President, took the chair.

The meeting was devoted to making arrangements regarding the Annual General Meeting to be held on Friday, March 9. No other matters of detail.

**THE BRISTOL PHOTOGRAPHIC CLUB.**—On Tuesday in last week at Headquarters, 5, St. James' Square, Mr. Easonsmith gave a lantern lecture entitled "The Camera as a Diary." The lecturer pleaded for the consideration of this aspect of a camera, apart from its use for pictorial or scientific purposes, and justified his plea by the fact that it enabled one to re-enjoy many happy hours from the past.

**CROYDON CAMERA CLUB.**—A very pleasant evening was spent on the 7th inst., listening to a chat about photomicrography, by Mr. Bawcomb, his observations being illustrated by a series of most interesting slides. The lecturer frankly confessed he had taken up the subject simply for amusement and instruction, and with no thoughts of specialisation; he thought if others would do the same they would never regret it. Photomicrography presented no special difficulties unless high magnifications were attempted, but these were not often necessary. Although he possessed a battery of objectives up to one-twelfth of an inch, yet he had found 3 to 1 inch most useful. Focussing was best performed by observing the aerial image through an achromatic magnifier, a piece of plate glass with scratched cross lines, being substituted for the more usual ground-glass screen. The introduction of Gordon's apparatus, as made by Messrs. R. and J. Beck, had simplified the process considerably. This consisted essentially of a tube having at its upper end a small dry plate in a light-tight chamber, and lower down a projection lens focussed upon the plate, together with a simple form of exposing shutter. The lower end was adapted to make a light-tight join with the eye-piece of the microscope. Generally speaking the photograph would be sharp, when the microscope was in focus, but any error that might occur through variation in vision was remedied by using a supplementary tube, containing an eyepiece of high power, to focus by, this being removed before exposure.

In the discussion which followed Mr. Packham agreed with the lecturer that excellent work might be done by beginners if they confined themselves to low powers, nor was such elaborate apparatus essential, as Mr. Bawcomb was the happy possessor of. Mr. Kenneth Mees pointed out in reference to high magnifications, that far greater resolving powers were obtainable, by the use of purely monochromatic light in the violet, or even the invisible ultra-violet end of the spectrum. There was then no necessity to employ achromatic objectives.

**ABERDEEN PHOTO-ART CLUB.**—At a meeting of the Club last week, Mr. J. A. H. Hector, of the School of Design, delivered a lecture on "The Principles of Artistic Selection." By artistic selection he intended to refer to the selection of the treatment of the subject and the personal elements and individual feeling brought into play in the doing of it. Every subject required close watching to find out some quality which would embody an idea that would appeal not to the eye only, but to the mind. Showing a picture of Scottish mountain scenery, in the mists of winter, the artist said that this same scene in summer would have been uninteresting. It needed the selective faculty to wait for those mists, with the wild light on them, creeping through the glen, blotting out detail and giving a suggestion only of mountains beyond, to give a feeling of grandeur and greatness to the scene. The lecturer dwelt at some length on the quality known as "tone." Between the extremes of black and white there was a great range of tones, and the greatness of an artist depended on his treatment of these. The fineness of gradation in these tones determined the success of a picture. He did not mean that one tone should merge into another with mathematical precision. Often the missing of several tones in the range of gradation gave that feeling of surprise which we knew as variety in a



picture. With a number of slides and pictures Mr. Hector showed what he meant by the selection of treatment. By simply drawing a slide, full of microscopic detail, slightly out of focus, he showed the pictorial possibilities that lay in the commonplace when subjected to selective treatment.

**SOUTHAMPTON CAMERA CLUB.**—Mr. J. W. Eadie lectured to the members of the above on Monday evening, the 12th inst., his subject being "Pictorial Possibilities," and, while his particular object was the demonstration of Kodak apparatus to this end, his lecture was full of practical advice. Dealing with processes, Mr. Eadie pointed out that while different methods of developing and printing produced varied effects in the completed work, the idea sought to be conveyed by the picture should be attained in the composition before exposure was made. Dealing with the difficulties to the pictorial worker of the stereoscopic effect of ordinary vision and the flat effect of the ground glass inverted image in focussing, Mr. Eadie advised the members to do their composition with one eye closed, so as to see things as the lens sees them, and pointed out how the window of a moving railway carriage under such a method furnished a continual succession of composed subjects of extreme interest. The lecturer pleaded for an effort by workers to see every-day subjects in an unorthodox way, to be always seeking the new view of even the most ordinary and commonplace objects. As an instance of what was possible, he mentioned the work of Mr. Coburn, who, coming from America, had given us a wonderful picture of London Bridge totally different from anything done by any of the well-known home workers. The true picture was that which, leaving aside considerations of record, embodied an idea or a sentiment, and the successful picture was that which, though it might be lacking in some technical success, yet carried conviction with it.

## Commercial & Legal Intelligence.

**THEFT of a Camera.**—John Appleby, 31, dealer, was last week found guilty of stealing a camera, the property of the Stereoscopic Company, Cheapside. Mr. Graham Campbell prosecuted, and Mr. L. Green defended. The camera was ordered to be sent to an address, and the prisoner, pretending that the cover was required, sent the boy bringing the camera back for it. When the boy returned the prisoner had disappeared with the camera. The prisoner had twice previously been tried for a similar kind of offence and was acquitted. Detective Crouch had charge of the case, and Detective Hayman said the prisoner had been known to follow as many as twenty boys who had been sent to banks or with parcels in the course of a single day. Many complaints had been received of boys being robbed, but since the prisoner had been arrested these complaints had ceased. The Recorder sentenced the prisoner to twelve months' hard labour, remarking that this plan of robbing boys was a very old trick.

**IMPROPER Postcards.**—Louis Goodman, a foreigner, carrying on business at Broad Street, Golden Square, was summoned at Marlborough Street last week for exhibiting in his shop window a number of improper postcards. Mr. P. Robinson, defending, said that no doubt some of the cards were of an undesirable character, and he was prepared to have them destroyed. It seemed that it would be a good thing if the authorities would prosecute the publishers of these cards, and not keep on summoning those who had little shops. Defendant, when spoken to, said others sold them. Why should not he? Fined £25, with 4s. costs; the cards ordered to be destroyed.

**BANKRUPTCY at Smethwick.**—The first meeting of the creditors of Charles Frederick Norris, photographer, of 95, Cheshire Road, Smethwick, and carrying on business at 139, Dudley Road, was held at Ruskin Chambers on February 8. The debtor's statement of affairs disclosed liabilities amounting to £385 5s. 11d., and no assets. The cases of failure as alleged by bankrupt were "bad trade, illness of wife and family." From the Official Receiver's observations it appeared that bankrupt was engaged as a photographer's assistant until 1887, when he commenced business on his own account at 139, Dudley Road, with capital amounting to £5, which he had saved. In 1900 he opened a branch shop at 95, High Street, Smeth-

wick. He subsequently purchased the property for £350 with money advanced by his bankers, who were secured by the deeds of the property and two policies. The bankrupt traded without difficulty until December, 1903, when he was in arrear with his rent, and the landlord lent him £50. A few months later the bankrupt borrowed £20 from a professional moneylender, and agreed to repay £25. Other transactions followed, and the moneylender is a creditor for £75. Trade had been bad the last two years, and the bankrupt had been caused additional expense with the illness of his wife and a child. In June, 1905, the Smethwick property and the two life policies were sold by his bankers, who received £494. A cash book had not been kept. Mr. Sharp said it was a case of trying to trade with borrowed money and digging one hole to fill another. The case was a summary one.

**CANVASSING Amenities at Colchester.**—A police court, which held up the profession of photography in a very unfavourable light, came before the Colchester magistrates last week. The dramatis personae were:—

Charles Wilfrid Hiscox, a photographer.

Edward A. Smith, previously his canvasser.

It was alleged that Mr. Hiscox was out photographing when Smith called at his house and sent for him, saying he wanted to see him particularly. On his arrival the defendant entered into a dispute with him as to 3s. 9d., alleged to be due to him as commission. He then rushed at Mr. Hiscox, striking him several times, and subsequently in the street pulled him down on the ground and inflicted several blows on his head. A different account of the incident was given by the defendant, but the Bench considered an unprovoked assault had been committed, and fined the defendant 10s., with £1 costs.

**THE "Free Enlargement" in Court.**—At Merthyr County Court last week the London Artistic Photograph Company claimed from William G. Edwards, formerly of Bargoed and now of Cefn, a balance of 17s. in respect of 23s. charged for two frames supplied to the defendant, for whom they had made two gratis enlargements. Mr. W. R. Edmunds appeared for the defendant, whose wife alleged that the charge was to have been only 10s., on account of which 8s. 6d. had been paid. Judgment was given for the plaintiffs.

**ACTRESSES' Photographs.**—Before Mr. Justice Warrington, in the Chancery Division on Friday last, Mr. Waggett said he had a motion for an injunction in an action of Doff Brothers, of Manchester, against Albert Sachs, of Bradford, to prevent the publication and circulation of photographs of certain ladies named Daisy Jerome, Mabel Lait, and Godwynne Earle (who were acting in a pantomime at Bradford) on picture postcards. Mr. Waggett said it was a motion by a pictorial publisher at Manchester against a well-known photographer at Bradford. He understood that his learned friend was willing to give an undertaking with regard to the negatives of the photographs of which plaintiffs complained, which were taken on certain days—namely, that defendant would not sell photographs taken from those negatives until judgment or further order in the action, the photographs being of the three pantomime ladies mentioned. They would then get ready for a speedy trial, and would later on apply for a day to be fixed so that they could get the ladies there in court. —Mr. Cartmell assented, and said the undertaking was given entirely without prejudice to defendant's rights. He considered that he had a complete answer to the case, but he knew the particular negatives of which plaintiffs complained, and he was willing to give an undertaking only as to those negatives.

**A DEBT of £17.**—At the Lord Mayor's Court, on February 9, before Sir Forrest Fulton, K.C., Recorder, and a jury, Major Sawyer, New London Street, E.C., sued Mr. J. W. Meek, 32, Albert Road, Stroud Green, for £17, money lent.—Mr. Davenport (instructed by Mr. Edwards) was counsel for the plaintiffs, and Mr. Hawtin (instructed by Mr. Morros) for the defendant.—The plaintiff said that in August, 1904, the defendant came to him and said the business which he was connected with was in liquidation, and he was able to buy the assets for £17. He (plaintiff) eventually advanced that amount. An option was given to him to enter the business, but it had not been exercised.—The defence was that the plaintiff entered into a joint venture for the purchase of the assets of the Pocket Photography Company. They were to share the profits and divide the expenses between them.—The jury found a verdict for the plaintiff for the amount claimed.

**THEFT by a Photographer.**—At the West Ham Police Court on Friday, George Mole, alias Bunning, 23, a photographer, of 57, Larch Road, Cricklewood, was charged on a warrant with obtaining a bicycle and a camera by false pretences. On March 29, 1905, Arnold Ducker, of Wealdstone, Harrow, answered an advertisement offering a camera for sale, and subsequently rode to 3, Raymond Road, Upton Park, on a bicycle. There he saw the prisoner, and after some conversation, Ducker told him he had a camera which he would sell for £4 10s., and the prisoner said he would go and see it. Ducker mentioned that he would also sell the bicycle, and the prisoner agreed to give him £8 15s. for the two. On April 5, Ducker took the articles to the prisoner's house, but Mole said he had been unable to get the money out of the bank. He showed Ducker round the house, and gave him to understand that he was the son of the landlady, and eventually both the camera and the bicycle were left for him to try. On the date fixed for concluding the sale Ducker received a postcard from the prisoner, who stated that he was going away on business till the following Monday. On that day Ducker went to the house again, but found that the prisoner had gone. Later in the day he found his bicycle at a secondhand shop in Plashet Lane, Upton Park, where the prisoner had sold it two days previously for 18s. The camera was subsequently traced to a pawnbroker's, where a young fellow had pledged it in the name of Joseph Bunning for £1. The prisoner pleaded guilty, and said he had paid as many of his debts as he could. Mr. David Howard (the Chairman) said the Bench had to administer the law. He would go to prison for two months with hard labour.

#### COMPANIES REGISTERED.

**COLOUR, Limited.**—Capital, £100,000 in £1 shares. Object: To adopt an agreement with O. Shore, and to carry on the business of typographic half-tone printing, general printing, lithography, and publishing, etc. The company is expressly prohibited from manufacturing and dealing in photographic plates, films, and paper, or other photographic appliances or supplies, or doing anything in contravention of an agreement between the Eastman Kodak Company, of New Jersey, U.S.A., and J. Cadett, dated July 23, 1903, but only for so long as the said J. Cadett shall be in the service of or a shareholder in this company.

## News and Notes.

**SOUTH LONDON Photographic Society.**—The entry-forms for this society's forthcoming exhibition are now ready, and can be obtained on application to Mr. H. Creighton Beckett, 44, Edith Road, Beckham.

A **DESTRUCTIVE** fire occurred last week at the photographic shop of Mr. William Muntz, Leyland Arcade, Lord Street, Southport. The contents of the premises, including some valuable oil paintings, were destroyed. The damage, which is partly covered by insurance, amounts to about £700.

AN exhibition is to be held at Milan from April to November in celebration of the opening of the new Simplon Tunnel. A photographic section is to be arranged under the direction of Professor Namias.

A **VELOX** supplement, tinted in water colours, is presented with each copy of the current "Camera" (Philadelphia). A very pleasing effect is obtained by what must, necessarily, be an expeditious process.

WE confess some of our American contemporaries are hard reading. Among a number of disconnected paragraphs we note the advice:—Don't be scared because 'smarty' says he wants 'his head struck'; its light and tender."

THE Bristol Photographic Club have decided to hold an exhibition of pictorial photography in the autumn, and the members have already guaranteed an ample amount for carrying the project into effect. It is many years since such an exhibition was held in Bristol, and it is intended to make this one thoroughly representative

of the high position in art now held by pictorial photography. The hon. exhibition secretary is Mr. J. S. Guthrie, 23, Berkeley Square, Bristol.

THE twelfth Chemists' Exhibition will be held at the Royal Horticultural Hall, Westminster, from April 23 to 27. As in previous years, the photographic trade will be represented in the exhibition. All particulars are obtainable from its organisers, "The British and Colonial Druggist," 44-47, Bishopsgate Street Without, E.C.

ULVERSTON, Lancashire, appears to be just now a peculiarly profitable field for the cheap itinerant photographer, a large proportion of whose trading is done on the Sunday. The Urban Council has had its attention called to the congregation of young people in the street waiting their turn to be photographed, and the police have been communicated with to limit the nuisance.

A **FURTHER** sidelight on the undesirables who are to be found in the ranks of the migratory photographers is conveyed in the report of a case which came before the Menai Bridge Sessions last week. Anthony Ansonia, travelling photographer, Bangor, was charged with cruelty to a horse. Mr. Owen Trevor Williams, veterinary surgeon, Llanelwini, described the horse as being "a living skeleton." Further, there was no digestible grass on the small island where the horse was kept. The defendant (sworn) said he himself was away, but received reports twice a week from his son about the horse, from which he gathered that the horse was all right. The Chairman said the Bench had decided to convict, but as the costs were very heavy they would impose a fine of 10s. 6d., to include everything.

"PUNCH" on the Gum Process.—"Dundee has been wondering why so many members of the dental profession have honoured her with a visit during the past week. It is due to a statement in the "Amateur Photographer." In reviewing the exhibition of the Scottish Photographic Salon now being held in that town, our contemporary draws attention to the fact that "the President, G. D. Macdougald, is exhibiting some of his delightful gums, distinguished by that grace and beauty that caused such a furore when he exhibited at the last Salon."

THE Austrian exhibition to be held at Earl's Court at an early date will have photography and photo-engraving, represented by the following exhibitors:—Karl Pitzner, Vienna; J. Löwy, Vienna; Angerer and Goeschl, Vienna; Theodor Schlimpflug, Vienna; J. F. Langhaus, Prague; and the Austrian Photographic Society, Vienna.

AN exhibition of artistic stereoscopic photography is to be held in Vienna from June 20 to the end of August. It is promoted by the journal "Photo-Sport," to the offices of which at Hauptstrasse, 95, Vienna III., enquiries for further information should be made.

AN appreciation (?) of Photographic Art (?).—A correspondent of the "Liverpool Daily Post," who has visited the exhibition of the Liverpool Amateur Photographic Association, has written his impression of one photograph of the impressionist class which so closely accords with our view of what is hailed by some as embodying the highest aims in photography that we find space here for the major portion of it:—While wandering round the room I was startled by a frame containing what appeared to me to be a delineation of a mass of conventional leaves in some colouring medium which was quite unlike anything else I could see, except perhaps in two other examples close by. I looked earnestly at this exhibit, and retired to a distance and spent some minutes hoping to elucidate the mystery of the title, "A Woodland Pool." I gradually evolved a tree trunk and some splashes on uncoloured paper, or canvas, or what not; but no pool. I went near and found that here and there some green colour had found its way—accidentally or by design I do not know—and I then ventured to consult a bystander, who informed me that this was an example of what is called the "oil process." I asked myself whether such a thing should appear as an example of photography in an exhibition from which, in all probability, a large picture in pastel on a foundation of a bromide enlargement would be excluded; yet it would manifestly be easier to reproduce copies of a pastel than of such a thing as this, as much of what might be called work in it is obviously added by brush or finger, or may be accidentally, while the effect produced, to sum up everything, is like nothing in nature.



## Correspondence.

\*.\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\*.\* We do not undertake responsibility for the opinions expressed by our correspondents.

### FILMS VERSUS PLATES.

To the Editors.

Gentlemen,—While the question of the value of films against plates is before the photographer, I may perhaps intervene, and give some experience with films, a grain of practice being, the old proverb tells us, worth a bushel of theory. *En passant*, I will refer to some of the queries put by "Wet Plate," who initiated the discussion, taking first the last of the three points he raises—the cost. Surely he has access to price-lists. He will find from these that the cost of cut films is little more than half as much again as that of plates the same size, and roll films more than double the price.

"Portability." That question answers itself. Films, either cut or roll are certainly more portable than glass plates. Even with the common or garden magazine hand-cameras and cut films, a dozen glass-plate sheaths are usually replaced by two dozen for films, while roll-films for several dozen quarter-plates, for example, could easily be arranged in a waistcoat pocket.

"Quality of result." Here we are on less certain ground. If the point to be determined is the suitability for producing negatives to be criticised with mathematical accuracy, then films will not be admissible; they would be scarcely desirable, for instance, for astro-photographic work. For everyday work, in the studio or field, using full aperture of the lens, I have never had the slightest cause to complain of any destruction or diminution, even, of definition with films up to half-plate in size. Beyond that size I am unable to speak from personal experience for ordinary camera work. With regard to spools of films, I suppose I have developed some thousands for amateurs, and, excepting where there has been obvious disarrangement (usually through carelessness) of the film from its proper position, I cannot charge my memory with any lack of sharpness through the film not being true to focus.

In placing cut films in the dark slides I have never found it necessary to study portability, and the plan I have adopted is simplicity itself. I first put in the film, and then, on the top of it, place a glass plate or an old negative. Working at *f*/3.5 in the studio the results were indistinguishable from glass negatives for all practical purposes. But where portability and light weight is essential "Wet Plate" can purchase cut films enclosed in special carriers without extra cost, or, if he wish to be able to use any film on the market, there are numbers of inexpensive kinds which answer admirably.

One correspondent says, if prints are wanted the films "can be varnished with water varnish; spirit will not do"; but I may tell him this is quite a mistake. I have varnished a large number with the ordinary spirit varnish, dried off with list. The method to adopt is to have the varnish in a wide-mouthed bottle, and lay it on with a wide camel-hair brush, one similar to an ordinary copying-book brush, but of better quality than they are usually made. There need be no fear of streaks or spots if the varnishing be quickly and carefully done. If wanted often, the brush may be left in the varnish, and a suitable cover made to prevent evaporation. If only occasionally required, the brush may, after squeezing out all the varnish possible, be quickly cleaned by well working a few drops of strong ammonia solution into the hairs, and then washing under the tap; the ammonia, as I long ago discovered, renders the varnish miscible with water without being precipitated.

A very interesting aspect of the case, and one which I have been intending for some time to bring before the notice of the readers of this journal, is the keeping quality of the plates. Celluloid as a base for gelatino-bromide films has not the best of reputations; but there are films and films. I once placed two dozen films, by a popular maker and not a year old, in a magazine hand-camera, and exposed all of them one afternoon. The results were simply detestable—spots, fog, and almost every ill a plate could suffer from.

Some little time ago I came across several dozens of 12 x 10 and 15 x 12 films that some of my assistants had carefully put where no one could see them, and they had been lost sight and count of for many years. More out of curiosity than anything I determined to see what they were like when exposed and developed. To my surprise and pleasure they were as good as on the day I received them from the makers, though I was under the impression that I had received these particular films prior to some I had been using in the early days of the Röntgen-ray work (films are very useful and free from liability to breakage in skiagraphing). Having no use at the time for films of that size, I cut up the whole number—several dozens—into half-plate size, and every piece developed into a perfect negative. More remarkable still, some of these films were orthochromatic, which of itself would usually be considered condemnatory of either film or plate, when of considerable age. There was another remarkable peculiarity about them. Whether from extra care in packing, or because they lay so close together, there was an almost complete absence of that well-known iridescence at the edges of the film that is almost invariably seen in glass plates as usually packed. From the date I mention, it will be seen that these films were by some of the earliest makers in the field—Edwards and Thomas respectively. I was so impressed by the importance of these results that I wrote to the makers giving the batch numbers from the packages, and asking if they could tell me the date upon which I had them. The replies were to the effect that batch dates were not preserved for longer than ten years; but that they should think that the films were about fifteen years old. I do not hold a brief for cut-film makers, but I think I have made out a good case for them.—Yours faithfully,

G. WATMOUGH WEBSTER.

1, Grange Road, West Kirby.

### A PHOTOGRAPHER IN RUSSIA.

To the Editors.

Gentlemen,—I think that, perhaps, the following extracts from a letter I have just received from a friend of mine who is an ardent amateur photographer, and lives in Moscow, may not be without interest to your readers:—

"You must know that for over six weeks no mail (private) was delivered in Moscow; of course you have read all about the troubles.

"What times we have had here; I thought many times how interested you would have been if you had been here. The first day of the disturbances I met with a little excitement at the corner of the Tverskaia and boulevard opposite the Monastery. I stood on the corner when the mounted soldiers from the Governor's house swept past, driving people into the side street; reaching the square they took the first street across the square, left-hand side. Soon after they had disappeared shots were heard, and from that time on the times were lively there, believe me.

"Of course, when the firing began I should have made myself scarce, but thought that because I was decently dressed I need not fear.

"I stood, as already stated, on the corner watching all these occurrences with great interest (but no time to load camera, so missed many interesting pictures), when suddenly a whole troop of mounted soldiers rode over to a small group where I was standing and told us to disperse. I like the others, began to look where to shelter, when you can imagine my surprise to see soldiers firing down the boulevard towards the Chief of Police's house. Being on the left side there was not a street to run down, not a gate open, so I was obliged to take to my heels and ran about the distance from the Magasin to Smith Bridge with shots flying on all sides. One or two passed unpleasantly close to my ear; I was in a quandary, and did not know whether to keep on running or lie down flat. I finally reached a doorway at the end of a long (seemed to me interminable) fence, and what a squeezing and scampering trying to force the door! I tried my best to push some one of the six or seven other people between myself and the firing. Finally the door gave way, and we rushed in. Once inside, I turned and looked across the boulevard and saw a number of bodies, perhaps wounded, lying in the snow. I loaded my camera and took a snapshot from the door, and send you a copy. The soldiers are too far away to be very clear, but you may be able to locate the place. After a little rest, I, with a photo-

grapher I know, started to cross the boulevard, on the run, in order to reach a side street, when the soldiers began firing on us, no doubt thinking we were going to the assistance of the men lying in the snow. Anyway, we got safely across, and I made a bee's line for home, having had enough for one day; but I had only commenced with the horror. I live close to the Ekaterineenskie Hospital, and for three hours I stood and saw the wounded shot on and about the Tverskaia brought in all kinds of conveyances to the hospital; the most part were wounded in the thighs and back. Some were killed and wounded whilst assisting the wounded. You have, no doubt, read in the papers more than I can tell you. When the black band, or policemen, were breaking up the barricades the first time I thought they had left our vicinity and went to the gate to have a look at what they had done, when a bullet whistled past our heads (my daughter and self), burying itself in the wooden door jamb. Lively times for people with heart failure!

"It would astonish you to hear how many people died from fright during the revolution here; how many sad tales we hear; innocent children and women killed."—Yours faithfully,

ARTHUR V. KENAH.

Prudential Buildings, Queen Street, Nottingham,  
February 3, 1906.

### COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—I have now seen your colour exhibition, and I hope you will allow me to point out the following: My prints are intended to show what my invention—made since September, 1905—of a one-exposure camera can do; further improvements to follow.

By the Jumeaux process—the only one of English origin, and known to me before the carbon process—the interposition of celluloid films is not an advantage, especially if the process is used to show pictures print-like, but for ordinary transparencies, which are not required for projection, the Jumeaux process is the easiest method known.

Suppose you receive from an unknown source three negative colour records and an order with them to print 10,000 postcards. With Dr. Jumeaux's process you are in a position to verify easily if the colour records are correct, and what the resulting picture should look like; if you require is two bromide plates for blue and one gelatin-coated film for each other colour.

To show Jumeaux' process to better advantage in the exhibition send herewith two transparencies. The first picture is taken with no screen only (the red sensation). The quasi-instantaneous picture is taken with a Bennetto camera, a system which does not give three pictures of equal size—a defect that all cameras with the now known reflector system have, but which defect is not detrimental when superposition is made with a chromoscope.—Yours faithfully,  
OTTO PFENNINGER.

105, Hythe Road, Brighton, February 10, 1906.

[While not endorsing all our correspondent's statements, we have added the two examples to the exhibition. We refer to the Jumeaux process on another page under "Colour Photography."—Eds., J.P.]

### "THE PHOTOGRAPHIC SOCIETY."

To the Editors.

Gentlemen,—In a county-court case recently, in which a photographic operator sued for a week's salary in lieu of notice, the plaintiff's counsel is reported to have stated that he appeared at the instance of "The Photographic Society," and that the case "affected the whole of the 15,000 members of that Society."

I have made careful inquiries, but, so far, have failed to find anyone who can give me any information about this gigantic organization. Perhaps one of the 15,000 will kindly supply your readers with some particulars. It seems a pity such an apparently important institution should be allowed to follow the example of the modest *plet*.—Yours truly,  
ENQUIRER.  
London, February 10, 1906.

Gentlemen,—In a report of an action brought by an operator for recovery of wages it is stated that the plaintiff was a member of

a photographic society, and the case was of interest to its 15,000 members. The Co-operative Photographic Society beg to say that they are not 15,000 strong. The report should have read that the case was fought by the Society on the ground that it was of interest to 15,000 photographic workpeople.—I am, sir,

p.p. THE CO-OPERATIVE PHOTOGRAPHIC SOCIETY.  
G. PALMER, JUN.

Great Eastern House,  
20, Bishopsgate Street Without, London, E.C.

### THE FREE PORTRAIT SWINDLE IN CORNWALL.

To the Editors.

Gentlemen,—Here is another case of the free portrait swindle. I thought I would test it, as the circulars were sent into this neighbourhood in great numbers. I sent a cabinet photograph, they wanted 8s. for the enlargement without a frame. I got it at last for 5s., and 2s. is all it is worth. And yet there must be many in this country who are being duped.—Yours truly,

A CORNISH PHOTOGRAPHER.

Camborne, February 10, 1906.

[The circular letter is in the customary style of the French free-portrait swindler. It refers to the choice work of art which must be properly packed and forwarded at a cost of 8s.: for which an elegant frame may be purchased at a special discount of 20 per cent. off the list price. This offer is made broadcast in a printed letter. It seems extraordinary that the public can be taken in by such offers, but human gullibility appears to be a quality upon which audacious swindlers cannot assume too much. We hope that residents in the West of England, to whom the gratuitous portrait has been offered, will benefit by the experience of others.—Eds., B.J.P.]

### PHOTOGRAPHING ANTIQUE FURNITURE.

To the Editors.

Gentlemen,—I beg to submit for your inspection a few prints from negatives of inlaid cabinet work, taken on orthochromatic plates ("Spectrum") with the aid of a deep screen ("Absolutus"). The open air is always best for this sort of work, and then the exposures will not be unduly prolonged, from one to three or four minutes being usually sufficient with a moderately small stop.—I beg to remain, Sirs, your very obediently,  
AUG. F. PERREN.

7, Edgar Buildings, Bath,

February 13, 1906.

[The specimens sent by our correspondent comprise very varied descriptions of furniture, including bold Sheraton inlaid work to decoration of a much finer character. The latter especially are excellently reproduced, and we think that such rendering could not be obtained without a screen. In two cases the correction appears to us overdone; a lighter screen or a longer exposure would have been all the better; but the quality of the work as a whole confirms us in our advice of a fortnight ago.—Eds., B.J.P.]

### FLASHLIGHT PHOTOGRAPHY.

To the Editors.

Gentlemen,—After reading Mr. Corke's letter in your issue of February 9, I am sending you three photographs. They are from a series taken of the Hildenborough Village Players, two years ago. One flash lamp only was used. Exposure, a fraction of a second. Lens used, Zeiss double Protar, stop  $f/8$ . The home of the Village Players is a small iron room, and the area of the stage opening would be about 16 ft. wide by 8 ft. high.

Tonbridge is always looked upon as a bit behind the times, but surely Sevenoaks may now take the bun, especially if one reads your notice in "Ex Cathedra," "Snap Shots in the Studio."—I am, gentlemen, yours faithfully,  
T. A. FLEMONS.

Tonbridge, Kent.

[Mr. Flemons' prints are excellent specimens of flashlight, and we insert the details of their production, although we are at a loss to perceive the relevance of the last paragraph of the letter.—Eds., B.J.P.]



## Answers to Correspondents.

- \* \* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C."* Inattention to this ensures delay.
- \* \* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \* \* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
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### PHOTOGRAPHS REGISTERED:—

- M. H. Grocock, Laurel Cottage, Ulverston. *Two Photographs of Lady Moyra Cavendish.*
- J. H. Smith, The Studio, Waller Hill, Skipton. *Two Combination Photographs: Skipton and Bolton Abbey.*
- W. M. Rodgers, 57, Murray Place, Stirling. *Two Photographs of the Marquis of Graham.*
- J. A. Beckett, 117, High Street West, Wallsend-on-Tyne. *Two Photographs of the late Mrs. Henderson.*
- J. Hix, The Studio, St. Marychurch. *Photograph of John Kelly, Centenarian.*

**RESIDUES.**—Can you say in your next issue what is the best way to save the silver from P.O.P. washings and fixing solutions? I have added salt as in ordinary silver prints, but it does not settle. I usually place prints in sulpho-gold without previous washing. I wish to save silver from this.—R. D. B.

If fixing baths are mixed with the washes, salt will not throw down the silver. The proper substance is liver of sulphur, which is added and stirred up. If the solution, after settling, gives a precipitate when a little more liver of sulphur is added, the whole of the silver is not down, and, further, "liver" must be added. The gold from the toning bath can be thrown down with sulphate of iron.

**TONING BROMIDES.**—Could you please inform me by what process the — produces the tone that they get on their cards of actresses?—MACK.

By sulphide toning, we believe. Unless we are mistaken the method adopted is that on page 825 of the "Almanac" (the last paragraph).

**COLOUR-GRAPHY.**—Will you kindly inform me which is the most practical handbook on producing prints (not transparencies) in natural colours? I am starting to work the superimposed three-carbon film method.—C. E. DOYLE.

There is very little in the textbooks on making three-colour prints. For negative-making and colour-photography in general, you cannot do better than "Colour Photography," by Bolas, Tal-ent, and Senior, published by Marion and Co.

**PERPLEXED.**—If you wish for a vigorous black tone and a fair gloss, we should recommend you to select one or other of the collodion papers, which you will see advertised in our pages, and in the "Almanac." But we must confess to thinking that you cannot expect to decrease expenses by discarding your present paper.

**COPYRIGHT IN AMERICA.**—Could you tell me through JOURNAL how to get photographs of pictures copyrighted in U.S. America, and about what the fee is if it is possible to do it?—EDMOND WALLIS.

We do not know how you can make the photographs copyright, as one clause of the American Copyright Act stipulates that a copy must be deposited at Washington prior to publication in America or any foreign country. If you have the pictures copied in the States you can no doubt register your copyrights there.

**ENLARGING.**—Will you kindly tell me the necessary equipment for bromide enlarging by incandescent light, and what size condensers to produce good 12 x 10 prints?—KNOWLEDGE.

How can we tell you what size your condenser should be unless you state the size of the negative? But surely you can measure your negative from corner to corner. You had better get an elementary book, such as "All About Enlarging," by Somerville.

F. H. H.—The proper course is to write to the Queen's Private Secretary, the Hon. Sidney Robert Greville, addressing him wherever the Queen is for the time being.

**MOUNTANT.**—1. Can you recommend a good adhesive, suitable for mounting photographs (silver prints) to crystoleum (bent) glasses. I have tried several, but they have all spotted more or less in time. 2. Also, could you say what special method is used for fixing without leaving bubbles.—I. H. B.

The usual mountant is starch, but we doubt if you will find any which will answer well for bromide paper. It is usual to employ the thinner albumen paper for crystoleum. Use starch paste as made in the ordinary way, but thinner—about the consistency of treacle when cold. 2. Apply an ample coating to the picture side and to the concave side of the glass, and work the print into contact all over, commencing from the centre and working outwards. Finally lay the glass on a soft pad and rub the print in circles with a hard tool (the butt handle of a knife), laying a piece of tough parchment paper over the print.

E. TAYLOR.—We should say that the print is not toned by the usual processes, but is tinted by hand.

**INVENTOR.**—You had better take out provisional protection. Address the Patent Office, 25, Southampton Buildings, Chancery Lane, E.C., for directions and circular of costs. Both the ideas seem promising, though we cannot say much from the brief particulars.

**COLLODION PRINTS.**—I should be pleased if you would give me a few instructions on enamelling collodio-chloride prints—viz., 1. How to make up gelatine solution; also 2, collodion enamel; and 3, thinning solution with method of using same?

Coat glass plates (previously cleaned with French chalk) with: Alcohol, 4 oz.; ether, 4 oz.; gun cotton, 50 grains. Soften the print in water, and as soon as the collodion has set, slide the plate under the print, remove in contact, squeeze, and set to dry, pasting a backing paper about half-way through this latter process.

**STAINED NEGATIVES.**—I have some negatives (Ilford plates) taken by my late son in the Guiana Forest. I put them away safely some four years ago, and yesterday on inspecting them I find their printing qualities very much degraded, they having become very brown indeed. Can I restore their transparency, and how? I want, if possible, to print lantern slides from them. They are not varnished. OLD SUBSCRIBER.

We can only suspect that the negatives were imperfectly fixed or washed, in which case there is nothing to be done. Possibly they have been intensified with the mercuric iodide Swyle solution intensifier. If this is the case, a weak solution of Schlippe's salt will restore them. Why do you not send us one with some account of its method of production?

T. V. T.—Messrs. Dallmeyer, of Newman Street, W., have made such cameras for the same purpose as the one you name.

**POSTCARD.**—Certainly not. The copyrights are probably the publisher's, to whom you had better apply. It is not necessary for a copyright work to be so marked.

**ANASTIGMAT.**—The length of the studio will enable you to use the longer focus, but of course you will not get the same rapidity.

Owing to lack of space a number of replies to correspondents are unavoidably held over until next week.

\* \* **NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## SUMMARY.

Colour Photography. The exhibition opened at these offices in January will close to-morrow week (Saturday), March 3.

Colour Photography. Some practical notes on landscape colour photography and on the printing of the transparencies appear by Edwin T. Butler. (P. 145.)

Colour Photography. Some further experiments in the bleach-out process have been made. (P. 146.)

Arion von Hübl has made some further experiments with the cyanine dyes as red-sensitisers of collodion and gelatine emulsions. (P. 147.)

Losses to the amount of £25 were inflicted on vendors of improper cards last week. (P. 157.)

Fourpenny handbooks are understood to be the next thing in the photographic publishing trade. (P. 153.)

Photographic Societies. The president-elect of the Photographic Convention has made a suggestion which should be of profit to photographic societies. (P. 158.)

Mr. Dennis Taylor has patented new forms of the “Cooke” lens fitting of the use of separate parts as lenses of double and triple length. (P. 152.)

Technical specifications of plates for various purposes are given by Mr. E. K. Mees in concluding the articles on sensitometric tests. (P. 143.)

The principles of multiple-gum and an account of a new ready-gum paper were discussed at the Croydon Camera Club last week. (P. 148.)

## EX CATHEDRA.

### The Proposed Exhibition in Paris.

The prospects for the proposed international exhibition of photography in Paris now turn out to be distinctly less promising than we suggested in a somewhat pessimistic note a week or two ago. We then recommended a suspension of judgment as to the probable success of the exhibition until the attitude of the important photographic bodies in France was known. A circular has now been issued in which it is officially announced that certain bodies will abstain from all participation in the exhibition. These bodies are the “Chambre Syndicale des Fabricants et Négociants de la Photographie,” the “Chambre Syndicale Française de la Photographie,” and two other similarly representative organisations which express the feeling of the photo-engraving and postcard industries. The first-named of the above “chambres” is a union of the important photographic manufacturers and dealers in France, including such firms as Lumière, Gaumont, Mackenstein, Turillon, and Krauss, and its decision not to co-operate in the proposed exhibition must inevitably mean that, so far as French manufacturers are concerned, the exhibition will be *non est*. The “chambres” have further expressed their decision to limit their support of future exhibitions to those which are either officially organised in France, are organised abroad and officially supported in France, or are arranged by “syndicale” bodies. A similar decision has been formed and officially published by the French Photographic Society and the Photo-Club of Paris, which associations include all the representative men in scientific and pictorial photography, and by both of which it is announced that support will not be granted to exhibitions which are not organised officially or by a union of photographic societies. We have no reason to doubt that all these bodies are acting in the best interests of the photographic community, and with special knowledge of the conditions of a successful exhibition. In the absence of their support, any exhibition must be an anachronism—an international exhibition in Paris with France unrepresented.

\* \* \*

### Professional Colour Photography.

We learn from the newspapers that the studio opened in Berlin not long ago for portraiture in natural colours has had the honour of numbering the German Emperor amongst its sitters: or rather a special studio was prepared at the Monbijou Palace, where for an hour and a half one afternoon the Kaiser submitted himself to the mercies of a staff of fifteen electricians and assistants, by whom altogether sixteen negatives were obtained of His Majesty. During the sitting the Kaiser donned three costumes, being finally photographed in the uniform of the Garde-Jaeger. The incident will no doubt create renewed interest in the



technical methods by which three-colour negatives of such a mobile personage as Wilhelm II. could be obtained with satisfaction. At least one other studio in Germany is employing colour photography commercially, and, unless we are mistaken, it will not be long before we hear of similar projects being launched in London. We understand that in the case of the Berlin studio the total exposure for all three negatives has been cut down to about twelve seconds.

\* \* \*

### Home Sensitising Plates.

Notwithstanding the excellent makes of panchromatic plates which can be obtained commercially, it is generally acknowledged that the best results are only obtainable by bathing the plates. We would call particular attention to von Hübl's paper, which appears elsewhere, for it contains an important statement on this point, namely, the use of alcohol in the bath. This not only confers greater colour-sensitiveness on the plates, but does away with the washing, which has hitherto always been considered essential. One of the difficulties in the home sensitising of plates is the drying, though this really should not present much difficulty. If those who wish to undertake this will provide themselves with a tin trunk or box, the lid of which will shut close, they will be able to dry plates within three hours at least by the use of anhydrous chloride. A dish of fragments of this salt should be placed at the top of the box, not the bottom, for it is well known that damp air rises, and therefore if the chloride be placed at the top it will dry the air much quicker than if placed below. Then if the box is placed near a fire or in a warm room the plates will readily dry. A wooden box should not be employed, as the porous walls will allow moisture to get through, so that metal boxes, or wood boxes metal lined should alone be used.

## PRINTING PROCESSES.

### XIX.—CARBON (Continued).

IN the previous article (see page 103 *ante*) it was assumed that the ordinary single transfer paper was being employed. With that the soaking in water, prior to squeegeeing the exposed tissue upon it for development, need not be much longer, if any, than that of the tissue itself. With thick and rough drawing papers, however, such as are now so largely used for carbon pictures, the case is somewhat different. With them the soaking should be much longer. If the temperature of the water be low, say 45 or 50 degrees Fahr., as it usually comes from the tap at this time of the year, two or three hours should be given. But if it be at the summer temperature of 65 deg. or 70 deg. half an hour or so will suffice. It is a good plan when the tap water comes in very cold to add a little warm to it, so as to bring it up to about the above higher temperature. In mounting the exposed prints on very rough paper it is advisable to allow them to get a little softer in the water than when using smooth paper, and to use the squeegee with more pressure so as to ensure intimate contact in the minute hollows of the paper, thus avoiding blisters in the development. It is also a good plan to allow a rather longer time to elapse between the mounting and the development than is necessary when using smooth papers.

There are one or two points in connection with the exposure of the prints that may well be referred to here. One which may cause trouble to a beginner in the carbon process is what is known as the continuing action of light—that is to say, the carbon image goes on printing, or becomes developable to a greater extent the longer it is kept, even when preserved in absolute darkness. Thus if

a print is put aside for some hours after printing it will turn out considerably darker than it would have done had it been developed directly it was taken from the frame. This darkening, it should be explained, is not a regular one, as it depends very much upon the prevailing atmospheric conditions. If the air is cold and dry the progressive action is but slow. If, on the other hand, it is damp and humid, it proceeds rapidly, and under these conditions a material difference may be observed, even after two or three hours' keeping. Hence allowance should be made for this in the printing, according to the state of the atmosphere—that is, supposing the prints are not developed as soon as printed. By taking advantage of this property in bichromated gelatine, and using judgment, the exposure in the printing may be considerably curtailed, and that without detriment to the result. In our issue for last week, under the heading of "Photo-mechanical Notes" (see page 130), is an interesting note on this subject.

Another point to be borne in mind is that the tissue is, proportionately, more sensitive when it is exposed in a strong light than it is in a feeble one. For example, if a given negative requires, say, four tints by the actinometer in a bright summer light, it will require quite five tints in a dull winter one to obtain a similar depth in the print.

In the previous article it was mentioned that there is very great opportunity for local treatment in the development of carbon pictures—portions may be lightened to almost any extent, while others can be kept subdued. The development of a carbon print being simply the removal, or washing away, of the more or less partially soluble pigmented gelatine, the hotter the water used the more pigmented gelatine will be dissolved. For example: the pigmented coating that would be practically unaffected by water at, say, a temperature of 90 deg. or 95 deg. would freely dissolve in water at 120 deg. or 130 deg. Hence, if a picture were being developed at the former temperature and a stream of water at the latter heat be poured on certain parts, those will dissolve and so become lighter, while the other parts will be unaffected. This dissolving, or washing away, may be further accelerated, or more closely localised, by using a flat camel-hair brush, which will materially aid in the removal of the pigmented coating.

Where much local treatment, or "faking," is to be done the print should receive but a minimum of exposure, and the main development be conducted in very cool water, as then the parts to be lightened are very amenable to the hotter water and to the brush, due to the fact that the film, generally, is in a more soluble condition than if the print had been more exposed. Hence, when much local treatment has to be done, anything like over-printing should be avoided. Also it is as well to commence the work as soon as the tissue is stripped off the support—having a rough print at hand as a guide. We then proceed to remove some of the coating from the parts that are required to be the lightest—either by the application of hot water or of the brush, or of both together—and then allow the print to rest for a short time, still keeping the water cool. The brush and hot water treatment may be repeated as desired; but it is desirable that the final development of the picture should be spontaneous. By this procedure any palpable evidence of faking will not be noticeable in the finished result.

If the pictures are printed with a white margin, whether on rough or smooth paper, they should be dealt with directly the tissue is stripped, by clearing off the soluble coating with a piece of soft sponge dipped in hot water. The same treatment may be applied to the margins of vignettes; in this case, however, the sponge should be used with a light circular motion, but not in such a way as to encroach on the shading of the vignette. By this treat-

at the margins of the pictures will be obtained much better and cleaner than if they were allowed to develop simultaneously.

There is another and more drastic method of local treatment, though it is scarcely to be recommended to novices in carbon printing. Alkalies have a solvent action on the gelatin, though if a brush charged with, say, one part of ammonia to ten of water be passed over certain portions of the picture, those parts will be rendered more soluble than the others, and thus become, proportionately, more developed as the development proceeds. If this method be adopted it is advisable that the printing be carried a little

deeper than with the previous one, also that the "faking" be deferred until a somewhat later stage of the development; indeed, it may be left till it is nearly completed.

If a number of prints be developed in the same water it will become very frothy, and the bubbles an annoyance in working. The remedy, however, is very simple. If two fingers be rubbed on a piece of soap, and the water stirred with them, the bubbles will at once disappear and will not form again.

The double transfer method of working, and the sensitising of the tissue to suit different classes of negatives, will be dealt with in a forthcoming article.

## THE INTERPRETATION OF SENSITOMETRIC TESTS.

### III.—THE DEVELOPMENT CONSTANTS.

In a former article (B.J., June 9, 1905) it was stated that development could be shown to be a heterogeneous reaction occurring in accordance with the equation

$$\kappa = \frac{1}{t} \log \frac{D_{\infty}}{D_{\infty} - D}$$

where  $\kappa$  is the velocity constant of development. We may, in the above equation, substitute for  $D$ ,  $\gamma$ , the development factor. Referring to the figure (1) given in the second article of this series we may express  $\gamma$  as the slope of the straight line tangent to the plate curve, and since a slope is expressed as

become  $B'$ , while  $\gamma$  will become  $\frac{B'C}{AC}$ , i.e.,  $\gamma$  is proportional to  $D$

So that we can apply the development equation to  $\gamma$  and it becomes

$$\kappa = \frac{1}{t} \log \frac{\gamma_{\infty}}{\gamma_{\infty} - \gamma}$$

or, writing the equation in another form,

$$\gamma = \gamma_{\infty} (1 - e^{-\kappa t})$$

Fig. 4 represents the straight line portion of a plate in which the constants  $\gamma_{\infty}$  and  $\kappa$  of the above equation are respectively 2 and .2. The slope is represented for every minute's development from 1 to 13, and it is easy to see how the extra minute has less and less effect as the slope approaches  $\gamma_{\infty}$ , until finally no greater slope can be obtained, however much we develop the plate. In the same way, fig. 5 shows the increase of  $\gamma$  for the

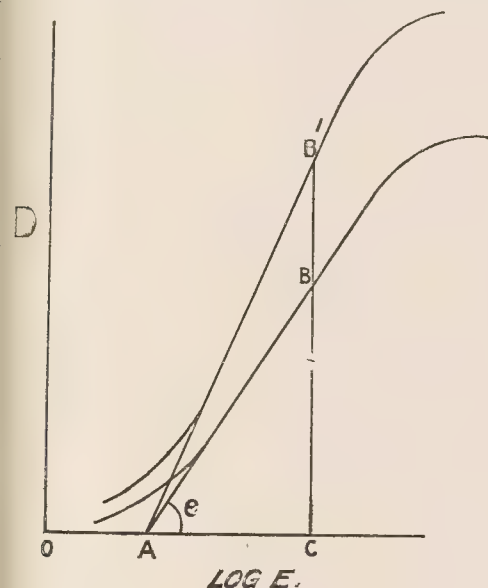


Fig. 3.

tangent of the angle, we mean, by  $\gamma$  the tangent of the angle which the straight line makes with the axis—thus, in fig. 3, if the curve has a straight portion cutting the axis at A, so that OA will be the logarithm of the inertia, then  $\tan BAC$ , i.e.,  $\gamma = \frac{BC}{AC}$ , if BC be drawn perpendicular to the axis.

Since (when there is no potassium bromide in the developer) point A remains constant while  $\theta$  increases, we see that density B corresponding to a logarithmic exposure C will

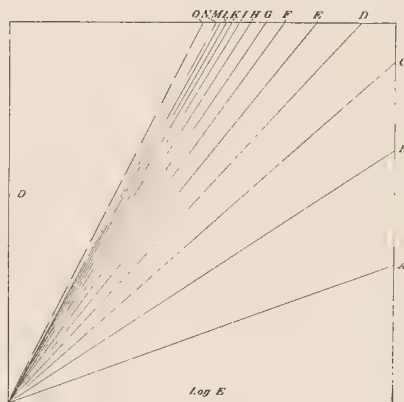


Fig. 4.

same plate with increasing time of development. It will be seen that  $\gamma$  mounts rapidly at first, but soon reaches a limit beyond which it cannot go.

$\gamma_{\infty}$ .

This limit, which, so far as we know at present, depends on the plate, and on the plate alone, is termed  $\gamma_{\infty}$  because it is the  $\gamma$  reached on infinite development.  $\gamma_{\infty}$  is clearly the density-giving power of a plate, and governs what has been termed the "character" of a plate—i.e., low  $\gamma_{\infty}$  makes a soft plate, high  $\gamma_{\infty}$  a plate capable of strong contrasts.



A plate that can be "forced" in development when under-exposed will have a high  $\gamma_{\infty}$ .

The rate at which a plate develops during the earlier part of its  $\gamma, t$  curve is proportional to  $\kappa \chi \gamma^{\infty}$ .

Now,  $\gamma_{\infty}$  depends on the plate, but  $\kappa$  depends also on the developer, on the developing temperature, and so on.

With the same plate, if we double  $\kappa$ , we halve the time necessary to get the same  $\gamma$ . We can increase  $\kappa$  to almost any extent by increasing the concentration of the developer, so that in making sensitometric measurements of  $\kappa$  we must carefully define the developer and temperature used. Since the chemical reactions of the ferrous oxalate developer are better understood than those of any other developer, ferrous oxalate makes a good standard, and a convenient standard is a developer containing 56 grammes of iron per litre at a temperature of 20 deg. C.

We see that for ease of development it is desirable to obtain a high  $\kappa$ , but it is much more important to obtain a high  $\gamma_{\infty}$ .

In fact, of all the constants of a plate, I should consider  $\gamma_{\infty}$  the most important. For example, if a plate is being used for extremely under-exposed focal-plane work, then a high  $\gamma_{\infty}$  is far more valuable than a high speed.

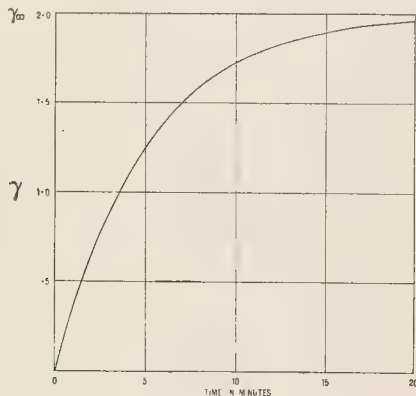


Fig. 5.

For instance, the following two plates gave practically identical results, by eye judgment, at F.3.5, 1-500th sec.

Plate.	Inertia.	H and D No.	$\gamma_{\infty}$
1	.260	131	1.88
2	1.190	28.6	4.01

It is for this reason that slow plates can frequently be used for extremely short exposures, because the high  $\gamma_{\infty}$  often associated with a slow plate compensates for the low sensitiveness. Values of  $\gamma_{\infty}$  may range from 1.5 (low) to 3.5 (high), or even above or below these limits.  $\kappa$  from .03 (low) to .2 (high).

As a general rule,  $\kappa$  is higher in a slow plate than in a fast, and it almost always decreases if the plate is kept.

The constant  $t_{\gamma 1}$  is the time necessary to reach a  $\gamma$  of 1 and is easily calculated from the values of  $\gamma_{\infty}$  and  $\kappa$ . It is of use in comparing the rates of development of two plates which have widely different  $\gamma_{\infty}$ 's. The constant 0 is the measure of the optical opacity of the unexposed plate to blue violet light (W. length 4,300). It is of importance, because the latitude of the plate (i.e., the range of exposures which the plate can render correctly) depends upon it (this has been shown theoretically—see B.J., November, 1904).

The constant  $\chi$  for colour-sensitive plates is the ratio of the blue sensitiveness to the yellow sensitiveness. In

order to measure it, plates are exposed, as for speed-testing, but with first a 4 per cent. solution of potassium chromate, and, secondly, a 2 per cent. solution of copper ammonium sulphate, in a 1 cm. thick cell between the light source and the plate; the light source being, as before, acetylene screened, to give the spectral composition of daylight. The resulting inertias are then measured and the ratio:—

$$\frac{\text{Yellow Inertia}}{\text{Blue Inertia}} = \frac{\text{Blue Sensitiveness}}{\text{Yellow Sensitiveness}} = \chi.$$

$\chi$  may vary in commercial plates from 20 for rather poor erythrosin plates to 5 for panchromatic plates, or 2 for plates with subdued blue sensitiveness, while for bathed plates it may become 1 or slightly less. The lower  $\chi$ , the better the colour-sensitiveness. The other three measurements which should be made for a plate to be tested deal with the fog, i.e., the velocity of blackening without exposure, the grain, and the evenness.

The last of these is easy to measure, but scarcely worth the labour involved. Owing to the extreme variability of fog, and the sensitiveness which it displays towards external influences, it has not been found possible to measure the extent of the fog due to the plate itself with any regularity. All that can be done, in fact, is to make general statements by eye comparison. We may hope that, later on, measurements may be placed on a more satisfactory basis.

#### Specifications for Good Plates.

The following specifications for plates for different purposes may be taken as those which I personally should choose, and which the platemakers, in the present state of knowledge and technical skill may be reasonably expected to supply.

All plates should be quite free from perceptible fog, be evenly coated, and have a reasonably fine grain.

For a portrait plate (colour sensitive):—

$i$	=	.125
$\chi$	=	8
$\gamma_{\infty}$	=	2.2
$\kappa$	=	.080
0	=	20

For a landscape plate (colour sensitive, slow):—

$i$	=	.500
$\chi$	=	3
$\gamma_{\infty}$	=	2.5
$\kappa$	=	.130
0	=	20

For a hand-camera plate for forcing in development, some result being more important than truthful gradation:—

$i$	=	.150
$\gamma_{\infty}$	=	4.0
$\kappa$	=	.060
0	=	20

For a process plate for line work:—

$i$	=	3.0
$\gamma_{\infty}$	=	4.0
$\kappa$	=	.150
0	=	7

For three-colour and orthochromatic work the corresponding plate bathed in an isocyanine dye. If sensitised in the emulsion  $\chi = 5$ .

For a transparency plate:—

$i$	=	5.0
$\gamma_{\infty}$	=	1.8
$\kappa$	=	.300
0	=	10

Individual workers will probably agree that some of these specifications may be altered to agree with personal preferences,

they may be useful as suggestions of what may be made, not, be it understood, what might be made, if plating were in a more advanced state than it is at present. Of course, some desiderata are impossible from their very nature. For example, a published specification for a process included a plate with a thin film to avoid irradiation, but a considerable latitude. Now, since latitude depends on it is clear that considerable latitude is incompatible with free-

dom from irradiation, and a choice must be made as to what latitude and what irradiation are to be obtained. The question of complete colour sensitometry, including the testing of panchromatic plates for three-colour work, must be deferred for the present. In conclusion, I would hope that these papers may be of use as explaining the results which are obtained in sensitometry, and the limitations which occur in the application of these results. C. E. KENNETH MEES.

## COLOUR PHOTOGRAPHY.

### TRI-COLOUR WORK WITH A SINGLE EXPOSURE CAMERA.

Colour photography is now an accomplished fact. The difficulties in securing results are still considerable, but when there can be no question that the results recompense the extra trouble involved. Colour prints are now obtainable both as transparencies and as prints on prepared paper. Transparencies offer the most tempting field to the worker in the colour photograph.

By a convention, prints on paper are most in demand by the public, but to the lover of colour full satisfaction is only to be obtained in transparency work. No medium of artistic representation has ever offered such rich colour representation as is seen in dyed gelatine transparencies.

In oil painting the high-lights are frequently loaded with colour in order to catch the light, and by this device the effect of brilliancy and sparkle is secured. While, on the other hand, the range in shadow is increased by transparent glazing and fitting of the rich and subtle detail of half tone and deep shadows.

Transparencies, in a somewhat similar manner, by a wide range of light and shade lend themselves to the representation of even richer effects. A print on paper is shown by light reflected from the white ground, and transmitted through the overlying colour. And this reflected light is necessarily weaker and of narrower range than that of transmitted light.

Transparencies transmit the light directly, the stronger light giving details in a depth of shadow many times stronger than that which would appear black on a white ground. It is for this reason that three-colour photography is seen at its best in superimposed triple films printed, and dyed in colours, each transmitting a band equivalent to two-thirds of the spectrum.

A medium of expression is naturally adapted to the colour and one which in its own domain has added an unique value to artistic representation. My own work in colour photography has been directed chiefly to the production of an instrument which at one exposure should yield triple negatives, each exclusively registering one of the three elementary colours of the spectrum.

#### A One-exposure Camera.

In the examples of my work shown in the exhibition have been taken with a camera I designed with this object (see the *Almanac*, 1906, p. 856). Through a single lens the red, green and blue negatives are simultaneously exposed, the variations being corrected in intensity, so that the exposure for each negative is the same in time.

The results exhibited are from negatives taken either by my quarter-plate or half-plate camera.

The quarter-plate camera is sufficiently compact to carry in ordinary photographic excursions, and I have not incidentally in the course of a walk been struck by a subject, unaided by the camera and stand, exposed the plates, repacked, and continued my journey in from five to ten minutes from the time I was arrested by the view.

#### Exposures.

For portraits and evenly-lighted landscapes with strong foregrounds, the time of exposure should be equal to that required to change P.O.P. to the standard tint.

For ordinary landscapes I expose half actinometer time.

For brilliantly-lighted landscapes one-fourth and one-sixth of actinometer time, and as short as one second for afternoon sky and cloud effects.

I have secured fairly satisfactory results of sea and cloud in one quarter of a second.

It is unnecessary to consider the ratios of exposure when using my camera, the screens and their position in the camera regulate the comparative degree of light each plate is to receive.

I find the negatives come out with a very fair degree of regularity when the time of exposure lies between say 10 and 15 seconds and 3 or 4 minutes, although very longer exposures are practicable.

It is as easy and simple with a single-exposure tri-colour camera to take views as with the ordinary snapshot, but after this the difficulties commence.

#### Developing the Plates.

Development of the plates is a process identical with that of ordinary development for black and white, but in so far as three negatives have to be produced for one subject, and each has to bear a correct ratio to the others, certain details have to be observed. Each of the three negatives should be nearly as possible exhibit in the highest light, white, the same degree of density, and the range of density from white light to deep shadow should be similar in each. The negative taken through the red screen, as a matter of fact, is usually steeper than those taken through the green and blue screens. The best results are secured when the period of development for each of the three negatives in the same developer is constant, but when exposures have been made under anomalous and difficult conditions a little latitude for approximate correction is permitted by varying the relative time of development. I generally find two to three minutes' development sufficient with metol or edinol developer.

#### Printing the Monochromes on Dyed Gelatine Films.

Having obtained promising negatives, I have found it convenient to gauge their densities, and for this purpose use a density gauge, by means of which the greatest density (high light) of each negative is matched to a standard. The numerical equivalent is noted on each negative, and this is an index to the actinometer time required in exposing the positive. For printing the positives, thin glass plates coated with gelatine and subsequently dyed to a standard in an appropriate aniline dye are used.

They are sensitised by immersion for three minutes in a 4 per cent. solution of potassium bichromate, and dried quickly in the dark. The colour of each positive plate is complementary to the taking colours of its respective negative.

The negative taken through the red screen is printed on blue-stained gelatine-coated thin glass, though greater sharpness is



given if a black tone positive be converted to a ferricyanide blue. This is effected by bleaching in potassium ferricyanide and treating the bleached image with ferric chloride.

The negative taken through the green screen is printed on pink-stained gelatine, while the negative taken through the blue screen is printed on yellow-stained gelatine, with which the respective plates are coated.

Each positive should be printed so that the gradient is the same in each. The positive plates are placed with the back next to the face of the negative, and printed through the back of the glass. It is advisable to expose the printing frames in short tunnels to cut off side light.

If prints are made in direct sunlight, the face of the plates should be at right angles to the axis of light. In developing the prints, they should be washed for a few minutes in cold water to dissolve out the sensitiser. They should then be allowed to remain without rocking in hot water about 100 to 120 degrees, which dissolves the unaltered gelatine, and leaves the image in colour. When sufficiently developed they are set in cold water.

Having made sure that the relative strength of colour on each is properly adjusted to the other two by re-dyeing or washing out, when it is necessary, the elements are allowed to dry, and are then put together.

I prefer glass plates to films, because I find them easier to manipulate at each stage of the process, namely, in staining, sensitising, printing, developing, and registering. The slide-or transparency is made by simply putting the blue and red prints face to face, and the yellow print with the face towards the back of the red, the whole being held together temporarily with clips until the corners are fixed with adhesive and the edges bound.

#### SOME NOTES ON THE BLEACH-OUT PROCESS.

The following notes on the bleach-out process of colour-photography, examples of which, by Szczepanik process are to be seen in our Colour-Photography Exhibition, are abstracted from a paper by Dr. Neuhauss and Professor Kümmell in two of our German contemporaries.

Neuhauss has used the ultramicroscopic method of examination as worked by Siedentopf and Zsigmondy, and finds that many solutions of dyes are not real solutions, but that ultra-minute particles of the dye are suspended in the solvent, whether this be alcohol or water. Another fact is that the colour solutions differ with differing concentrations, and this explains why different mixtures of the bleach-out dyes show different sensitiveness. Dr. Neuhauss has observed that one film may be dark and comparatively insensitive, whilst two films each lighter, and yet both together containing the same amount of dye as the dark one, are most sensitive.

The age of the solution also affects the colour and sensitiveness. Thus, methylene blue solution shows not only blue particles, but also a diffuse red colour, and, by keeping, the coarse particles become larger and sensitiveness is lowered. Erythrosine, when dilute, shows an intense yellowish green diffused light. In stronger concentrations this becomes greyish green, and large yellowish-red particles are seen. In stronger solutions the diffuse light becomes yellow-red and the number of particles much greater.

With some solutions the particles polarise light. Uranine added to a mixture of dyes produces a characteristic green diffused light, and frequently reduces the number of visible particles. The author finds that dye solutions which show strong diffused light are the least sensitive for the bleach-out process, and that those which contain innumerable minute particles are more sensitive than those containing coarse ones.

A SOCIETY for Workshop.—Another effort is to be made to establish a photographic society in Workshop.

A PROPOSITION is on foot to mark the fiftieth anniversary of the discovery of the dye-stuff "mauve," by which the foundation of the aniline colour industry was laid by Dr. W. H. Perkin, F.R.S., by the presentation to Dr. Perkin of a portrait in oils of himself (to become the property of the nation at his death), by the execution of a marble

To get all three elements in intimate contact, the yellow may be transferred to the blue print and the red placed with its face to the face of the blue-yellow positive. Some of the prints exhibited are made in this manner.

It is not necessary to balsam the elements together.

The method of printing I have adopted is one which I have selected after working most of the methods currently in use. For the reasons given above, I prefer transparencies to prints on prepared paper, but, as is well illustrated in the exhibition, exquisite results are yielded by the latter method. It is probable that a wise eclecticism will in the end yield the most facile and correct results.

My own experience is that whichever method be adopted, difficulties are experienced. I have thought there was a gain in using gelatine-coated plates from which a sensitive silver salt was omitted, since there is a saving and simplification in the omitted step for its removal. If the silver salt, which merely serves the purpose of following the development, be omitted, it is needful to substitute some reagent which shall serve this purpose, and the natural agent which presents itself is the dye in which the print is finished.

Certainly in my most successful endeavours this method has yielded results in the most direct manner. Each element dyed to a standard, and properly exposed behind correct negatives, has under correct exposure and development yielded satisfactory results without either washing out or re-dyeing.

Such an achievement, could it be insured with anything approaching invariability, would be both simple and direct, but the varying conditions under which colour photography is practised necessarily in the present stage of the art leaves mechanical accuracy and facility a goal still greatly to be desired.

EDWIN T. BUTLER.

Further experiments with sensitisers for this process have proved fourth. Celloidine dissolved in glacial acetic acid, with a few drops of 30 per cent. caustic soda solution reduces the time of exposure to one-fourth. Celloidine dissolved in glacial acetic acid, with a few drops of turpentine as sensitiser, may be used instead of gelatine, but erythrosine must not be used, and a satisfactory red dye has not yet been found. Experiments in the direction of developing the pictures have not been very successful, though hot water may be useful, as also, in some cases, immersion of the prints in a 10 per cent. solution of potassium iodide, to which a few drops of chloride of gold solution have been added. Sometimes it is advantageous to dip the prints subsequently into hypo.

Professor Kümmell, who has been experimenting, has obtained the red fog, which was first noted by Neuhauss, when too much erythrosine is used. He points out that erythrosine may be the tetrachlorobromo, tetraiodo, or diodo fluoresceine compounds of soda, and he finds the latter the most sensitive, and that the ammonium salt is more sensitive than the soda salt. Pure dyes are less sensitive than when they contain a small impurity of iodine.

The best results are obtained by using three parts of tetraiodo fluoresceine, and one part of di-iodo fluoresceine. The addition of colloidal solutions of gold considerably increased the sensitiveness in many cases.

In order to coat the sensitive mixture on paper, Kümmell waxes a sheet of plate glass, spreads the dye mixtures thereon, and then allows it to dry, damps the surface with a wet brush, and squeegees a sheet of paper thereon, places under a weight for about ten minutes, and then dries, when the paper and gelatine will spring away from the glass.

bust of Dr. Perkin to be placed in the rooms of the Chemical Society, and by the establishment of the "Perkin Research Fund" for the promotion of chemical research. These objects have received the support of an influential and distinguished committee of which Professor R. Meldola is chairman, and a public meeting to forward them will be held at the Mansion House on Monday next, February 26, at 3 p.m.

## RED-SENSITIVE PLATES.

The following notes are abstracted from an article by Freiherr von Hübl in "Das Atelier des Photographen," and, in conjunction with the notes on pp. 771-773 of the "Almanac," give us a very good idea of the present position of the subject. That the last word has been said on "panchromatising" is doubtful, though the only possible direction of advance would seem to lie in the discovery of a dye which would still further increase the sensitiveness of the silver salts to the less refrangible rays, so that we could obtain an effect true to visual luminosities, without a colour screen, and with short exposures as we now give.

\* \* \* \* \*

In the early days of photography orthochromatic plates—that is, yellow and yellow-green sensitive plates were satisfactory, but as soon as the reproduction of oil paintings, etc., became general, the want of red and orange sensitiveness was soon felt, and since colour-photography and three-colour work have come to the front this has become a crying need. The first sensitiser to at all answer requirements was cyanine, but the troubles with this, such as fog, spots, flatness, and reduced sensitiveness were heartbreaking, and the use of these troubles was never determined. Such substitutes as grosine, wool black, alizarine blue bisulphite, etc., were not such powerful sensitisers.

In consequence of the high sensitiveness of the gelatine plate, comparatively weak sensitisers may be used, and the commercial orthochromatic plates will give good results through red filters, only the exposure must be increased, in some cases perhaps a hundred times. With collodion emulsion, in consequence of its low sensitiveness, these dyes are but of little value, and rose-bengal-silver used, which only sensitises for yellow and green. With a narrower filter that cuts out the blue and green the reds may be obtained efficiently bright, but they are actually photographed by the yellow rays that they reflect. Very long exposures are required, otherwise an unsatisfactory rendering of the reds is the result.

Ethyl violet, first suggested by Valenta, was a distinct advance, and sensitises collodion emulsion like cyanine, without its disadvantages. This dye is interesting because it is so stable to light and yet produces such a decided action, which far surpasses that of eosine and proves that the fugitive character of the dyes does not come into play, but that the dye and silver bromide compound is the factor, whether the action of this be chemical or physical. Ethyl violet may be used with gelatine plates, but is not effective, though its action has not been so carefully studied as new class of dyes was discovered, which were far superior to all others, giving good action in the green, yellow, and orange, and thus taking the place of eosine and cyanine.

## The New Isocyanines.

The first of these panchromatic sensitisers was Miethe's ethyl red, which sensitised the plate for green, yellow, and yellowish-orange, and this required a somewhat lengthy exposure behind the red filter; until it indicated the path which later has been followed so far by Dr. König in spectral red sensitising.

All these dyes belong to the cyanine group, of which practically the old cyanine was the only example, and this was useless in dyeing technique because of its fugitive character. When chinine is dissolved under certain conditions certain basic substances, chinoline, quinidine, chinaldine, etc., are formed, these form the material for the preparation of purple red, blue, and violet dyes—the so-called isocyanines. They are all fugitive dyes, the solutions of which are colourised by acids, and all of them are sensitisers. Agreeable to the general rule, these dyes sensitise for those colours, to which they—or, rather, that colour, which they impart to silver bromide—is complementary. That is to say, a purple red, violet, or blue cyanine will sensitise for green, yellowish-green, or green respectively. This does not imply that the sensitiveness is confined to these particular regions, each extends to the neighbouring colours with differing intensities and extent. Thus, a purple-red cyanine sensitises not only for the green, but also for yellow-green and blue-green, perhaps also for yellow and orange, for these can—a certain

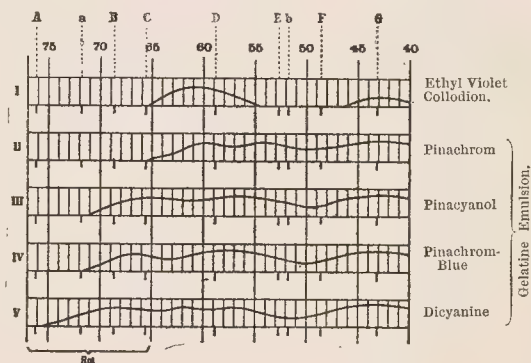
intensity assumed—in the sum be called green, and thus be the complementary to purple.

There is a close connection between the spectrum sensitising band and the absorption of the dye, and from the latter one may deduce the extent and the intensity of the assumed colour-sensitiveness. The extension of the band of sensitiveness is of the greatest importance, for it shows what colours will act on the plate. The purple-red erythrosine, for instance, sensitises only for yellow-green and the neighbouring colours; whilst one of the cyanines of almost the same colour sensitises the plate to all colours from blue-green to orange. These broad sensitising bands are the great value of the cyanines.

So far, dyes have not been discovered which will sensitise for the whole stretch from blue to red, and we must choose between those which sensitise from the blue-green to the yellow-orange, or those from green to red-orange; to the first class belong ethyl red and pinaverdol, which require a long exposure behind the red filter; whilst the latter include pinachrome, which does not act so well behind the green filter. These dyes do not sensitise for the extreme red, and therefore the plates may be safely worked in a deep red light.

The newer cyanine pinacyanol, discovered by Dr. König, sensitises very strongly for red, and is the first actual red sensitiser, and may even be used with collodion emulsion. It has a maximum between B and C, and reaches to E b. Plates sensitised with it correspond to all the theoretical requirements for the blue-printing negative, and require, compared to all other sensitisers, a considerable reduction of exposure.

The accompanying chart, which is the result of the experiments of von Hübl's assistant, Herr G. Winter, puts in a nutshell the sensitising power of these dyes. The results were obtained with a



Thorpe diffraction grating spectrum and a Nernst lamp. I. shows the sensitising power of the ethyl-violet, it is comparatively narrow, and includes only the yellow and orange. II. shows the effect of pinachrome, a much broader band, and yet it is not a true red sensitiser. III. shows the effect of pinacyanol, and we have here a true red sensitiser, whose action extends to a. The effect of another cyanine, called pinachrome blue, is shown in IV., and it behaves very much like III. Dicyanine, which far surpasses these last two in red sensitising, was briefly described in Eder's "Jahrbuch," 1905 (see "Almanac" loc. cit.), but the results obtained were unreliable, because the dye was not pure. As will be seen from V., the pure dye sensitises from almost A to E b, with three maxima at B, C<sub>2</sub>D, and behind D. Naturally, this permits of much shorter exposures behind the red filter than all other dyes.

All these dyes can be used for gelatine and collodion, and have no tendency to fog, only a perfectly safe dark-room light must be used. As all red glasses transmit rays from B<sub>2</sub>C, clean negatives cannot be obtained, and it is advisable to use a blue-green light, which may be obtained by using gelatined glasses, one soaked in naph-



thol green and the other in methyl-violet. Naphthol green is the only green dye that can be used, as other greens, such as acid or fast green, let through a band in the red. The naphthol green solution should be acidified with a few drops of glacial acetic acid, and the methyl-violet be rendered alkaline with a little borax. With properly stained films, the light transmitted by the two in combination is about the F line.

#### Collodion Emulsion.

For collodion emulsion 1 per cent. of a 1:1000 solution of the dye should be used, and after the plate has set it should be bathed in water or rinsed under a rose tap. This washing considerably increases the sensitiveness, a phenomenon which has been observed with all dyed collodion emulsions, and which may be ascribed either to a deeper staining of the bromide molecule or to the part played in the exposure by the dampness. The unwashed plates work clean, but are less red sensitive. Even when added in much larger quantities the dyes do not cause fog, but the dyed emulsion soon loses its red sensitiveness, which, however, can again be renewed by the addition of more dye. This phenomenon has been observed with all cyanines, but whereas with pinaverdol the red sensitiveness disappears after some weeks, with the new cyanines it disappears in from one to two hours. The emulsion does not lose its blue colour, and this appears to be independent of the quantity of dye added.

#### Sensitising Gelatine Plates.

These dyes are excellent sensitisers for gelatine plates, and the dye-bath should be:—

Water .....	120 parts.
Alcohol .....	60 parts.
Dye solution 1: 1000 .....	1 part.

and the plate should be left in for at least ten minutes,\* and the plates should be dried as quickly as possible. This last point is very important, otherwise vigorous clean negatives cannot be obtained.

It is absolutely necessary that this semi-alcoholic bath be used, as nothing like the same high colour sensitiveness can be obtained by the use of an aqueous solution. This is strikingly shown in the case of pinachrome blue. The reason is that with water these dyes do not form solutions which will penetrate the gelatine. If an aqueous solution of these dyes is repeatedly poured through a paper filter, the whole of the dye will adhere to the paper and the filtrate be almost colourless. In contact with gelatine the aqueous solution behaves in the same way, and the bulk of the dye is deposited on the surface of the gelatine and causes fog, spots, and streaks there, whilst practically no dye penetrates the film. This peculiarity of cyanine solutions was pointed out by Häbl in 1899.

The three dyes do not behave quite the same with collodion and gelatine. With the former the sensitiveness is greater in the red than in the yellow and green; whilst with gelatine the reverse is

\* Dr. König informs us that he has determined by very careful tests that 3–4 minutes bathing is quite sufficient.—Eds. B.J.P.

the case. This is due to the absorption of the dyes in aqueous and alcoholic solution. (See "Almanac" loc. cit.—Eds., B.J.P.) The intensities differ too. With gelatine plates pinacyanol is most vigorous; with collodion, on the other hand, dicyanine is the strongest.

If a colour chart is taken with the dyed collodion emulsion, without a filter, in the case of pinacyanol and pinachrome blue, vermilion is rendered as light as ultramarine, with dicyanine the former is the lighter. The exposure is only about half or quarter of that with the undyed emulsion. The total sensitiveness of the plate is therefore about quadrupled.

In making the blue print negative only a bright orange filter is required, and the exposure increased only by about a half. The red sensitiveness of the plates is greater than the blue sensitiveness, so that these dyes are of the utmost importance for three-colour work with collodion emulsion.

The results with gelatine plates are less satisfactory, but even with these without a filter, vermilion is fully exposed and chrome yellow is as dense as ultramarine. Pinacyanol acts well, and, as already mentioned, gives absolutely clean, vigorous negatives. It might be possible that these dyes are preferable to pinachrome and ethyl-red as panchromatisers; in any case they permit of a considerable reduction of the exposure behind the red filter, and the minimum between b and F ought not to appreciably degrade the red print plate.

Dicyanine, which is the best red sensitiser, offered the opportunity of making an ideal yellow print negative. The plate for this must be sensitive to blue in the first place, and therefore if we use an ordinary plate without a filter, or a colour sensitive plate with a filter, we shall find that vermilion and chrome-yellow are alike without action, that is, they print with the same intensity of yellow.

As vermilion in the composite print must not be too yellow, it is desirable that in the negative the red should be denser than the yellow. Many attempts have been made, so far without result, to use a plate at once sensitive to red and blue. As hitherto, a red sensitiser was not available, dicyanine was tried for this result. For the filter was used an alcoholic solution of this dye, so that only those sensitising zones could act which were comprised by the differences between the absorption and sensitising bands—(see "Almanac" loc. cit.—Eds. B.J.P.)—for, as is well known, the latter, corresponding to the absorptions of the dyed silver bromide molecule, lie nearer the red.

Under these conditions only the red and violet sensitiveness of the plate could be used, that is, the red sensitiveness between A and B come into play. Exposures on a coloured chart, however, showed that there was no improvement in the yellow print negative, for chrome yellow and vermilion were of the same density. The red and yellow pigments cannot really be differentiated by their absorptions in the red, only by their absorptions in the green.

A. VON HUMB.

## GUM PROCESSES AT THE CROYDON CAMERA CLUB.

Some interesting points dealing with the gum-bichromate process were discussed and dealt with at a demonstration which Mr. J. L'Epine Smith gave before the members of the Croydon Camera Club, on the 14th inst. Several well-known workers, including the veteran gum exponent, Mr. Packham, and Mr. Arbuthnot—whose exhibits at the last R.P.S. Exhibition attracted much attention—contributed to the subject of the evening.

Mr. Smith, in his opening remarks, alluded to the hostile criticisms which had accompanied the re-introduction of the process. This had to a large extent, but not entirely, subsided. It was curious, but true, that if a photographer produced a bad carbon or platinotype print, the worker, and not the process was blamed. On the other hand, if an atrocious "gum" was perpetrated, in nearly every case the process, and not the worker, was condemned, a reversal of things which was distinctly unfair.

#### Multiple Printing.

It is not necessary to follow Mr. Smith through the more familiar details of the process, it will be sufficient to say that they were practical and explicit throughout. Mr. Smith did not favour single

printing; in his opinion it was difficult, if not impossible, to get sufficient range of tone, and depth of pigment. Moreover, with reason, the greater the number of printings, the more the control, and less the likelihood of hand-work being rendered obtrusive. Suggesting, he said, three coatings were to be adopted, then his practice was to employ a very small proportion of pigment for the first coating, together with a considerable exposure to obtain detail in the high-lights; the second coating would have more pigment and less exposure for the half-tones; whilst the third coating would have a maximum of pigment, and a minimum of exposure to secure the heavy shadows. It was necessary to grind even the finest powders with the gum on a piece of ground glass, to avoid a gritty deposit, which in some cases might be purposely sought for, and secured. For coating, he preferred a tub-sized paper, and, personally, he occasionally favoured the Autotype Company's single transfer paper, if much detail was wished for. For coating, and smoothing down, he used a cheap hair-mottler, working the brush up and down and across the paper.

At this point, Mr. Packham was prevailed upon to show his

method of softening. In left fingers a badger-hair brush was applied with light feather touches, in a sort of skip-and-jump fashion until the coating was set. Mr. Arbutnot used the same implement with much the same action, except that he never allowed the tips of the bristles to leave the paper. Mr. Smith, resuming, said that decidedly soft negatives were necessary, he generally used paper ones, sensitized, and applied to a sheet of clear glass, to facilitate registration whilst printing. Kodak's slow smooth bromide paper is excellent for the purpose.

**The "Richmond" Gum Paper.**

He next drew attention to a new process, being brought out by Dr. Richmond, of Paisley, and shortly to be placed on the market by Messrs. Houghton, with all necessary materials for working it. The coating of the paper is simplified, no expensive softener is required, and it is claimed that the prints are capable of a wider range of tone, greater shadow depth, and a higher degree of control, than any other existing single-printing method. Nor is there any tendency towards scaling. To develop an exposed print, all that is necessary is to place it in cold water for a few seconds, then on to a sheet of glass or zinc, and gently apply a wide brush up and down, and cross the paper. The rapidity of development may be judged from the fact that Mr. Smith developed two satisfactory prints well under thirty seconds each, excluding the inevitable subsequent tinkering with a small brush, to give the prints a more artistic appearance, and bring out salient features, which might, or might not, have existed in the original negative. Perhaps the most notable, and, to many, welcome, feature, which distinguishes the latest coming from others of the ilk, is that normal negatives, such as are suitable for carbon platinotype, can be used with success. Indeed, Dr. Richmond has

expressly stated that soft negatives do not give such good results. The colloid used is a secret, but its originator has intimated it is complex, and free from acid, which has a tendency towards creating insolubility.

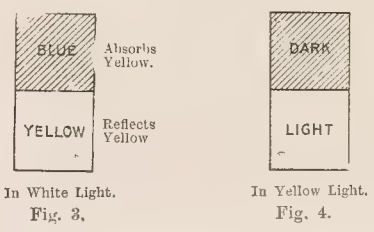
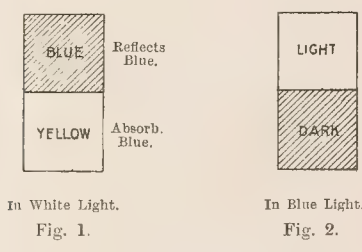
In the discussion which followed, Mr. W. H. Rogers said he had never employed more than one coating, and saw no necessity for more. Mr. Packham suggested the use of a lithographic stone for grinding colours upon, it was far more efficient than ground glass, and by no means costly. He quite agreed with Mr. Smith that if any extended scale was to be rendered, multiple coating was essential. He also well remembered the torrent of abuse the process met with some years ago. Personally he had taken it up because results could be obtained by its aid impossible with other media. Mr. E. Salt was at a loss to understand why so many coatings were required, having regard to the fact that the finest prints he had ever seen, judged purely from a technical standpoint, were produced by their fellow-member, Mr. Hugh Allen, with his single-coated thick-film method. Mr. Arbutnot replied that, while admitting this to be the case, he doubted whether Mr. Allen's prints would permit of brush work, or other means of permitting individual expression. Without such capability the process had no valid reason for existence. For light, sketchy pictures, single-coating, no doubt, sufficed; but for depth and half-tone, several printings were, in his opinion, obligatory. If the former method was adopted, then the addition to the gum of other colloids—for instance, starch—would greatly increase the range of gradation. Dr. Richmond, apparently, had recognised this, and he thought his process most promising. He should look forward to seeing more of it when it was placed upon the market.

**THE STUDIO BLINDS.**

is a well known axiom in legal circles that "trade customs," if good law, are, at any rate, strong *prima facie* evidence as to the merits or wrongs of a case. Who the first man was to use blue and white blinds in the studio is "wropt in mystery," but that these colours are now accepted as correct cannot be denied. Dr. Blochmann, in the current number of "Das Atelier," explains his choice of these colours, on the ground that they are the easiest to obtain, are the cheapest, and that the diffused light they give tends to softness of results. When these colours were chosen wet plates were the only sensitive material, and when dry plates were introduced they were only sensitive to blue and violet. Of late

filter. A similar result is obtained if we illuminate an object by blue or yellow rays. In Fig. 1 we have a blue and yellow chart, which in white light will look blue at the top, because this part absorbs all the rays in white light but blue. The lower part will appear yellow, because it only reflects the yellow rays.

If now this chart is illuminated by monochromatic light, such as blue, which is completely absorbed by the yellow, then this half must appear dark, even with the best ortho plate. If we take the same chart and illuminate it with pure yellow light, the effect is the reverse, for the blue half will absorb the whole of the yellow



years, especially for costume studies, orthochromatic plates have become more and more general. Professionals lay greater value on these plates, not only because the colours of dresses are better rendered, but because in other cases, as in light hair, dark blue dresses and yellow embroidery, a rendering more nearly like that seen by eyes is obtained.

What would be the result if we were to use a blue screen or filter? The orthochromatic action of the plates is destroyed, because the yellow rays do not reach the plate, as they would be absorbed by the blue

rays and appear dark, and the yellow part appear light, as shown in Fig. 3. In such a case an ordinary plate would be useless, but an orthochromatic plate useful.

The dark blue blinds in the studio have, to a certain extent, the same effect as monochromatic blue illumination. If they do not absorb all the yellow rays of white light, they still absorb a greater portion, and give a blueish illumination to the object, which does not give the best results on an orthochromatic plate. If, on the other hand, yellow or orange-coloured curtains were used, the full effect of the ortho plate would be felt, or, at any rate, a lighter yellow screen be required. Experiments in this direction are advisable, and orthochromatic plates ought to be more generally used in all studios.

PARAGRAPH which we notice in an Aberdeen paper to the effect that in the window of Mr. James Henderson, photographic dealer, is to be seen a good example of moonlight photography, having for its

subject the entrance to Aberdeen harbour, should be a reminder to our readers of the opportunities for minor advertisement which may often be embraced in the ordinary course of business.



## Exhibitions.

### DERBY CORPORATION.

IN February, 1886, just twenty years ago, the Corporation of Derby first housed in their Art Gallery a collection of photographs, the work of local amateurs, and, triennially, since then the same hospitality has been extended with ungrudging liberality, for the Corporation have not only undertaken, through their truly indefatigable curator, Mr. W. Crowther, the whole trouble and expense of organization, but have provided the medals awarded, and have offered unusual inducements to outsiders to exhibit in the open classes. Their leading idea is, however, to further the pursuit of photography by local men and women, and the one condition laid down is, therefore, that members of the Derby society shall respond by sending in their prints. On this is dependent the continuance of the exhibitions, and the success of this, the latest of the series, is a matter with which there is good reason to believe the Art Gallery Committee is amply satisfied, and on which the Derby Society and its more prominent officers, Mr. E. Collier Green, Mr. A. H. Bennett, and Mr. T. H. Thorpe are to be congratulated.

Two hundred and ninety-eight exhibits are hung, of which one hundred and eighty-five are in the local section, and a departure from the usual course is, that although the prints were judged in classes (four in each of the two sections), neither on the walls nor in the catalogue are they ordered according to classes, an arrangement confusing as regards appreciation of the awards, but which, of course, greatly adds to the pictorial effect of the exhibition. In the open section the Platinotype Company are represented by six large and very beautifully worked portraits, not for competition. Messrs. Alfred Ellis and Walery show several portraits of a theatrical as well as pictorial interest, notably, (79) "George Alexander as Francois Villon," and (70) "Stage Group in 'Sunday.'" Among the competing pictures Fred Judge has several landscapes of character; (96) "Glory," in which a telling landscape is subordinated to a sky effect which a less experienced worker might have made theatrical, and (17) "September." True in its unaffected charm is (2) "Evening after Rain," by W. H. Fowkes, and the same worker's (56) "Morning Gossip," a Dutch scene with figures and boats is decoratively designed. William Clayden's (45) "Tugging Home," has admirable qualities of atmosphere, delicacies of tone, and beauties of lighting, but the critic may grumble that the beams of timber uniting the boats in the foreground can hardly be called picturesque. The best of the Rev. C. F. Lowry Barnwell's exhibits is (6) "The Passing Storm," an effective, if sombre representation, of maritime grandeur. In A. R. F. Evershed's (12) "The Crane-November," a girder crane is cleverly balanced by a jet of steam, his portrait (111) "Study in Red," is a quite commendable effort in gum gone wrong, and (110) "Sunlit Sails," is a bold subject requiring more concentration of lighting. Miss A. B. Warburg's (95): "Three Fishers Went Sailing," etc., is dainty and audacious. From the flimsiest of materials—sea, spots of light, and three half-mysterious boats—this lady has made a notable thing. William Rawlins shows marked richness in the deep tones of (75), "On the Suffolk Marshes," but with just a suspicion of hardness, and in (40), "A Celtic Bridge, Dartmoor," he has a fine subject, the swirl of the water being livingly rendered and the distance fine, but a dominating idea has been missed and, perhaps, some concentration of the light on the water may merit consideration to this end. Frank E. Huson shows (74), "At Evening, When the Day is Done," and (35) "Thames Side at Chelsea," both of these subjects requiring the seeing eye, but the high-light is a trifle too insistent in each.

W. Croke sends fine examples of portraiture, including (62) "The Late Sir Henry Irving," but his work is so well-known to our readers that there is no necessity to remind them of its quality. Miss Marian Silverston has three or four good head studies, notably (22) "Onora," rendered with delightful reticence. E. O. Hoppé is a worker possessing original ideas, but in (18) "The Burden of Age," the position of the old man's hands gives a strange appearance to the picture. S. G. Kimber thrusts the sentiment at the spectator in (44), "Until the Day Breaks," through otherwise faultlessly and feelingly carried out, and skill is likewise exemplified in (101), "A Sunlit Clerestory," the features of which, however, seem to lack a supporting mass. (107),

"An Abode of Ancient Peace," by W. A. Clark, is full of real light, and (104), "A Flood of Light," also tells its tales reservedly and well. In F. Fleming's (92), "An Old Gateway," there is palpable evidence of mad use of a paint-brush, and Harold Hoare's (100), "Exeter Cathedral, from High Altar," gains no charm by being so dimensionally big. E. Seymour shows a number of very skilfully rendered fruit and flower subjects, and (99), "Japanese Anemones," by Dan Dunlop, pleasing, delicate, decorative arrangement, and not more. The blooms are lay figures, exquisitely perfect, but with none of the vitality of life.

Reference has previously been made to the good quality of the exhibits of the local workers, but we would suggest that putting more than one picture in a frame is usually harmful to each, and that where engraving effects are aimed at, the white margins should be of sufficiently ample dimensions. In this section are a number of pictures not for competition, notably a portrait of the King, (135), by W. W. Winter, who also shows (205), "The Duke of Devonshire," some worthy platinotype reproductions of the old masters, by Richard Keene, Ltd., and exhibits by W. R. Bland. Frank Cooper competes with prints of considerable power. (132), "Hengistbury Head," is effective but rather marred by the dark ridge of the headland coming strong and hard against the highest light of the sky, whilst the foreground of shingle would gain greatly by simplification. (179), "A Moorland Road," very narrowly misses prodigious strength and excellence. It is a desolate and characteristic moorland scene with a dark figure placed at the psychological moment, a remarkable achievement—but, a nearer examination shows the figure to be that of a young girl, so young that she wears her hair down her back, and a short frock. This, then, tells against the spirit of the scene; it suggests that the place is not half as bad as it looks; a strenuous figure was wanted. G. A. Fowkes has a decorative arrangement in (136) "Reflections, Rotterdam," and technique is shown in his (116) "Maartze," a portrait of a smiling Dutch girl. (142), "Alpsee," the work of G. Trevelyan Lee, is quite good in its tonality and its delicately rendered reeds, and would be even improved if the lighting of the distant waters were made more subservient to the reflections in the foreground. Douglas Deeley's (123) "Moors by Moonlight," is too heavy, but there is luminosity in the lighting of (221) "The Brook," and (150) "Apollo's Upward Fire," shows an insight into the moods of Nature which stamps it with personality. The distant hills in C. M. Etches's (134) "Swiss Alp," are mellow and true in tone, and the same worker is also represented in the architectural class by (264), "The Back Stairs," a quaint little peep. One cannot help feeling that Haddon Hall looms too largely in the architectural class, and is hackneyed. Derby men should have more respect for Haddon and for themselves than to continue to produce and to show selections from it which have been produced and shown until hoary with age. The case is different and wholly praiseworthy when a man goes there and says an old thing in a new or even in an unaccustomed way, and this has been done by C. H. Eaton in (249) "Haddon From the Terrace," by G. W. Riste in (169) "Corner in the Banqueting Hall," and by Mrs. E. Christine Allen (271) "Dining Hall," and this last one, too, in the Novices' Class. J. B. Copeland's numerous views of Haddon are of rich quality, and his (176) "Meditation," a portrait, is striking, but hard. E. Collier Green shows useful work in (211), "Yarmouth, Isle of Wight," and (119) "Whitby," and Captain A. J. Savage, R.E., in (236), "Boston Stump," has dignity and sunny atmosphere.

Dr. Vaudrey's best exhibit is (211) "Two Members of the Hatter's Brigade." We think this comes to the top with the cream of the show. Its simplicity and certainty are delightful. Simply, two girls in white, walking along a light-coloured, gracefully curving causeway. The deep tone of their hair (it is a back view) gives strength to the conception, and a subtle contribution to its success is its slight differentiation in the two dark spots these heads make. The only defects that one can find are, perhaps, the placing of the two small distant figures: certainly, that they are too dark in tone. J. C. Lee's (196), "Elsie," is a good rendering of flesh tones in shadow, and his (265), "A Milkmaid," is also excellent photographic work, albeit the maid, though good-looking, is somewhat stolid in expression. We are obliged to pass unnoticed the exhibits of several good workers. Some very promising work is shown in the Novices' Class. Mention has already been made of Mrs. Allen, and here we add T. H. Thorpe, who has overcome great difficulties

ities in (173) "The Potter." As the visitor leaves the room he will see over the door a large specimen of the work of that veteran photographer, T. A. Scotton, (297), "Midland Railway Compound Engine," a success as great as the print is immense. The judges in the open classes were Mr. F. M. Sutcliffe and Mr. C. Barrow Keene, and the local classes Mr. F. M. Sutcliffe, solus.

The following is the list of awards:—

**OPEN CLASSES:**—Landscape and Seascape: Silver medal, No. 96 (Jury), Fred H. Judge; Bronze, No. 6 (Passing Storm), Rev. C. F. L. Arnwell, and No. 74 (At Evening, When the Day is Done), Frank E. Benson. Portraits and figure studies:—Silver medal, No. 62, (The Sir Henry Irving), W. Crooke; Bronze, No. 22, (Onora), Miss Marian Silverston. Architecture:—Silver medal, No. 107, (An Abode of Ancient Peace), W. A. Clark; Bronze, No. 101, (A Sunlit Clerestory), S. G. Kimber. Flower Studies, Still Life, Etc.:—Bronze medal, No. 99 (Japanese Anemones), Dan Dunlop.

**LOCAL CLASSES:**—Landscape and Seascape: Silver medal, No. 132, (Langstbury Head), Frank Cooper; Bronze, No. 142, (Alpsee), G. Evelyn Lee; Certificate and Derby Society's Plaque, No. 150, (Dunlop's Upward Fire), D. Deeley. Portraits, Figures, Flowers, Etc.:—Silver medal, No. 265, (A Milkmaid), J. C. Lee; Bronze, No. 266, (Two Members of Hatless Brigade), Dr. Vaudrey; Certificate and Derby Society's Plaque, No. 116, (Maartze), G. A. Fowkes. Architecture:—Silver medal, No. 264, (The Back Stairs), C. E. Etches; Bronze, No. 236, (Boston Stump), Captain A. J. Savage, R.E. Novels:—Silver medal, No. 271 (Dining Hall, Haddon), Mrs. E. Christine; Bronze, No. 173 (The Potter), T. H. Thorpe.

#### DOVER INSTITUTE PHOTOGRAPHIC SOCIETY.

The third annual exhibition of this society was held on Wednesday and Thursday of last week. The following awards were made in the open classes by the Rev. F. C. Lambert, M.A.

**Landscape, Etc.**—1st, "Eventide," carbon, J. E. Latham; 2nd, "October," carbon, F. Judge; highly commended, "On Lago Maggiore," carbon, J. E. Latham. **Architecture, Etc.**—1st, "Until the Day Breaks," carbon, S. G. Kimber; highly commended, "Through Norman Arch," bromide, R. Somerford. **Portraiture, Etc.**—1st, "Oppy," bromide, H. Layland; 2nd, "A Study," carbon, E. Seymour; highly commended, "Le Masque," platinol, E. O. Hoppé. **Lantern Slides** (selected slide out of a set of four)—1st, "Mother's Day," Rev. H. Wright Dick; 2nd, "Poppies," E. Seymour; highly commended, "A Break, Etc.," F. J. Tryhorn; highly commended, "Norman Doorway," E. G. Amos.

#### NORWICH PHOTOGRAPHIC SOCIETY.

The following are the awards in the Open Classes at the third annual exhibition held by the Norwich Photographic Society:—

**Class 1.**—Landscape, Seascape, and River Scenery—S, "A November Morning," platinum, S. G. Kimber; B, "Sunrise, Boston," bromide, J. Ed. Hackford. **Class 2.**—Portraiture, Figure Studies, and Animals—S, "Beyond," platinum, D. J. Scott; B, "Cooling the Fire-hoop," bromide, R. Dixey. **Class 3.**—Architecture, Exterior and Interior—S, "Morning Gleams, Norwich," bromide, Alex. G. Benson; B, "A Sunlit Clerestory," S. G. Kimber. **Class 4.**—General Subjects—Flowers, Fruit, Still Life, Etc.—S, "A Study," E. Seymour; B, "A Study of Texture," P.O.P., luna, Henry W. Chapman. **Class 5.**—Lantern Slides—Sets of Four (any subject)—S, one set, "Life from Life," Francis Ward, M.D.; B, one set, 1 "Glory," October, 3 "The Old Parish Church," 4 "To Rest," Fred Judge.

#### MOTHERWELL CAMERA CLUB.

The fourth exhibition of the Motherwell Camera Club was held last week, when the following awards were made in the Open Classes:—Landscape and Seascape (Silver plaque), Dan Dunlop, Motherwell; bronze plaque, George L. Brown, Hamilton. **Portraiture and figure studies** (silver plaque), Dan Dunlop; bronze plaques, Miss Marion Woods, London, and W. H. Lindsay, Lowers, Hamilton. **Architecture** (silver plaque), William A. Clarke, Birmingham; bronze, plaque, James Dunlop, Motherwell. **Flowers and animal studies** (silver plaques), Dan Dunlop, and Robert Burnie, Glasgow. **Lantern slides, set of four** (silver plaques), H. McLeighton, Leicester, and Robert Burnie; bronze plaque, Henry Dick, Manchester.

#### FORTHCOMING EXHIBITIONS.

February-March, 1906.—Birmingham Photographic Society. Hon. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.

February 13-27, 1906.—Greenock C.C. Hon. Secretary, W. D. Boyd, 2, Church Place, Greenock.

February 20-21, 1906.—Royal Albert Institute, Windsor. J. W. Gooch, Hon. Secretary.

February 22-24, 1906.—Bowes Park and District. Hon. Secretary, H. C. Bird, 91, Whittington Road, Bowes Park, N.

February 24—March 10, 1906.—Edinburgh Photographic Society. Hon. Secretary, J. S. McCulloch, 3A, N. St. David Street, Edinburgh.

February 24 to March 31, 1906.—Birmingham Photographic Society. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.

March, 1906.—Leicester and Leicestershire Photographic Society. Hon. Secretary, W. B. Woodland, 18, Beckingham Road, Leicester.

March, 1906.—Rugby Photographic Society. Hon. Secretary, R. N. Myers, 13, Bridget Street, Rugby.

March, 1906.—Photographic Society of Ireland. Hon. Secretary, H. V. Yeo, 194, Clonliffe Road, Drumcondra, Dublin.

March 5, 1906.—St. Helens Camera Club. Hon. Secretary, John Glover, 14, Ormskirk Street, St. Helens.

March 1 to 15.—Exhibition of work with anachromatic lenses, Photo-Club de Paris, 44, Rue des Mathurins. Secretary, Paul Bourgeois.

March 3-10, 1906.—South London Photographic Society. Hon. Secretary, H. Creighton Beckett, 44, Edith Road, Peckham, S.E.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 7-8, 1906.—Doncaster Camera Club. Hon. Secretary, T. Haigh Connor, 39, Market Place, Doncaster.

March 12-15, 1906.—Cripplegate Photographic Society. Secretary, John B. Parnham, 5, Reighton Road, Upper Clapton, N.E.

March 13-14, 1906.—G.E.R. Mechanics' Institute (Stratford). Hon. Secretary, A. Woolford, 16, Grove Green Road, Leytonstone, E.

March 14-17, 1906.—Nottingham Camera Club. Hon. Secretary, S. W. Barlow Yines, Market Chambers, South Parade, Nottingham.

March 19-24, 1906.—Sunderland Photographic Association. Hon. Secretary, William E. Kieffer, Stirling Street, Sunderland.

March 27, 1906.—Brentford Photographic Society. Entries close March 9. Secretary, Oliver Gluyas, 89, Windmill Road, Brentford, Middlesex.

March 31 to April 10.—Salon of the Photo Club of Nice. Address the Secrétaire-Général, 20, Rue St. Francois de Paule, Nice.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.

April 2 to 7.—Photographic Society of Ireland. Secretary, W. F. Cooper, 194, Clonliffe Road, Drumcondra, Dublin.

April 18 to 20.—Southend-on-Sea exhibition. Hon. Sec., J. Archer, 24, Ashburnham Road.

April 18 to 21.—Bolton Amateur Photographic Society. Secretary, T. W. Croos, 27, Latham Street, Bolton.

April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

APROPOS of the motto of the "New York Times," that it gives "all the news that's fit to print," a good story is told in the "Photographer." Mr. Eduard Steichen was being asked for some picture suitable for reproduction in the "Times" illustrated supplement. "He fetched out some lovely things which I was afraid would not reproduce well. Then he brought out a beautiful print, the eternal feminine, of course, but entirely separated from any semblance of wardrobe. Regretfully I shook my head as I thought of the family circulation, and then Mr. Steichen said: 'But you wanted these for the "Times," and I thought the motto of that paper was, "All the nudes that's fit to print!"'



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents were made between February 5 and 10:—

**CINEMATOGRAPHS.**—No. 2,775. Improvements in mechanism employed in the production of cinematograph or multiscope pictures, and dark-slide for carrying sensitive photographic plates for taking impressions. William Henry Hamblin Palmer, 43, St. Martin's Lane, Charing Cross, London.

**CAMERAS.**—No. 2,931. Improvements in photographic cameras. Herbert William Jagger, 19, John William Street, Huddersfield.

**PRINTING APPARATUS.**—No. 3,067. Improvements in photographic printing apparatus. Joseph Halden, 17, St. Ann's Square, Manchester.

**ARTIFICIAL LIGHT.**—No. 3,128. Illuminating apparatus for photographic purposes. Marwood Short, 37, Chancery Lane, London.

**CINEMATOGRAPHS.**—No. 3,198. Improvements in cinematographs and attachments thereto. W. P. Thompson, 6, Lord Street, Liverpool, for William Henry Baker, United States.

**REFLEX CAMERAS.**—No. 3,324. Improvements in photographic cameras of the reflector type. Walter Dockree, Valentine William Edwards, and Houghtons, Ltd., 88-89, High Holborn, London.

**DEVELOPING APPARATUS.**—No. 3,342. Improvements in apparatus for developing photographic plates. Sydney Arnold Atkinson, Birkbeck Bank Chambers, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**COOKE LENSES.**—No. 3,398, 1905. The invention has for its object the modification of the Cooke lens so that the separate parts may be used as lenses of twice or thrice the focal length of the complete lens—or other multiple of the whole lens. The claims are:—1. A triple or quadruple Cooke lens, having the power of its negative lens, or the sum of the powers of its two negative lenses, approximately equal to the sum of the powers of the two (modified) positive lenses, so that it can be used either singly or conjointly with a similarly modified lens of equal or unequal focal length. 2. The conjoint use of Cooke lenses already existing such as the one described herein as Series V, any two of such being joined together as in Fig. 2, with a stop between them, and their focal lengths being equal or unequal. Fig. 1 shows a section of the series V Cooke lens, which, as it stands, is more suited than any other of them for conjoint use, although it requires modifica-

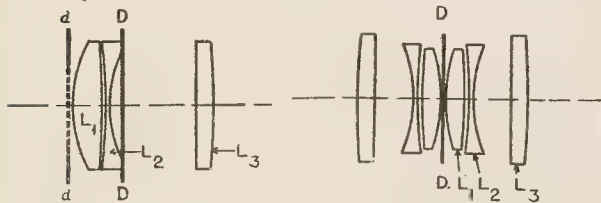


Fig. 1.

tion. At present the diaphragm is situated close behind the negative lens at D—D, but for conjoint use the diaphragm has to be transferred to the front of the front lens  $L_1$ , as shown at  $d-d$ . But that position is so much further from the back lens  $L_4$ , that pencils of light of a moderate degree of obliquity cannot get through the combination, but strike outside of the aperture of the back lens. Therefore, the modification that is, as a rule, required is to get the whole combination shortened up along the optic axis so as to get the aperture of the back lens to subtend a larger angle as viewed from the centre of the front stop. That being attained, then two such front stop lenses of equal or unequal focal lengths, may be placed together as in Fig. 2, stop to stop:

one stop then acting in common. Thus the whole combination will yield a very powerful lens of large aperture, while either half, used preferably with the stop end towards distant objects, will perform as a self-contained and perfect lens of a longer focal length. The attainment of a three-lens combination like Fig. 3, short enough for such conjoint use implies that the positive lens  $L_1$  or the one most remote from the diaphragm shall be of a very much longer focal length than the other one  $L_4$ . But such a condition, however well adapted it may be for wide angle combinations, is yet not the most suitable if the largest possible working aperture is to be attained. In order to obtain the largest positive relative aperture I must be about equal power to  $L_4$ , but in order to get the spherical aberration balanced in such a case it is absolutely necessary to divide the negative lens into two parts or lenses of equal or unequal power. Fig. 3 is a sketch of such a combination as roughly calculated

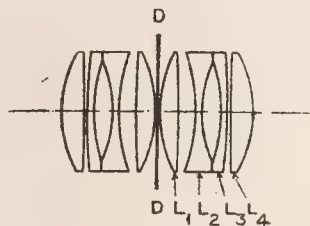


Fig. 3.

out, whereby it is hoped finally to get an aperture of  $f/7$  and of  $f/35$  when two such constructions of equal focal length are used conjointly. In all the combinations suggested above it is necessary in order to obtain a flat final image substantially free from astigmatism, to embody the principle which formed the basis of the Cooke lenses (Patent No. 22,607, 1893), viz., that the sum of the powers of the negative lenses employed must be approximately equal to the sum of the powers of the positive lenses; a large part of the power of the combinations being the sole result of the separations between the component lenses. For instance, and especially if the refractive indices of the glass used for the negative lenses be equal to the refractive index of the glass used for the positive lenses, the sum of the power of the negative lenses may be exactly equal to the sum of the powers of the positive lenses, and yet there results a considerable power for the combination owing to the separations; the greater is the excess of the refractive index of the positive lenses over that for the negative lenses the more may the relative power of the negative lenses be legitimately relaxed. Even if the refractive index of the negative lenses is in excess compared to that for the positive lenses, yet the power of the negative lenses even then need not be quite equal to the powers of the positive lenses, but the fulfilment of the former of these opposing conditions is highly desirable, and so long as the combinations are kept as short as possible along the axis there will be little difficulty in employing dense barium crown glass of a refractive index of about 1.61 for the positive lenses and a very light flint glass or highly dispersive crown glass of refractive index of from 1.53 to 1.57 for the negative lenses. These constructions can also be used for lantern projection and as microscope objectives.

The specification gives the curves and other data for a special Cooke lens to be used conjointly. Harold Dennis Taylor, Stancliffe, Mount Villas, York.

An enlargement competition has been instituted by Messrs. Burroughs and Wellcome; prizes from one to five guineas are offered for the best enlargements made with "Tabloid" metol-hydroquinone developer. The competition closes May 28 for Great Britain, on April 16 for Australia, and on May 7 for South Africa.

A SAMPLE portfolio of postcards reaches us from Mr. Philip Hunt, 100, Deansgate, Manchester, who draws our attention to the special lines handled by him for professional photographers undertaking the publication of local postcard views.

## New Apparatus, &c.

the Wellington Light-filter. Made by Wellington and Ward, Elstree, Herts.

When, at about this time last year, we reviewed the new Wellington "Iso Speedy" plate, we took occasion to point out the very high orthochromatic ratio which it possessed. The figure expressing at ratio was 1.75, that is to say, the proportion of blue sensitiveness to yellow sensitiveness, according to the definition of Mr. C. E. Kees, is expressed by this figure, and those who have studied values of this kind will bear us out that it represents an intense colour-sensitiveness. This (relatively) low blue-sensitiveness, to put the matter another way, calls for a light-filter of small absorptive power,



such we find the present filter to be. The makers call it a "ve-times" screen, a nomination which, without explanation, does say very much. We assume from the exposures we have made through the screen on "Iso Speedy" plates, that the filter gives good colour rendering with this increase of the normal exposure. Optical working appears to be excellent, and it is placed on the market conveniently ensconced in a leather case. The light-filter made in two sizes, No. 1, for lenses from 1 inch to 1½ inch diameter, and No. 2, for lenses from 1½ inch to 1¾ inch. The former costs 1.6d., and the latter 12s. 6d.

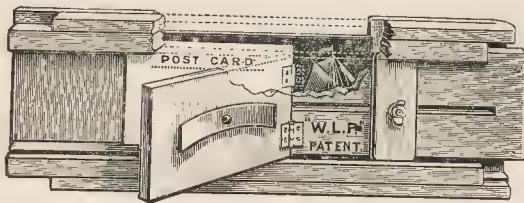
"Carl Norman" Proportion Measure. Sold by Messrs. A. W. Penrose and Co., 109, Farringdon Road, London, E.C.

By the simple device of an elastic graduated measure, Mr. Carl Norman has enabled all those ordering half-tone blocks to ascertain once the length any given original will assume in one direction when a certain enlarged or reduced length is fixed upon for the order. An example will explain how it is used. We desire, suppose, to reduce a 15 by 12 print to 6in. across the 15in. side. What will the length of the 12in. side in the block. We lay the measure across the print and stretch it until the 15in. measure 6in. on the elastic. With the measure at the same tension we then at once read the length of the 12in. side—viz., 4½in. A scale on the reverse of the measure permits of enlargement calculations being made in the same expeditious manner, and should be equally useful to photographic enlargers. The price of the proportion measure is 4s.

"Allways" Rapid Postcard Printing Frame. Made by W. L. Parkinson, Ltd., 62, Dale Street, Liverpool.

This frame presents some distinctly new features, which will considerably facilitate double printing, and also enable one to obtain series of prints or postcards from any part of a negative, and exactly alike. The front of the frame slides apart, so that any negative, from the smallest to whole plate, can be used. The frame is provided with a slotted sliding piece, which can be clamped

in any desired position, and thus forms a setting gauge which enables exact register to be obtained for double or triple printing. The frame should be extremely useful for those processes of colour photography in which accurate superposition of negatives and prints



is required, as when once the negative is placed in position, a clamping screw locks the sliding back, the sliding rails and the negative. The price of the frame is 2s.

## New Materials.

Chrom-Colloidon Emulsion. Made and sold by Stephen Tallon, 2, Francemary Street, Ladywell, London, S.E.

A sample of a new colloidon emulsion specially supplied for process-work, and especially for direct screen-negative making, has been submitted to us by Mr. Tallon, at whose request we have subjected it to a thorough practical test of its suitability for photo-mechanical purposes. As such test is inevitably a comparative one, our experiments were made in comparison with a commercial ready-made emulsion, and as a result we must say that so far as our observations went, the Tallon product proved in every respect its superior. It was found to be slightly faster, it gave negatives of much greater contrast, density was easily obtained without fog, and the emulsion supplied negatives with clean dots. The emulsion readily takes the special eoside colour-sensitising dye supplied with it, and we also find it to be easily amenable to the new isocyanines. If the bulk of the supplies are equal to the sample we shall not be surprised to find photo-engravers and other process men placing very considerable orders with the maker. The emulsion is supplied in 10, 20, and 40 ounce bottles, in each case with a separate solution of eoside sensitiser for use in making the green-screen negative. For the red-screen negative Mr. Tallon recognises the favour in which ethyl violet is held by process operators, and recommends its adoption in connection with his emulsion. The price of the emulsion is 7s. 6d. per 10 ounce bottle, and the following brief hints are advanced by the maker for the guidance of those using it for the first time:— 1. Shake well before use, then add the dye (eosin-silver) in proportion of one part of dye to ten parts of emulsion. 2. Do not dye more emulsion than is required for the day's use. 3. Warm the developer slightly in cold weather. 4. When making screen negatives use the special bromide solution; this ensures greater sharpness of the dots. 5. Develop fully, then wash and fix with cyanide or hypo.

POPULAR Photographic Literature.—The sixpenny textbook having recently obtained a footing in the photographic publishing trade, it is interesting to hear that a war of cut prices is shortly to be witnessed in the issue of manuals on photography at 4d. each, by a firm which has led the way in popular text books of the practical kind. It is not easy to understand how such a price can leave a margin of profit, but possibly the enterprise is prompted by motives of advertisement.

THE Civil Service Motor and Cycle Agency, Limited, in which is included the Service Photographic Society, will in future be known as the Service Company, Limited, the new title having been adopted to secure brevity and also to cover the various branches of the business.



## CATALOGUES AND TRADE NOTICES.

TECHNICAL advice and instruction in the important branches of professional photography being frequently sought by our readers through the medium of our columns, it may be well to draw attention to one source of supply, the value of which we have had frequent opportunities of observing. Mr. T. S. Bruce, of 4, Villas-on-Heath, Vale, Hampstead, in collaboration with three expert associates, has proved himself progressive both in the tuition of beginners and in the improvement of practised workers. His arrangements include instruction in black and white and water-colour finishing by a leading worker for West-End studios, in miniature painting and tinting by a Royal Academy medallist, and in studio erection and operating by an architect and professional photographer. Retouching in all its branches is Mr. Bruce's own subject, in the teaching of which, personally and by post, he has obtained a justly deserved and acknowledged success. Perhaps that success has been due as much to the fact that Mr. Bruce has studied the individual needs of all classes of professional retouchers as to his careful training of the beginner. There is retouching *and* retouching, and many a worker who imagines he has nothing more to learn, would surprise himself, and incidentally improve his position, by following up his early lessons in his special line, or in one of the allied branches of the retoucher's art.

A NEW booklet of the Telephoto Cornex camera has been issued by Messrs. R. and J. Beck, 68, Cornhill, London, E.C., in which are reproduced some fifteen examples of the use of the camera from negatives made by a user on the first occasion of handling. In most cases the illustrations are comparative examples showing the effective use which can be made of camera in photographing from distant standpoints. For this reason the list is one which the photographic tourist might peruse with profit.

A CIRCULAR from the Aerograph Company, 43, Holborn Viaduct, informs us that a reduction in the prices of Aerograph machines comes into force during the current month, and, subject to increased sales, is to be permanent. The A pattern instrument previously sold at £7 7s. is offered at £5 10s., and the reduction on other apparatus is in a similar proportion.

AN advance list of hand-cameras for the coming season has been issued by the Tella Camera Company, pending the appearance of the company's full catalogue at the end of March. The list specifies some popular varieties of hand and stand cameras, and is sent free from 110, Shaftesbury Avenue, W.

MESSRS. Chas. Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C., send us their latest price-list of photographic chemicals and apparatus, among the latter being the new Agfa dark slide for daylight-changing films.

## Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

Feb.	Name of Society.	Subject.
23.....	Colne Camera Club .....	Photographic News Prize Slides.
23.....	Sutton Photographic Club ....	"Printing Papers." Mr. E. De Clifford, B.A.
23.....	Tring Camera Club.....	"Velox and its New Applications." Messrs. J. J. Griffin & Sons.
23.....	Loughton Photographic Society	"Intensification and Reduction." Mr. J. McIntosh.
23.....	Aberdeen Amat. Photo. Assn.	Scottish Federation 1906 Prize Slides.
23.....	Bromley Camera Club .....	"Medieval Architecture." Illustrated. Mr. G. H. Tyndall.
23.....	Bishop Auckland Photo. Soc.	"Page Croft Pigment Papers." Mr. Geo. Ross.
23.....	Rotherham Photo. Society ....	"The Enlarging Lantern." Mr. W. Firth.
23.....	Hampstead Scientific Society ....	Members' Lantern Night.
23.....	Leeds Photographic Society ...	Social Evening and Exhibition of Members' Work. Y.P.U. Print Portfolio.
24.....	Bowes Pk. and Dis. Ph. Soc. ....	Annual Exhibition.
24.....	Birmingham Photo. Society. ...	Annual Exhibition, at Royal Society of Artists.
24.....	Aberdeen Photo Art Club .....	Scottish Federation Salon Prize Slides.

## MEETINGS OF SOCIETIES FOR NEXT WEEK (Continued)

Feb.	Name of Society.	Subject.
24.....	Wandsworth Camera Club .....	Second Annual Exhibition. Members only.
26.....	Oxford Camera Club .....	"Pictorial Possibilities." Mr. J. W. East.
26.....	Cripplegate Photo. Society .....	"Figure Photography." Mr. E. Hillsworth.
26.....	Hastings and St. Leonards P.S.	"Cornish Scenery." Mr. E. Connold.
26.....	Southampton Camera Club .....	Lantern Slide Competitions. 1. Portraiture or Figure Studies. 2. Any Subject other than Landscape, Architecture or Portraiture.
26.....	Scarborough and Dis. Ph. Soc.	"A Fortnight in Norway." Mr. J. Rowntree.
26.....	Dewsbury Photo. Society.....	"In Search of the Picturesque." Mr. W. H. Houghton.
26.....	Stafford Photographic Society...	"Velox and its New Applications." Mr. A. Webb.
27.....	Royal Photographic Soc. ....	Technical Meeting. Demonstration of Mr. J. Page-Croft of his Pictorial Paper. "The Estimation of the Colour-Sensitiveness of Plates." Mr. C. E. K. Mees, B.Sc., and S. Sheppard, B.Sc.
27.....	Cardiff Windsor Amat. Ph. Soc.	"Cloud Photography."
27.....	Gloucestershire Photo. Society	"Telephotography." Messrs. Geor. Smith.
27.....	Darlington Camera Club .....	"Velox and its New Application." J. J. Griffin & Son.
27.....	St. Helens Camera Club .....	"How Dry Plates are Made." Mr. Hesford.
27.....	Nelson Photo. Society .....	Annual Meeting. Election of Officers, and Lantern Slide Making. Mr. Harold Hill.
27.....	Sheffield Photographic Society	"Intensification and Reduction."
27.....	L.C.C. Staff Camera Club .....	Y.P.U. Invitation Portfolio Exhibition.
27.....	Orley & Dis. Cam. & Art. Soc.	Amateur Photographer Prize Slides.
27.....	Redcar and Coatham Ph. Soc.	"Pictorial Composition."
27.....	Gateshead Camera Club .....	Fitzjames White, A.R.S.A.
27.....	Worthing Camera Club.....	"Gunn Bichromate Printing." Demonstrated. Mr. H. Swain.
27.....	Manchester Amat. Photo. Soc.	"Selection of a Printing Process." Mr. H. W. Bennett.
27.....	Burton-on-Trent Nat. His. Soc.	"The Borders and Flouden Field." Mr. W. Howarth.
27.....	Warrington Photo. Society....	"Self-Toning Papers." Mr. Harold Smith.
28.....	South Essex Camera Club .....	Social and Presentation of Prizes.
28.....	Acton Photographic Society ...	"Print Mounting." Demonstrated by Mr. W. L. Vining.
28.....	North Middlesex Photo. Soc. ...	Slides of the 1904 "Affiliation" Competition.
28.....	G.E.R. Mechanics' Institution...	"Mounting and Framing." Demonstrated. Mr. H. W. Bennett, F.R.P.
28.....	Leeds Camera Club.....	Yorkshire Photographic Union Portfolio of Members' Work.
28.....	Everton Camera Club.....	"Gaslight Papers." Demonstrated by Mr. J. Dixon.
28.....	Photographic Club .....	"English Gothic Architecture." Messrs. Goysh and Mann.
28.....	Coventry Photo. Club .....	Judging Autumn Enlargements.
28.....	Cricklewood Photo. Society....	"The Meaning and Use of Stops." Mr. Wilfred Emery.
28.....	Huddersfield Nat. and Ph. Soc.	"The Elements of Architectural Photography." Mr. J. R. Wright.
28.....	Croydon Camera Club.. ..	A.R.T.B.A. Architecture and the Camera." Mr. H. W. Bennett.
March	Harrogate Camera Club .....	"Production Magazine Photographs." Mr. A. Newton.
1.....	Southport Photographic Soc. ....	"Bird Nesting with a Camera." Mr. Riley Fortuna, F.Z.S.
1.....	Chelsea and District Photo. Soc.	"Are Orthochromatic Plates Best for Landscape Work?" Mr. J. Charlesworth.
1.....	Tunbridge Wells Ama. Ph. Assn.	Members' Lantern Evening.
1.....	Halifax Camera Club .....	"Velox and its New Applications." John J. Griffin & Son.
1.....	Liverpool Amateur Ph. Assn....	Annual Social.
1.....	Hull Photographic Society .....	"Zigo Paper, which needs no Toning also Carbon Printing Process." Demonstrated. Mr. Stedman.
1.....	Pudsey and District Photo. Soc.	"Lantern Slide Making." Demonstrated. Rev. C. O. Stewart.
1.....	London and Prov. Photo. Assn.	"Alredale." Illustrated. Mr. Crossley.
1.....	Bolt Court School of Ph. Eng.	"Continental Gleanings." Mr. W. Slater.
1.....	Darwen Photographic Assn....	"Caligraphy and Illumination." Mr. Graily Hewitt.
1.....	Richmond Camera Club .....	"A Tyrolean Valley." Mr. James Slade. Members' Slides.

BURTON ARCHAEOLOGICAL SOCIETY (PHOTOGRAPHIC SECTION).—paper was given last week by Mr. F. W. Bidie, who spoke on colour photography, describing in detail many of the present processes which, he said, was termed colour-photography for the want of better name, as, in his opinion, there was no so-called process before the public. All examples were now coloured photographs, as they could not, with reason, distinguish between a print with colour flooded on in a bath, to one with colour placed on by hand. The only exception was, perhaps, the Lippmann process, which was distinguished

from all others, being essentially an interference process. It consisted of a mirror of metallic mercury placed behind the plate, which was developed and fixed in the ordinary way. The result had to be viewed at a certain angle, and this destroyed all chance of it ever being a commercial success, and it remained, as it did ten years ago, a curiosity, and nothing more. The lecturer remarked that Lumières had withdrawn their three-colour process from the market, and they would not have to wait long for an explanation. He also outlined the Sanger-Shepherd process. Both processes consisted of taking three separate negatives, under three distinct screens, staining the prints a complementary colour, and finally adjusting one over the other. In conclusion, he referred to the process where a photograph is taken through a screen ruled with alternate colour lines, and, after the ordinary manipulation, was seen in colour when viewed through a similarly-adjusted screen. This process was the simplest the amateur. A set of lantern slides, demonstrating the three-colour process, was exhibited.

**WARRINGTON PHOTOGRAPHIC SOCIETY.**—"Save your silver" was amongst the interesting items of a lecture delivered before the Warrington Photographic Society by Mr. J. S. Hill. With regard to this point, he said that a profitable investment for societies would be an old barrel into which exhausted hypo bath should be added. The barrel being filled, add to each six gallons of its contents half pound sulphuretted potash (live of sulphur) previously dissolved in a pint of hot water. Having stirred the whole well together and allowed to rest, the silver will separate and settle in the form of sulphide of silver. Eight inches from the bottom of the barrel bore a hole in which a plug-tap must be inserted, through which the liquid, which should be quite clear, can be allowed to run to the drain. Now collect the muddy precipitate from the bottom, and wash with several changes of water to free the silver white from impurities. Having obtained this, it may be turned to various uses, i.e., sent to the refiners as it is, or, the sulphur burned off it by heating on hot iron-plates or in an old pan, thus leaving it is practically metallic silver in a finely divided state, or another way would be to put the sulphide of silver in nitric acid, thus dissolving out the silver in the form of nitrate of silver, which is the more liquid. This can be evaporated and crystals of nitrate of silver obtained.

**ROTHAMPTON CAMERA CLUB.**—In the Club Lecturette Competition on Monday, the 19th inst., Mr. A. F. Gibbings took first place for "A Holiday in Saxony," while Mr. C. M. Cooper was second for "Denizens of Lane and Wood."

**HACKNEY PHOTOGRAPHIC SOCIETY.**—The annual dinner of this society took place on Tuesday last, February 20, at the Great Eastern Hotel, Liverpool Street, under the chairmanship of Mr. Harold Webb, President of the Society. Members and friends, numbering nearly one hundred, sat down to dinner, and the whole proceedings were volumes for the continued prosperity and activity of the society. Among the guests were Mr. H. Snowden Ward, Mr. H. W. Bennett, Rev. F. C. Lambert, Mr. A. Horsley Hinton, Mr. F. J. Mortimer, Mr. George E. Brown. The toast list formed a pleasant souvenir on the occasion in the form of a photographic reproduction of a piece of pictorial photography of the President. After the honouring the Royal toasts, "The Hackney Photographic Society" was proposed by Mr. Horsley Hinton, who referred to the uninterrupted prosperity of the society, and associated with that success the name of the tireless secretary, Mr. Walter Selfe. Mr. A. J. Linford referred for the society. The health of the President was proposed by Mr. Wm. Rawlings, who presented to Mr. Lane an album of photographs contributed by members, and referred in terms of appreciation to the tact, energy, and versatility which Mr. Lane had brought to his duties of his office. The Chairman, in responding, expressed the sure he had had in the hearty support of the members during his tenure of office, and spoke of the firm friends which it was his privilege to number among the members of the Hackney Photographic Society. An excellent musical programme contributed to an altogether enjoyable evening.

**WARRINGTON PHOTOGRAPHIC CLUB.**—In the course of an interesting lantern lecture describing his tour round the world, given to his fellow-members on 16th inst., Mr. J. C. Marshall stated that his results were obtained on roll film, the spools of which, both before and after

exposure, were each stored in its own air-tight tin case. To give some idea of the trying atmospheric conditions met with, he stated that he put some cut films in double backs, which were packed in a stout leather case; this was kept in a tin cabin trunk, which was protected by being placed in an apparently dry locker in the cabin. On arriving at Ceylon and examining the films, they were found to be drawn or rolled up into a shapeless mass of gelatine and celluloid. The camera he used throughout his trip was "Lizar's Challenge Dayspool," which came out of the ordeal little the worse for its tropical environments. He advised others who might be doing a similar round to take their own supplies, as, apart from the difficulty occasionally met with in replenishing, in most instances, particularly in protected countries, there was a very considerable increase in the prices charged. On the other hand, there was just a risk that the amateur might be called upon to pay duty upon his supply of films or plates.

**CHELSEA PHOTOGRAPHIC SOCIETY.**—The third Annual General Meeting was held on the 15th February. Messrs. F. Humpherson and J. H. Quinn were elected vice-presidents; Mr. F. Webb, hon. secretary; Mr. R. C. Gibbs, hon. treasurer; and Mr. J. G. Cooling, hon. lanternist. The committee reported a very successful year's working and a satisfactory condition of the Society.

## News and Notes.

**THE BIRMINGHAM EXHIBITION.** We hear that the exhibition of the Birmingham Photographic Society, which opens to-morrow (Saturday) will be quite a notable one in the show it will make of leading foreign pictorial photographers. It is expected that the representation of the foreign exhibitors will amount to 200 photographs, many very fine and some superb. Probably when the doors are opened to the public it will be found that Birmingham has this year added to its numerous successes the assemblage of as fine a collection of foreign pictorial work as has ever been seen in this country. Our readers who are able to visit the Midland capital while the exhibition remains open should not miss the chance which is thus offered to them. A review of the exhibition will appear in our columns next week.

**ROYAL PHOTOGRAPHIC SOCIETY.**—Certain incidents at a recent function of the Royal Photographic Society to which allusion has been made in one of our contemporaries have apparently prompted the drafting and posting of additions to the Standing Orders which we print below. We do not propose to open our columns to the possible discussion of a matter which is very largely personal, and to which the Council of the Royal Photographic Society, it seems to us, have attached unnecessary importance. We can understand that certain indiscreet actions on the part of a non-member of the Society has been received with justifiable resentment, but the whole matter in our eyes appears too insignificant for us to enter into its details, and we are confident that we are consulting the wishes of the great majority of our readers in declining to admit the discussion of a subject which, so far as we can judge, does not possess the least public interest. The following are the additions to the Standing Orders referred to:—

No. 5.—No member shall introduce to the Society's house, as a visitor, any person who has been rejected on application for membership.

No. 12.—Smoking shall be permitted at practical demonstrations, at technical meetings, and at annual general meetings, but not at ordinary meetings nor at lantern meetings.

No. 14.—Morning dress only is requisite at meetings held in the Society's house, except when other arrangements are made by the Council.

**A POSTER for the R.P.S.**—The following are the conditions arranged by the Council of the R.P.S. for a competition for a suitable poster:—The Royal Photographic Society of Great Britain offer two prizes of five guineas and two guineas respectively for designs of a double-crown poster suitable for advertising the Society's annual exhibition.



The words "Photographic Exhibition" and "Royal Photographic Society" should be boldly displayed, although designs in which the positions of these words are only indicated and the words are not actually lettered will be eligible for competition. The designs must be for one or two colours and must be submitted in full size (30 by 20 inches). About three-fourths of the area may be occupied by the design, including the words quoted above, and a panel or panels occupying about one-fourth of the space must be left blank for letterpress. Other matters being equal, preference will be given to designs suggesting photography or the action of light. The competition will be judged by the Editor of "The Studio," in conjunction with a committee appointed by the Royal Photographic Society, and the prize drawings, together with the copyright therein, will become the exclusive property of the society. Drawings, carefully packed, to be received at the London office of "The Studio," 44, Leicester Square, by April 1.

**THE South London Exhibition.** We reproduce herewith a full-size facsimile of the plaques to be awarded at the forthcoming South London Exhibition, which opens on March 3, and closes on



the 10th. The exhibition, we understand, promises to equal its predecessors, and those able to attend it should obtain a programme of the attractions from the secretary, Mr. H. Creighton Beckett, 44, Edith Road, Peckham.

**BRISTOL Exhibition.**—The date of this exhibition has now been fixed for October 6 to 13, 1906, inclusive, and the following open classes have been decided upon—viz.:—(A) Champion class—open to all pictures which shall have been awarded a medal at any previous open exhibition. All medalled pictures entered in Classes B, C, D, E, and F (see below), as well as those awarded medals in these classes at this exhibition, will be entered in this class by the hon. secretary as a matter of course, and will thus stand a chance of gaining two awards. The awards will be a silver gilt plaque, a silver plaque, a bronze plaque, and a certificate. (B) Landscape, seascape, and river scenery. (C) Portraiture and figure studies. (D) Architecture. (E) Fruit, flowers, and still life. (F) Any other

subject. (G) Lantern slides. There will be awarded in each class, from B to G inclusive, a silver plaque, a bronze plaque, and a certificate. For further particulars apply to the hon. exhibition secretary, Mr. J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.

**THE Zander Complementary Colour Process.**—The first lecture by Mr. C. G. Zander on his four-colour process will be delivered at the St. Bride Institute, Ludgate Hill, E.C., on March 7 at 7.30.

**ELECTRIC Light Demonstrations.**—The Boardman Electrical Patents Company, of 10, Southwark Bridge Road, announce that in the course of the next month or two they will be opening a demonstration studio in the West End of London, in which they will be able to show professional photographers the capabilities of their various types of arc lamp.

**THE Marble Arch.**—Mr. F. W. Speaight, photographer, of New Bond Street, who recently put forward a scheme for the improvement of the position of the Marble Arch, was recently received by Mr. Harcourt, First Commissioner of Works, to whom he explained the plans by which the congestion of traffic at the north-east corner of Hyde Park is to be relieved and a position given to the Marble Arch worthy of its architectural character. His suggestion is to set back the park railings and make a semi-circular space of 360ft. in diameter, in the middle of which would remain the Marble Arch. The arch would then be seen, serving no longer as a mere gateway, but standing apart, a magnificent monument. It would become a leading feature in the great Processional Road, which, starting from Trafalgar Square, proceeds through the Mall to the Victoria Memorial, thence to Constitution Hill and Hyde Park Corner, to the Arch. Mr. Speaight further proposes to call the noble sweep to be formed at the Marble Arch, "The Crescent of Peace," and that it be embellished with a suitable allegorical railing and screen, as well as permanent, ornate Venetian masts. Numbers of distinguished sculptors, painters, and architects, like Sir William Richmond, R.A., regard the proposal as admirable. Mr. Hamo Thornycroft, R.A., hopes it may be carried out, and Sir L. Alma-Tadema says it would alleviate the great congestion of traffic. The London County Council have not until now been approached collectively upon the subject, but many of the members are familiar with the scheme and approve of it. As they have recently visited Paris in a body, and it was the Arc de Triomphe's position that first put the matter in Mr. Speaight's head, he has forwarded printed papers about the improvement to each member. Mr. Harcourt is said to have entertained the scheme in a favourable, or, at any rate, kindly spirit. It is now officially before the Government and other authorities. If Mr. Harcourt approves he will doubtless call the attention of the proper persons to the matter, so that the suggested scheme may be carried out, and a great London thoroughfare made safer and easier, as well as rendered far more picturesque.

## Commercial & Legal Intelligence.

**BANKRUPTCY.**—John West, cycle dealer and photographer, of Atherton, was examined at the Bolton Bankruptcy Court, on Wednesday, when it was shown that he had a deficiency of £113 13s. 11d., his unsecured liabilities amounting to £133 6s. 7d., and assets £19 12s. 8d. He commenced business as a photographer without capital, but as there was a good deal of competition, his expenses were more than his income. He started to borrow money from moneylenders, and in that way his liabilities increased rapidly. He had known of his insolvency for two years, but had expected to do better. The examination was closed.

**ACTRESS'S Photographs.**—In the Chancery Division of the High Courts of Justice last week, before Mr. Justice Warrington, Mr. G. F. Hart applied for an interim injunction to restrain the Rotary Photographic Company from publishing and circulating picture postcards bearing the photograph of Miss Florence Smithson. The lady was, he said, an actress and singer in light comedy, who was now playing the principal part in the "Blue Moon," at the Lyric Theatre. In her affidavit she said that while singing at the Theatre Royal,

ter, some two years ago, she went to the studio of a Mr. Chandler the Arcade, and had her portraits taken in the characters of "Arlina" and "The Daughter of the Regiment." These were portraits which were now being reproduced by the defendant company, and she supposed that Mr. Chandler had sold the negative them. She objected to their action on the grounds, firstly, that photographs were old ones, and secondly, that she had given the right of reproduction to Messrs. Bassano. The statement of Mr. Chandler was untrue so far as it inferred that she sat for her photographs by invitation; they were ordered and taken in the ordinary way. Mr. Justice Warrington refused to grant an interim injunction but gave leave for short notice of motion.

**NEW COMPANIES.**—Hudson and Grousell, Limited, Capital, £100,000 in £1 shares. Object, to adopt an agreement with A. Hudson and G. W. Grousell, and to carry on the business as printers, photographers, stationers, bookbinders, etc. No initial public issue. The directors (to number not less than two nor more than five) are A. Hudson (managing director and chairman) and A. Hudson. Registered office: Priory Mews, Priory Grove, South Lambeth.

**ALLEGED False Pretences.**—Before the Bingley Petty Sessions last week a Bradford photographer, named Arthur Bradley, was charged with obtaining 2s. 6d. from a lady whose house he had apparently photographed, and from whom he had taken the amount as payment for a print to be supplied. The photograph had not been delivered, and the action. For the defence it was stated that the accused gave a good answer to the charge, and he was remanded on bail.

**PROPER POSTCARDS.**—At West London, last week, three Fulham shopkeepers—Francis Harris, newsagent, of Lillie Road; Thos. W. S., stationer, of Fulham Road; and Charlotte Raulin, confectioner, of Lillie Road—were prosecuted on summonses for exposing and selling picture postcards for sale. For the defence it was stated that the vendors were induced to buy the cards by a traveller for a resale firm, who assured them that the cards would "pass for real." The magistrate imposed a fine of £10, with three guineas, in each case, and ordered the cards to be destroyed. Raulin's shop was raided by Insp. Pettitt, was defended by Mr. Raulin, who suggested that the police ought to proceed against the resale firms whose innocent victims these small shopkeepers were. The magistrate imposed a fine of £5, with two guineas, in her case, and ordered the cards to be destroyed.

**COPYRIGHT CASE.**—An action relating to the copyright of picture postcards was heard by Judge Mansel Jones, at Sheffield County Court, on Friday. The plaintiff was Frank Mottershaw, who trades as the Sheffield Photo Co., at 95, Norfolk Street, and he sued Mr. P. Skelton, stationer, of City Road, for two guineas, the agreed upon for the reproduction of four pictorial postcards. Walpole Hiller conducted plaintiff's case, but defendant had no solicitor. The four views were taken by plaintiff, and produced copyrighted photograph postcards. Later he discovered that defendant had reproduced the pictures as cheap tinted cards. Then, as stated, defendant agreed to pay the usual reproduction fee of half a guinea for each copy. Now he denied entering into such an agreement, and contended that the fee was too large. His counsel held that there had been an agreement between the parties, and that the fee charged was reasonable. Judgment was, therefore, given for plaintiff.

**KNASSING FRAUD.**—A man who stated he was a canvasser in the employment of a portrait company, was remanded to Lucan Petty Sessions last week, on a charge of stealing a valuable pipe, the property of John Murphy, of Laracor.

**Art Photography.**—Before the Bournemouth City Court last week, Samuel Richard Rosenberg, of The Homestead, St. Peter's Street, Bournemouth, sought to recover from De Jornette Plummer, photographer, Bournemouth, the sum of £8 8s., damages for breach of contract and detention of goods. There was a counter claim for £5s., made up as follows: Money lent, £1; motor horn, 15s.; expenses sustained through plaintiff leaving, £8, also a claim for an action to prevent plaintiff acting as photographer locally. Mr. Tattersall appeared for plaintiff, and Mr. H. Trevelyan for the defendant. Mr. Tattersall stated that plaintiff was formerly in the employment of the defendant, and in November he entered into an agree-

ment with Mr. Plummer to become a photographer's assistant in the shop in St. Paul's Churchyard, London, where defendant was carrying on business. Afterwards it was arranged that plaintiff should go to Bournemouth and work in a shop which defendant had taken there. He remained in defendant's employ until a few months ago, when, notwithstanding the fact that the agreement provided for an engagement of three years or longer, Mr. Plummer summarily discontinued the employment of plaintiff. The latter therefore claimed one month's salary in lieu of notice. In addition, the plaintiff had a photograph and frame which defendant detained. The frame, however, had been returned, but not the photograph, valued at 4s., so that the total claim was thus limited to £8 4s. Plaintiff stated that the defendant told him on December 11 that his services were no longer required. Mr. Trevelyan contended that the plaintiff knew nothing of defendant's system until he met defendant. The defendant considered that, having taught the assistants this process, which he had in use in thirteen towns in the United Kingdom, he was entitled to bind plaintiff not to set up in any photographic business similar to that which he (the plaintiff) carried on. The defendant, who described himself as a rapid art photographer, said he possessed a patent for rapid art photography. When plaintiff came to him he knew nothing about photography, except re-touching, and on that account he was only paid 23s. per week. Witness used a special printing machine which no one else could use without his license. He also used special solutions for developing and washing; the printing was done by machinery. He did not know of any other system which could produce photographs so rapidly as his system. His Honour gave a verdict for plaintiff on the claim for £8. He thought there was an entire absence of proof that the plaintiff had infringed, worked, or used the defendant's process. Therefore he could not grant the injunction and would dismiss the counter claim altogether. With regard to the defendant, that decision in having refused the injunction would by no means enable the plaintiff to use the patent process.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### "Sanzol" AND SULPHIDE TONING.

To the Editors.

Gentlemen,—In Mr. Wall's very interesting article re "Sanzol," in your issue of the 2nd instant, he suggests that my experience of the action of cobaltamine compounds on the silver image might enable me to give an opinion as to the reason for the action of "Sanzol" on sulphide-toned bromide prints. The only explanation that I can offer is, that prints so toned often contain silver as well as the normal sulphide. The silver would, of course, be attacked by the "Sanzol," leaving the print much lighter in colour, the darker part of the image being dissolved, and the remaining normal silver sulphide, which has far less covering power, showing more of a yellow colour.

In view of the generally accepted stability of the sulphide-toned image, I am quite aware that such a suggestion will probably call forth some severe criticism, but I am myself thoroughly in agreement with your remarks in last week's editorial column, as to the frequent partial conversion only of the image into the normal sulphide.

No doubt many who are familiar with the bleaching, and sulphide toning, as applied to bromide prints, have at times noted that in applying the sulphiding solution, after bleaching and rinsing, the image that quickly appears is often at first nearly black, the continued application of the sulphiding solution changing the colour to the usual rich brown.

I have up to now been unable to determine what the nature of



this first almost black image may be. Perhaps Dr. Chesterman or Mr. Wall can help us on this point.

I at first thought that the black image was largely the silver hydrate described by Dr. von der Pfordten as always being produced mixed with silver, when silver salts are reduced, the excess of caustic alkali, nearly always present in the sulphiding solutions, leading me to think this possible.

I have since, however, thought that the image first formed is more likely to consist partly of a sub-sulphide of silver, such as the  $Ag_2S$  described by Guntz (Comptes Rendus 112, 861, 1891). This compound is no doubt as liable to break up into free silver and normal sulphide as the sub-chloride that Guntz prepared was to break up into free silver and the normal chloride.

The remedy, of course, is to give sulphide-toned prints a longer immersion in the sulphiding bath, though I hardly think that anything like a quarter of an hour is necessary for bleached bromide prints, though for P.O.P. prints it may, as Dr. Chesterman says, be advisable. At any rate with the bleacher that I always use, a full minute after the image is apparently fully up is sufficient, but it is just this extra minute that makes all the difference, and which, I fear, some people in a hurry dispense with. May I say, in conclusion, that I think Mr. Wall was rather unfortunate in getting blisters on P.O.P. prints when reducing with the normal "Sanzol" reducer, as I have reduced many kinds of such prints without any such trouble. The ammonia bath, however, must not be stronger than 3 per cent., nor should the prints be left in it longer than three minutes, which is quite long enough when nitric acid is used to acidify. If organic acids are used, however, a longer immersion in the ammonia bath is certainly often necessary to remove a yellow insoluble silver-cobaltamine compound which is apt to be troublesome in this case, and for this and other reasons I cannot recommend the use of organic acids for practical work.

Anyone, however, sufficiently interested to experiment in this direction would, I think, find oxalic acid one of the best to use, though not if the purple or bluish toning action is objected to, as I have found that oxalic acid generally shows this toning effect. I mentioned in some notes on the subject last May ("The Photographic Journal" 45, No. 5, p. 189) that I had been unable to determine whether this deposit was silver or cobalt, and I regret that I have not had time to go further into the matter since. The deposit is probably a mixture of both, the silver being brought into solution by the first part of the reducing action, and subsequently redeposited.—I am, gentlemen, yours faithfully,

H. E. SMITH.

Ezra Street, Columbia Road, London, E.

February 19, 1906.

#### NEGATIVES TAKEN IN THE GUIANA FOREST.

To the Editors.

Gentlemen,—We refer to the question asked by your correspondent, "Old Subscriber," on page 140 of your issue of the 16th inst., and would ask to be allowed to say that if your correspondent would care to send us the negatives mentioned, we should be happy to do our best for him.—Yours faithfully,

ILFORD, LIMITED.

Ilford, London, E., February 17, 1906.

#### TO PHOTOGRAPHIC SOCIETIES.

To the Editors.

Gentlemen,—Will you allow me to suggest to the members of the numerous photographic societies who may be desirous of expressing their gratitude to their secretaries, who do so much for the enjoyment and instruction of their members, that the forthcoming Photographic Convention to be held at Southampton in July offers a capital opportunity of paying a compliment to their secretaries, and at the same time benefiting their societies.

There are often difficulties in giving a testimonial, but if each society would make its secretary a member of the Photographic Convention by the payment of the 5s. subscription, and pay his expenses for the week, it would be a pretty compliment to a hardworked official who could not fail to learn much from his association with all the leading photographers of the world, and would be able to

transmit that knowledge to his fellow members on his return.—Yours truly,

Blenheim Club, St. James's Square, London.

ERNEST J. HUMPHREY.

February 14, 1906.

[This suggestion from the President-elect of the Convention is obviously one of benefit to any society as to need no endorsement from us. If motives of gratitude do not prompt a society to act upon it, the direct return in the enhanced activity of the society, which may be safely prophesied as its effect, ought to decide its adoption. As we said last week, there is every prospect that the July Convention, over which Mr. Humphrey is to preside, will prove a rendezvous of photographic forces calculated to put new life into any society represented at it.—Eds., B. J. P.]

#### COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—In Mr. Otto Pfenninger's letter in the current number of the BRITISH JOURNAL OF PHOTOGRAPHY, Mr. Pfenninger permits himself to make the following statement: "The quasi-instantaneous picture is taken with a Benetto camera, a system which does not give three pictures of equal size—a defect that all cameras with the now known reflector system have." I must demur emphatically to the latter part of this statement. For several years I have worked at a camera of this description, and one of the chief difficulties I have had to overcome has been this difference in the size of the respective tricolour negatives. I claim after prolonged effort to have overcome these difficulties, and the negatives now taken in my single exposure tricolour camera are invariably of identical size, giving in the positives printed from them, by direct contact, perfect register. This statement may be verified by inspection of my exhibits in the BRITISH JOURNAL OF PHOTOGRAPHY's exhibition.—I am, yours faithfully,

EDWIN T. BUTLER.

26, Craven Park, Willesden, N.W.

February 19, 1906.

#### CHEAP ENLARGEMENT OFFERS.

To the Editors.

Gentlemen,—The various methods of fraud adopted by the free portrait swindlers have been freely exposed of late, especially so in your esteemed journal, but I think another system, though differing in method, is nevertheless injurious to the profession. The enclosed (from a weekly magazine) is a sample of what is issued periodically to the public.

The advertisement offers for 5s. an enlargement, for which "the public are informed," a first-class photographer would charge a guinea or more. I venture to say many photographers could be found who, for the price quoted, would do enlargements equal to those of the "Great London Firm." But this offer should be of interest to photographers if only for the statement that "These enlargements are an actual reproduction of the photograph"; also that, "By a new method they are actual enlargements of the photograph itself." Are photographers acquainted with this new method? If not, the competition would require consideration. But putting this aside, unquestionably, coming from such a source, a certain section of the public would accept such misleading statements, and thereby create the erroneous idea that photographers, when quoting fair prices for enlargements, differing from the "new method," were making exorbitant profits.—Yours truly,

MAURICE MEDCALFE.

Oak Villa, Padua Road, Anerley, S.E., February 20, 1906.

[The offer referred to by our correspondent is obviously made in the usual language of plausible advertisement bluff, and, of course, it is no new thing in the methods of attracting notoriety by trespassing upon the preserves of a particular profession. However, these methods seem to be good enough for a so-called religious paper.—Eds., B.J.P.]

ERRATUM.—By an oversight last week the name of Mr. E. J. Wall, F.R.P.S., was omitted from the list of newly-elected judges in the Technical Section of the forthcoming R.P.S. Exhibition.

## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### TOGRAPHS REGISTERED:—

Brett, 42, Avenue Road, Hampton, Middlesex. Photograph of J. G. Beale, winner of the North of the Thames Chamionship, 1906.  
 Brett, Ewart Lodge, Jameson Road, Bexhill-on-Sea, Sussex. Photograph of the Group of Bechill Harriers with Carey Witherden (Whip.)  
 a & Whittaker, 33, Coronation Street, Blackpool. Two Photographs of a Black Boy in Native Dress.  
 Whiffin, 770, Harrow Road, Kensal Green, W. Photograph of G. Newlands, Queen's Park Rangers Football Club.

**NETTIE COPY.**—I want to copy a small head out of group, and enlarge up to C.D. vignette. The background in group is a brick wall. How am I to proceed to take out brick wall and put in suitable background?—H. C.

Without seeing the picture it is impossible to say what is the best mode of procedure. We should have surmised that any professional photographer, with the picture before him, would see at a glance the best thing to be done. However, here is one way. Copy the figure to the size desired, and then with a retoucher's knife scrape down the lines in the mortar to the same density as the bricks on vignette in the printing. Another way would be to block out the background and then vignette in the printing. Then, by double printing, introduce a hatched background as described on page 2 of our issue for January 5. Of course, there are other ways, but either of these will probably answer your purpose.

**FINISHING.**—I would be glad if in correspondence column in B.J. some indication of "How to use a burnisher" can be given? I have hunted up the subject in the text books, but can find nothing.—B. KILLICK.

You do not say the form of the burnisher you have, but we assume it is of the bar form. First, lubricate the prints by rubbing them over with a solution of Castile soap, twenty grains, and alcohol ten ounces. Heat the bar of the burnisher as hot as the hand can bear, and then pass the prints through two or three times, with sufficient pressure to give the desired polish.

**TONING BATH.**—Could you kindly tell me formula for toning bath or P.O.P.; best darker chocolate tone or black tones for five minutes?—H. V.

The tungstate bath is a very suitable one for warm tones. You will find the formula on page 972 of the "Almanac," where also you will find the necessary baths for black tones, but we would remind you that a formula will not give you a given tone unless the negative is suitable.

**NEGATIVES.**—I shall consider it a favour if you will kindly let me know where I can obtain the following American books in England:—O'Druid's Art of Retouching," "Abbot's Improvement of Negative," "John's Photographic Colour Guide"?—H. G. P.

So far as we know they are not stocked in this country. Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C., could obtain them for you.

**NEGATIVE PRACTICE.**—We can only suggest to you that you insert a small advertisement in our columns if you wish to purchase negatives for practice.

**PRINTING.**—Will you please give me the following information?—(1). Would the same result be obtained if a carbon print was printed in winter to the same tint (using P.O.P. as a guide), as was used in summer light? (2). If not, what allowance should be made? (3). Does the increased strength of the bichromate bath affect the gradations in a carbon print? (4). What are the

relative printing speeds of carbon tissue sensitized in bichromate baths of the strength of 1½ per cent., 2 per cent., 2½ per cent., 5 per cent., 10 per cent.?—O. W. I.

(1). No. In a feeble light a proportionately longer exposure is required for carbon. (2). Say about twenty-five per cent.

(3). A weak bath yields more brilliant prints than a strong one. The stronger the bath the softer will be prints. (4). This is difficult to say, as we have never made a strict comparison. But the stronger the bath the more sensitive will be the tissue. We may tell you, however, that a ten per cent. solution is unsuitable, as the bichromate salt will, in all probability, crystallise out on the surface as the tissue dries, that is, if it is left in the bath the usual time.

**BLACKING INSIDE OF CAMERA.**—(1). Would you kindly give me recipe for a flexible paint suitable for camera bellows, either red or black? (2). Also, as blue and violet rays are the most active, would it not be well for studio to be painted in these colours?—E. J. P.

(1). A very good medium for the purpose is Japanner's gold size diluted with twice its bulk of turpentine. With this mix "drop-black" sufficient to cause it to dry dead. (2). There would be no advantage. It was a very old idea to glaze the studio with blue glass and paint the walls blue, but no advantage accrued. Indeed, it was rather the other way about. You will see a note on this subject on another page.

**STUDIO.**—Would you kindly advise me in the following:—(1). Whether plain, or ground glass, for studio, with east light? (2). What best material for blinds for top and side for same?—S. HOWARD.

(1). Either may be used, but we should prefer plain glass, unless there is an unpleasant outlook, in which case ground or fluted glass would be the better. (2). A medium blue, light green, or dark buff blinds, would be suitable for this aspect.

**TINTING.**—I enclose tinted miniature, and should fell obliged if you would kindly let me know the paper on which it is printed, and the method of tinting, etc. My miniatures do not appear to have the same finish as enclosed.—F. R. W.

So far as can be judged, we should say the print is on a thin bromide or P.O.P. paper. The tinting is done with the usual aniline colours sold for the purpose. The high gloss is obtained by squeegeeing the print, while wet, on to a glass plate. The tinting is very neatly done.

**MEMBERSHIP OF THE R.P.S.**—Would you kindly inform me how one can become a member of the Royal Photographic Society, and what is the secretary's name and address?—R. P. S.

A letter of enquiry to the Secretary, Mr. J. McIntosh, 66, Russell Square, London, W.C., will bring you the necessary particulars.

**THREE-COLOUR WORK.**—(1). Why is it that some colour-workers use screens of orange, green, and violet, and others red, green, and blue? (2). Would you please give formulas for the set you consider correct, so that I can make dry ones? (3). What kind of gelatine is the best to use, and will good patent plate glass be a suitable support? (4). Has the abrupt absorption filter any advantage over the overlapping filter —A. M. A. CHAPMAN.

(1). This is a distinction without a difference, due to the careless use of the terms red and blue for orange and violet respectively. Probably, strictly speaking, the screens should be termed reddish-orange, green and blue-violet. (2). The following formulae, which are those given by Dr. König, have been proved satisfactory in practice, and they have the advantage of giving definite formulae for definite areas. The first essential is a 6 per cent. solution of gelatine. Thirty grains of hard gelatine should be soaked in cold water for half-an-hour, the water being renewed twice or three times during that time. It should then be drained and placed in a vessel, and sufficient water added to make the whole weigh 500 grains, then it should be melted by placing in a water bath and finally filtered through mainsack, which has been previously wrung out of hot water. This form the "stock gelatine solution." As very small quantities of dye are required, it is advisable to make up stock solutions of the dyes and then measure out the necessary quantities of these solutions. Blue-violet dye solution:—Crystal violet, 31 grains; distilled water, 1 ounce, 5 drachms; glacial acetic acid, 5 drops. To make the



filter add 118 minims of this solution to  $3\frac{1}{2}$  fl. ozs. of stock gelatine fine solution. On every sixteen square inches of glass pour 118 minims of the dyed gelatine. Two such screens cemented together with Canada balsam form the blue-violet filter. The green dye solution:—Patent blue, 31 grains; tartrazine,  $15\frac{1}{2}$  grains; warm distilled water, 3 ounces, 418 m. To make the green filter add 84 minims of this solution to  $3\frac{1}{2}$  fl. ozs. of stock gelatine solution. On every sixteen square inches pour 118 minims of the dyed gelatine. Two such screens cemented together form the green filter. The red dye solution:—Filter red I,  $38\frac{1}{2}$  grains; warm distilled water,  $3\frac{1}{2}$  ounces. To make the red filter add 68 minims of this solution to  $3\frac{1}{2}$  fl. ozs. of stock gelatine solution. On every sixteen square inches pour 118 minims of the dyed gelatine. Two such screens cemented together form the orange-red filter. The dyes here mentioned can be obtained from Fuerst Bros. (3). Any good hard emulsion gelatine can be used, Nelson, Heinrich, Stoess, Drescher, etc. Thin white patent plate should be used, and the filters should be fitted inside the camera close in front of the plates. (4). This is a disputed point, but the preponderance of opinion is in favour of the overlapping filters.

**OWNERSHIP OF NEGATIVES.**—We have given orders for certain negatives to be taken. These have been made and charged for in an invoice as a separate item, quite apart from the charge for copies or prints. We desire that these negatives be handed over to us, but the operator claims that he has a right to retain them under a "custom of the trade." Please say whether you think he has any such right of retention, having in view the fact that we ordered and paid for the making of the "negatives."—AGARIC.

If you expressly ordered negatives and not prints of the subjects you can demand them. But if you did not do so, the photographer is following the custom of the trade in charging separately for them. An identical case has been so settled in the High Courts. We would refer you to the "Almanac" for 1906, p. 675, where this question is treated at length.

**RETOUCHING** (Reply to H. E. P.).—Your touch is bright and clean, and with more thought and less labour you should make a good retoucher. Vary the touch according to the subject—delicate, fine, and with subtle gradation for wrinkled faces such as that of the lady, and with broader, softer, and easier grain for the men. The character is removed more than even flattery calls for, and you are especially weak and undecided in clearing up in the vicinity of the chin and nose. Your lighting is too edged, and yet not sufficiently marked. Time taken is fair but far from top speed considering the quality of the finish. However, it rests with your own industry and carefulness to attain a much higher standard of workmanship—you have it in you!

**INSURER.**—The fire insurance companies will take risks of this kind.

**ENLARGEMENT CHARGES.**—(1). Is it the correct method to mount the oil-finished enlargements to be had wholesale at 5s. the 12 x 10 size and upwards, behind a gilt or bronze matt, in a glazed frame, or should they be varnished and framed nett size? (2). What is a fair general retail price for the above, without a frame? I am now finishing a standing figure of the King's Royal Rifles, in oils, on 20 x 16 nett bromide. I have been asked to work a more detailed background—the original is quite plain, and have also to work in the medal ribbons. What is a fair average retail price for such a picture, complete, without frame? I have an idea this figure, or any of them for that matter, would look well in the antique oak and enrichment frame, overlaid with English gold, framed direct nett size. An opinion would greatly oblige, especially on the charges above.—MAHLSTICK.

(1). Both methods are followed. We think the close framing is greatly preferable. (2). It is impossible for us to say, as we do not know the time given to the work. Surely you must be in a better position to judge than we are. We think the style of framing would look effective, but here again we do not see how we can advise you on the price.

**PERFLEXED.**—You say nothing about the length of the studio. We advise the longest focus you can use. You may see how long this can be in your studio from the table on page 1,124 of the "Almanac." (2). At least ten or twelve inches, all the better if longer. (3) and (4). It is contrary to our custom to recom-

mend individual goods. (5). It is impossible to compare all the lenses of one maker with all those of another, and in any case we should not draw comparisons between individual lenses. In many instances they are different in character, and are to be preferred for different reasons.

**N.D.P. NOVICE.**—No print was enclosed. There is usually no difficulty in attaching P.O.P. prints to glass. They should not be hardened in alum or formalin, and it is all the better not to let them dry before fixing them on the glasses. With these two precautions, you should have no trouble in getting them to hold after squeegeeing down.

**COPYRIGHT.**—Some little time ago I procured a very good photograph of a village church, and issued picture postcards from the negative. A copy has been handed over to the printers, from which they have made a block and printed same on cover-page. I have not copyrighted the picture. (1). Have I any redress? (2). Who is responsible for the copying—the printer, or the person handing the copy to him? (3). Is it possible for me to copyright, and then take proceedings against the parties conjointly?—SURFON.

(1). No. (2). The printers in this case. (3). Not for infringement before registration.

**R. D. M.**—Certainly, an anastigmat is what you require. You had better consult the makers' lists (in the "Almanac") for one. For flashlight purposes it will be sufficient to select a rapidity of f/7 to f/8.

**G. H. T.**—We should not use pyro-soda for rapid development. If speed is important you would do better with pyrocatechin or kachin, both of which are good developers in other respects. You should use the formulae, with caustic soda as the alkali.

**A BOOK QUERY.**—Will you kindly recommend good books for a beginner who wishes to study chemistry and optics as connected with photography? Also books dealing with colour-photography?—BEGINNER.

"Light, Visible and Invisible," by Professor Sylvanus Thompson; "Optics for Photographers," by W. K. Burton; "The Chemistry of Photography," by C. F. Townsend; "Colour-Photography," by Bolas, Tallent, and Senior.

**COATS OF ARMS, ETC.**—Would you kindly let me know if I must obtain permission from anyone to place the borough or town coat of arms upon pictorial postcards of the said district (photographs not impressed)? (2). Where I can obtain the ivory-coloured embellishments to place over the corner joints and around the openings of frames, as illustration herewith? (3). Where I can obtain a cheap plaster bust to practise photographic lighting? (4). Please advise me as to a tasteful colour and style for interior decoration of show cases to harmonise with different colouring of mounts and photographs?—TASTEFUL.

(1). We believe no permission is necessary. Why not write the town clerk of the borough for information? (2). We cannot say. Possibly from the firms mentioned under (3). (3). From firms in the Italian quarter of London, such as G. Baldacci, 31, Hatton Wall, E.C.; D. Lardi, 36, Charles Street, Hatton Garden, E.C. (4). A neutral dark grey packing paper is as good as anything, and is very cheap; or, if the case is of fair size, a fine atlas cloth of neutral shade, such as you can get from Burnet's, of Garrick Street, W.C., is very suitable. We advise you to avoid strong colouring in the decoration.

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## The British Journal of Photography.

The Oldest Photographic Journal in the World.

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## SUMMARY.

**Colour-Photography.**—Complying with numerous requests the Exhibition of Colour-Photography at these offices will remain open until March 17. Since the opening twenty-one additional exhibits have been hung. (P. 163.)

**Artistic Lenses.**—An exhibition of the work of the Puyo-Pulligny series opened in Paris yesterday. A full review by M. Demachy, articles by MM. Puyo and Pulligny, and an art supplement, illustrative of the results of the lenses, will be features of next week's issue of the B.J.

**Enclosed arc lamps** are now coming extensively into use for printing print-out papers, for enlarging and for portraiture. C. H. Hewitt, the Regent Street Polytechnic, deals with their properties and manipulation. (P. 164.)

**New developers and a three-colour camera** are among the patents of the week. (P. 174.)

**A diazo process of photographic printing on silk** has been worked out by Frank J. Farrell, M.Sc. Printing is done from a positive, and a considerable range of tones is obtainable. (P. 167.)

**A review of theories of the latent image**, communicated to the London Provincial Photographic Association, A. J. Bull concludes that the present evidence supports a physical theory. (P. 169.)

**Standards for photographic materials and apparatus** are specified in the belated report of the International Congress of Photography, which last July adopted resolutions as to colour sensitiveness, latitude, &c. (P. 171.)

**The Birmingham Exhibition** appears to have made quite a small sensation by its presentation of a phenomenally fine collection of pictorial work, including that of workers hitherto unknown in this country. Exhibition closes on Monday next. (P. 172.)

**A vendor of objectionable postcards** has been sentenced to three months' hard labour without the option of a fine. (P. 180.)

## EX CATHEDRA.

### Hard Labour for Postcard Vendors.

It is to be hoped that the sentence of three months' hard labour passed upon a dealer in improper postcards at Hastings last week will be a salutary warning to all stationers and other shopkeepers who may be tempted to transgress the conventions of decency in the sale of postcards of a questionable character. We shall be glad to see the full power of the law put forth to punish offenders of this class, and probably a few more sentences of this kind will show the wholesalers in these cards that magistrates up and down the country are determined to deal severely with offenders. In one case brought up at Marlborough Street, the invoices from the vendors of the cards were produced in Court and placed in the hands of the police, a practice which other magistrates might follow with advantage, for spasmodic seizures of retailers' stock cannot be expected to be effective in bringing the makers of the offensive cards to book.

\* \* \*

### Useful Bargains in Old Lenses.

While an old type of rapid rectilinear designed for use in a quarter-plate camera is not likely to be much of a bargain, however cheaply it may be obtained, the case is very different with lenses of greater focal length. An eight-inch R.R. lens that, judged by modern standards, is useless for half-plate work, may cover a quarter-plate excellently at its full aperture. Such a lens can frequently be met with, and while it may cost a pound or so if it has the name of a well-known maker on the mount, it can be picked up for only a few shillings if nameless. Not long ago we secured such a lens for five shillings, and it has proved to be a really valuable acquisition for quarter-plate work at  $f/8$ , though it is useless on a half-plate with any greater aperture than  $f/16$ . Many of the old nameless lenses were of French manufacture, and while they will fetch practically no price at all in a modern saleroom, some of them are really useful. They are somewhat bulky compared with modern lenses, but an old "half-plate" R.R. can generally be fitted to a quarter-plate camera without any trouble. Occasionally a Darlot lens is to be met with, and one of that make is likely to be very serviceable. The name is, however, not always on the mount, and when it is it may not be readily recognised. It generally takes the form of A.D. crossed, one letter being vertical and the other horizontal, and this hieroglyphic is sometimes only to be found marked in pencil on the ground edges of the glass lenses.

\* \* \*

### Artistic Lenses.

Yesterday there was opened at the Photo-Club of Paris an exhibition of the results of the anachromatic lenses to which Major Puyo and his colleague M. Leclerc de Pulligny have drawn attention of



late, and the optical calculations for which, we believe, are due to their associated work. The selecting committee includes M. Bucquet, the President of the Photo-Club, M. Demachy, M. Puyo, and M. Pulligny; and the exhibition is open free of charge daily from 10 to 6, at 44, Rue des Mathurins. The lenses, it may be remembered, were the subject of an article in our columns a little over a year ago, and since that time have been taken up to a considerable extent by photographers with aims in the direction of pictorial portraiture. We shall deal fully with the exhibition next week, when a review from M. Demachy will appear accompanied by articles on the lenses by Major Puyo and M. de Pulligny. With the same issue also will be presented a supplement in the shape of a piece of portraiture made with the lenses.

\* \* \*

### The Birmingham Exhibition.

"Your show is a revelation," wrote Mr. W. R. Bland, one of the judges, to a member of the Birmingham Society. Mr. Alex. Keighley, another judge, stated that he had never before judged at a show of such excellence. A review of some of the good things now to be seen in the rooms of the Royal Society of Artists, New Street, appears on another page. The Birmingham people have towers of strength in their midst, but this year's show is not in any sense local. Nor even national: for the foreign exhibitors take a large and prominent place. Among them are well-known workers such as Demachy, Puyo, Dürkoop, but also a dozen others who are new to Great Britain, but must be reckoned in future among the pictorial leaders. Birmingham, during the time the exhibition remains open, should be, as it deserves to be, a rendezvous of those who would embrace a unique opportunity of judging present-day pictorial photography. The Exhibition closes on Monday next.

\* \* \*

### Colour Photography in Advertisement.

If anybody wants a parlour demonstration of three-colour printing he can get one for nothing from the proprietors of a universal infant food. The latest advertisement novelty to reach our table takes the form of a single piece of "crystal" paper on which are printed three impressions—red, yellow, and blue—of the same subject. The printed instructions enable the lay person to fold the paper so as to superimpose the pictures, when a multi-colour effect of a kind is seen on holding the folded sheet up to a light. In the particular specimen which has come into our hands the result is far from satisfactory; and probably the inks used for the three components would make Mr. Carl Hentschel's hair stand on end. But the idea might be utilised for the advertisement of the three-colour process.

\* \* \*

### Smoothness of Working.

The less the machinery of photographing is in evidence in the studio the better the portrait, may be regarded as axiomatic. The adjustments of blinds or curtains, the movement of backgrounds, and the manipulation of the camera should all be made as simply and quietly as may be. One of the great advantages of spring roller blinds is that little more than a touch, particularly if a patent clutch to hold the cord is used, is necessary to let in more light. Curtains on strained wires are usually manipulated by means of a long rod, and more time is occupied and the work is more fussy. Blind cords should be renewed from time to time, to prevent the possibility of a breakage during a sitting. All the casters on background stands, tables, and the camera stand should be slightly oiled from time to time, so that

the movement is as easy and as silent as possible. The head rest is rather difficult to keep in smooth working order. If the sliding parts are thoroughly cleaned and made bright and then coated with vaseline, which may be almost wiped off again, rusting will be prevented and the sliding movement kept free and easy. The camera stand deserves more attention than it generally receives. The rack and worm screw for raising and lowering the camera should be kept clean and nicely oiled. There is a tendency for it to gather dust and become clogged and stiff. Wooden parts working against each other may be lubricated with black-lead or French chalk. The smooth working of dark slides is a matter only obtained by the use of well-made slides, constructed from well-seasoned wood. Early dark slides were polished inside as well as out, and the wood much better protected from climatic changes. Both slides and camera should be kept dry, if easy working and uniform light-tightness is desired.

### COMBINATION PRINTING.

At one time—now some thirty or forty years ago—the qualifications required in a photographic printer were considerably greater than they are at the present time. Then a printer was expected to be able to print in fresh and shaded backgrounds, or maybe to change them; or at times to combine two or more pictures into one. As an example of what used to be done it may be mentioned that the majority of the late Mr. H. P. Robinson's pictures were printed from several negatives. Also, that the once famous picture, "The Two Ways of Life," by Rejlander, which attracted a great deal of attention at the time it was produced, was printed from something like three dozen different negatives, yet the junctures could not be detected so dextrous was the work done. Many modern printers, if called upon to change a background or introduce one or more figures into a group, would not know how to set about the work, as witness the queries that are constantly being considered in the "Answers" column. Only last week we replied to a correspondent, a professional photographer, who did not know how to produce a vignette portrait out of a group of several people.

In combination printing two systems may be followed—either masking, or vignetting the one picture into the other. The latter is, perhaps, the better, but requires greater skill and more experience to get perfect results than does the former; hence this method will here be considered. We shall not attempt to enumerate all the "dodges" that may be resorted to, even in masking, but will describe a couple of simple methods that will, with a little ingenuity on the part of the worker, enable him to do anything in this direction that he is ever likely to be called upon to undertake.

By way of example let us assume that an extra portrait is required to be introduced into a group already taken, or maybe, to replace one of the figures, that may have moved when the picture was taken, by a more perfect one. Let us say the picture is 12 by 10, and contains several figures. If the portrait to be introduced has to be taken specially, it should, of course, in size, lighting, and density be made to correspond with those in the group. If it has to be made from another photograph this should be reproduced the proper size, and a half-plate would be suitable for the purpose. The negative having been obtained, a print is made from it on, preferably, thin paper. Next the figure, or so much of it as may be required to appear in the picture, is cut out neatly with a sharp-pointed penknife, and the two portions exposed to light until the paper is blackened.

the figure-portion is then adjusted in position on the large negative, and firmly secured with a few touches of diarrubber solution. This cement is preferable to others, inasmuch as it does not cause expansion of the paper, and the mark can be easily removed, without injury to the larger negative. The other portion—the background mask—is similarly cured on the small negative. This being done the group negative is printed in the ordinary way, and the print will, of course, have a white space left to receive the new figure. The group negative is then removed, the single figure one put in the proper position—the margins being extended by black or yellow paper to protect the already printed portions—and the second printing done, care being taken that the depth in the second printing is the same as in the first, otherwise there will be a difference in tone in the finished result. If the work be neatly done the junction of the two printings will not be seen. If it is, it must be touched in with colour, and this should not be required. Here we have assumed that only one figure has to be introduced, but it will be obvious to all that several may be put in in the same way. There is another very simple method of accomplishing the same end which some may prefer to the one just described. In this the single-figure negative has the background, and such portions as are not required, blocked out with black varnish, or a blackened cut-out mask as in the dye method. The figure is then printed on a piece of albumen, or collodio-chloride paper, a little larger than the large negative, and approximately in the position it is to occupy in the group. All the paper beyond the small

negative must, obviously, be protected from light during the printing. We then have the figure, alone, on white paper the full size which the finished picture is to be. The printed figure is now neatly painted over with gamboge and allowed to dry. This print is then put into the right position on the group negative, which is then printed as usual; the gamboge protects the already printed image from further action of light. After the printing is finished the print is washed, toned, and fixed in the ordinary way. In the washing out of the free silver from the paper the gamboge dissolves away and leaves the image clean. The reason why albumen or collodio-chloride paper is advised in this method is that, with some makes of gelatine paper, the gamboge would be liable to leave a yellow tint behind, but with either of the others no such trouble will arise.

In combination printing, whatever method be employed, care should be taken, more especially when several printings have to be done, that the paper is in the same hygroscopic condition in the different printings, for it goes without saying that if it expands or contracts between them accurate registration will not be obtained.

In double or combination printing great neatness and some care is necessary with every print, and if many are required the work becomes a little tedious. Therefore, if, say, several dozens of the same subject are required, it is better to make a combined negative. Such a combination negative is by no means a difficult thing to make, but it requires neatness and some skill in the work, and if only a few prints are required it is scarcely worth the trouble involved.

## COLOUR PHOTOGRAPHY.

The Exhibition of Colour Photography, opened at these offices on January 19 last, was announced in our last issue to close at the time appointed, viz., to-morrow, March 3. During the few days, however, we have received quite a number of letters asking for an extension of the time during which there may be an opportunity of viewing the collection, and we have therefore provided for the exhibition to remain open another fortnight, i.e., until Saturday, March 17. It will then be finally closed, and the specimens returned to the ladies and gentlemen by whose courtesy and kindness we have been enabled to bring together a collection which, we are assured on all hands, has been an incentive and impetus to colour photography. Since the opening of the exhibition the responses to our offer to add exhibits to those already catalogued have resulted in additions to the number of twenty-one, and the present occasion may be seized as a convenient one to describe

these examples with a view of supplementing the catalogue. The following are the added exhibits:—

Portrait from life on Rotary three-colour stripping pigment films—The Rotary Photographic Co., Ltd.

Snap-shots in colour (three-colour prints)—Captain. Lascelles Davidson.

Copy of a painting on Rotary carbon tissue—E. R. Grills.

Solgram colour print. Turner's "Temeraire" three-colour Sinop print—S. G. Yerbury.

Three-colour prints by ferro-prussiate and gum processes—Rev. Johnson Barker.

Portrait of the King. Three-colour reproduction of a

painting by the Sanger-Shepherd process—E. R. Grills.

Three-colour transparency, on two glass plates with film interposed. Enlarged to whole plate from quarter-plate negatives—The Lady Saltoun.

Transparency by the MacDonough-Joly process—A. V. Kenah.

Two transparencies by the Jumeaux process—Otto Pfenniger.

Six three-colour Pinatype prints—Henry J. Comley.

Three-colour print on "Rotary" stripping film—Henry J. Comley.

any example which other photographic societies might well find their advantage to follow was recently set by the Dundee and of Scotland Photographic Association. Recognising the claims of the ladies included in its membership roll it set apart an evening especially for their instruction. A large attendance of both sexes was the result. The subject for the evening was "Carbon printing," and the lecturer was Mrs. Vanessa C. Baird.

The Liverpool Amateur Photographic Association, in issuing its annual report, has to chronicle a practically stationary membership, yet is able to record a balance to its credit, and a year of successful work. The library is said to have been overhauled, and its present condition is represented by the catalogue appended

to the report, we suggest that one of the first duties of the Society is to place a few later editions of standard works on its shelves. Apparently, it has not purchased a single volume on photography during the past five years. It might well invest, say, a later edition of Wall's "Dictionary" than 1895, of Chapman Jones's "Science and Practice" than that of the same year, and it does not appear to possess Abney's "Instruction in Photography" at all.

MR. WALTER D. WILFORD is announced in the February and remodelled issue of the "Motorist and Traveller" as its art editor. Our motoring contemporary is now in the hands of Mr. A. J. Wilson, and is a large and handsome production which is extremely good value at threepence.



## ENCLOSED ARC LAMPS IN PHOTOGRAPHY.

COMPETITION is so keen nowadays that the somewhat leisurely methods of the past will no longer suffice if the worker is to hold his own. One of the features of the last three or four years has been the increasing reliance of the portrait photographer on bromide and gas-light papers for dull weather, and for orders required in very short time. Excellent as are the results, and simple the working of these papers, there are cases where something different is required, and the question often asked is, "How can I get prints by other processes than these, when daylight is not available?" The partial printing and subsequent development of P.O.P. which from time to time has attracted the attention of professionals, is but an indication of this want. What applies to printing applies equally to other photographic work, such as enlarging and exposures in the camera for portraits, copying, or the photography of objects such as silverware, vases, and small articles of furniture. An illuminant, then, which may be readily installed, and be available for any or all of these everyday purposes, should prove exceedingly useful in any studio which is as busy as its owner would like it to be, and I venture to think such a lamp, if its powers are made the most of, will at once increase the capacity and speedily increase the output.

It must not be supposed that a powerful light, such as an enclosed arc lamp, can be bought and put into safe and efficient use quite so easily as a fourpenny incandescent gas mantle. There are certain points which require careful attention not only in the use, but in the installation of the lamp. It will perhaps be better to briefly indicate the uses to which a lamp of the enclosed type may be put, and to point out those methods of use which are calculated to give the best results. One or two convenient ways of making the installation may then be suggested, so that the maximum of efficiency may be obtained with the minimum of expense and trouble in working. It may also be well to state at once that reference is made to the enclosed arc lamps of the Westminster Engineering Company. They are, so far as I am aware, the only enclosed arc lamps at present on the market specially designed for photographic work. As will be seen from the Westminster Company's list, their photographic efficiency is guaranteed by the published tests made here at the Polytechnic Institute, and the details and information given in this article have been obtained from work done at the Polytechnic, where the proper adjustments for the most efficient actinic intensity were first studied and applied to pure photography and process work.



PORTRAIT BY ENCLOSED ARC LAMP. By C. H. Hewitt.

The lamp was placed 8 to 10 feet from the sitter, and an exposure of 2 to 3 seconds given at  $f/6$  on a plate, 300 H. and D.

### Printing.

For printing by any of the daylight processes, the lamp is best suspended near the floor so that the printing frames may be set round in a ring. By having a circular gallery a double ring of frames may be printed, one ring above the other. A good average distance from the lamp is two to three feet. The number of frames which may be printed at once is not an important point, as the time of printing is so short. For instance, with a negative of reasonable thickness, a platinotype print may be made in two or three minutes under ordinary working conditions, and in less time if it is held nearer to the lamp and kept moving to equalise the light over the negative. P.O.P. or colloidal chloride will require a little longer, and carbon longer still, especially if the negative be rather thicker, as well as denser. When the lamp is burning steadily, the crater of the positive pole being in the centre of the end of the carbon, the light is practically uniform all round the lamp. Occasionally, through imperfections in the carbons or inaccuracy of alignment of the two carbons, or, through the enclosing of the arc not being quite perfect, currents of air affecting the arc, the light is brighter on one side. But under normal average conditions the light is uniform all round the lamp, and if the negatives are even in thickness and printing quality, it is quite possible to print by time. For instance, we have recently printed at the Polytechnic a batch of platinotypes in this way, classifying the negatives, ascertaining the time required, and then exposing fifteen or eighteen frames set round a chalked circle for that time. A greater degree of uniformity is obtained than by making a visual examination of the prints, and the work is more rapidly got through.

The lamp may be suspended over a work-bench to avoid stooping to the floor, but the light being then on a level with the eyes, some shield is needed. Such a shield is better used in any case, as the light is very concentrated and powerful. Care must be taken not to allow the bottom of the lamp or the lower carbon to touch the bench or floor, and particularly any metal, or short circuiting will probably occur. The lamp should be suspended so as to swing clear of everything. To prevent scorching of the woodwork or floor, a sheet of asbestos is an advantage. The heat given by these enclosed lamps is considerable, and in carbon printing it is very necessary to keep the frames at a sufficient distance so as to avoid heating the carbon tissue. Tissue, overheated, becomes practically insoluble, and even if only partial insolubility exists, the degrading of the high-lights is fatal. With

printing process it is well to have the negatives a little stronger contrast, as the powerful light penetrates the opacities of the negative more than ordinary daylight. I have noticed the greatest difference between daylight and arc light prints from the same negative in the case of the carbon process. Where the tissue is sensitized by the worker himself it is possible to get excellent prints from ordinary negatives by using a weaker sensitizing bath, going even as low as a one per cent. bath, so that no trouble need be apprehended.

enlarge from negatives covered on the back with matt varnish without any great amount of granularity showing in the finished result. A sufficiency of light makes it possible to do a good deal of shading; or dodging during the exposure on the bromide paper. The exposure may be increased, if desired, by using a smaller stop in the lens, until it is, say, a minute. This is neither too short for easy manipulation of the shielding card, nor so long as to make the manipulation tedious. Negatives made for contact printing in C.C. or platinotype



Miss Vera Morris.



Miss Ethel Reason.



Miss Sylvia Smythe.

PORTRAITS BY ENCLOSED ARC. By Miss Annie Bell.

The lamp was used 6 to 8 feet from the sitters, one thickness of clean blue tracing cloth used as a diffusing screen, and the direct light allowed to fall on floor and the reflector. Exposures, one-third second at  $f/5.6$  on a 250 H. and D. plate.

Another point I have observed, but have never seen mentioned elsewhere, is that when using such a concentrated light the Newton's rings formed by pressure of the negative against the sheet of glass in the printing frame, will print on to the printing paper. This occurs sometimes when making contact dry-plate transparencies in the dark-room, using incandescent gas or electric lamps, if the negative is not kept moving, and the same remedy may be applied when using ordinary daylight processes by the enclosed lamps.

**Enlarging.**

When making use of the lamp for enlarging, whether direct on to bromide paper or from transparencies for enlarged negatives, great care must be exercised to keep the lantern from getting overheated. With a light of this intensity the danger of fogging the sensitive material by stray light is much greater than when an oil lamp or incandescent gas is employed, and it becomes necessary to carefully use in the arc lamp. Then arises the danger to which I have alluded, that of overheating. It is possible by continuous burning to get such a degree of heat as would seriously endanger the insulation of the wiring in the lamp. This risk is obviated by switching off the current after each exposure, but it is preferable not to switch between a trial and the actual exposure, as the light might vary some extent. A double switch, closed in, should be used. With the double switch, the spark or flash occurring when switching is more than sufficient to fog any bromide paper which may be covered in the room.

The strength of the light enables much to be done in an electric arc lantern which is either impossible or inconvenient with less powerful illuminants. One or two thicknesses of ground glass may be used between the light and the condenser, equalising the illumination of the negative without seriously prolonging the exposure, and giving a light more like daylight, in that minute defects in the glass, or film, or specks of dust in the varnish are not glaringly apparent on the enlargement. With a light diffused in this way it is possible to

are too strong for enlarging with the ordinary gas or oil lantern. With an arc lamp they give excellent results, and slight differences in strength may readily be compensated by selecting a bromide paper of suitable character. When very strong negatives, such as those for carbon, have to be enlarged, the use of the "grader" will probably be necessary, but if a fairly open lens aperture is used the exposures even then need never be prolonged. Assuming the average increase of exposure due to the grader as fifteen times, and a negative strong in contrast, but not unnecessarily thick, an exposure of 1 to 1½ minutes would be about the usual time, with ordinary bromide paper, and enlarging from half-plate to 15 x 12, i.e., two to three diameters.

When thin negatives have to be dealt with a piece of pale yellow glass may be placed at the back of the negative, and will not only increase exposure until it is of manageable duration, but will also tend to increase the contrast in the enlargement. Such a glass may be obtained by dyeing (with a very weak solution of tartrazin) a fixed-out and washed lantern half-plate.

**Portraiture.**

The requirements in a light for portraiture appear to me to be the following:—

1. Safety, that is freedom from risk of fire from short circuiting or from falling broken carbons.
2. Cleanliness, so as to protect the studio and sitters from dust and dirt.
3. Comfort, freedom from heat or excessive glare, or hissing or roaring of the light.
4. Efficiency, ensuring sufficient light to enable a good distribution to be made.
5. Simplicity, the lamp not needing too frequent an adjustment or being difficult to adjust, or so complicated as to get out of order frequently.
6. Economy in maintenance and in consumption of current.



Let us apply these to the enclosed type of arc lamp and see how far it will answer the requirements. As regards safety, much depends on good and careful construction, and the lamps being well made it only remains to have the wiring carefully done by a competent electrician. One of the dangers of the open arc is that carbons may break, and falling to the floor may set dresses or furniture on fire. With an enclosed lamp this can hardly occur. Care must, however, be taken to fasten the lower carbon very securely with the clamping screw, or the metal plate forming the bottom of the lamp will expand as the lamp gets hot, and the carbon not expanding to the same extent will be likely to drop out.

In point of cleanliness the enclosed arc runs an incandescent electric lamp very close. Not only are the products of combustion reduced to the minimum by the fact of the arc being enclosed in an almost air-tight glass cylinder, but this cylinder keeps any dirt and fumes from escaping and settling in the studio.

No artificial light can be regarded as satisfactory unless a fair degree of comfort is ensured for the sitter. For freedom from glare with great actinic power, steadiness of light, and absence of great heat, the enclosed type of arc lamp is satisfactory.

The power of the light is amply sufficient, as may be seen from the illustrations and the particulars attached thereto. The portraits of children show what can be done in the way of cutting down exposure, while the half-length portrait in which the light has been controlled so as to secure some concentration of light and shade was given an exposure of from two to three seconds under the conditions stated.

A lamp for portraiture which requires any attention is more or less a worry as compared with daylight working, where the light may be said to require no attention at all. If the artificial light requires constant or frequent attention, that is, if adjustments need to be made every few minutes, and perhaps more frequently than this, the mental strain of operating, always great enough on account of the many variable factors, the attention to small details and the securing of proper expression, is materially increased. When the light approximates to daylight in steadiness and continuity, more attention can be given to these details.

### Installing the Lamps.

Inquirers who contemplate installing artificial light usually ask first as to the cost per exposure. In any case the cost of running cannot be high relatively to the price obtained for the finished photographs. It is hardly possible to give more than approximate figures, and, of course, with a continuous burning lamp the cost per exposure depends on the time taken by the operator in posing and exposing. It seems better, therefore, to give the cost of running per hour. The Westminster No. 114 lamp takes 6 to 7 units per hour, and the smaller No. 111 lamp takes  $3\frac{1}{2}$  to 4 units. On a day load at 2d. per unit the cost is thus seen to be from 1s. to 1s. 2d. per hour or 7d. to 8d. per hour respectively. To this must be added the cost of the glass cylinders and the carbons. With care the cylinders should last a long time. If two new carbons are fitted to the lamp it should run easily for three hours without renewal, though in that time the lower carbon may need raising once or perhaps twice. The enclosing of the arc effects a vast economy in carbons. Using the smaller or No. 111 lamp, therefore, the cost may be estimated at 8d. for current and, say, 4d. for carbons and glass cylinders, which is an ample allowance. Taking five minutes as sufficient time for an ordinary sitting with two or three exposures, the cost works out at a penny per sitter. In the case of the installation for the photography at the Mansion House, to which further reference is made below, the lamp was burning for nearly seven hours, and seventy-five units were used, at  $3\frac{1}{2}$ d. per unit. The number of plates exposed was 450, the cost thus working out at about a half-penny per plate. In this case the rate per unit was higher than is usually charged, and photographers have now little or no difficulty in getting current at the power rate for arc lamps.

We must now turn to a brief consideration of the methods of installation. If one lamp is to be used for printing and enlarging, as well as portraiture, the smaller size will be the more convenient. It may be suspended in an umbrella-shaped reflector, the light being covered in by means of a wire framework shaped like an inverted beehive, and covered with tracing linen cut in gores and lightly sewn on. Fig. 1 roughly indicates the arrangement shown in section. The

wire umbrella, six or seven feet across, is covered with taggers or with thin sheet zinc from the top to A B, the remaining portion being calico tightly stretched, and the whole coated inside with white paint or distemper. The wire beehive is attached at A by two hooks to rings on the umbrella, and at B by one hook, so that it may be unhooked here and allowed to swing down to allow of access

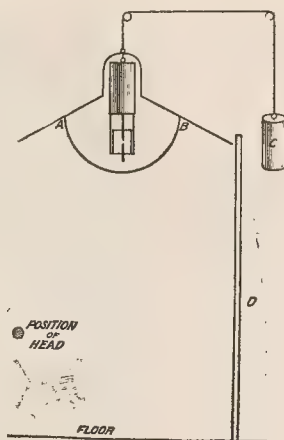


Fig. 1.

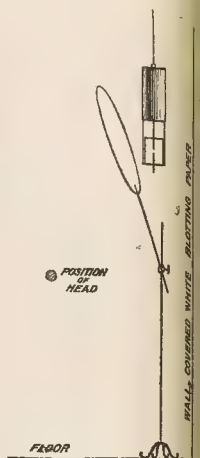


Fig. 2.

the lamp for replacing or adjusting carbons. At D a three-fold screen, eight feet high and covered with white blotting paper, is placed, giving ample side light and obviating too great a concentration of light. On the shadow side of the sitter another large reflecting screen of white blotting paper is placed to illuminate the shadows. By its size and by being placed at the right distance from the sitter false reflexes in the eyes are, to a great extent, avoided. The arrangement of the lamp is practically that employed at our Polytechnic Studio Operating Classes, where Mr. Howard Farmer has always advocated softening contrast by the raising of the tone of the shadows, thereby materially diminishing the exposure, in preference to the lowering of the tone of the high-lights by means of additional diffusing screens.

Instead of the beehive shaped diffuser the lamp may be left entirely open and an ordinary tracing linen head screen employed to prevent the direct undiffused light reaching the sitter. The lamp was so arranged for Miss Bell's work at the Mansion House Ball, an account of which was printed in the issue of THE BRITISH JOURNAL OF PHOTOGRAPHY for January 12, 1906. The photographs of children accompanying this article were produced on that occasion, and are reproduced by Miss Bell's kind permission. The head screen was so placed as to allow the direct light from the lamp to reach the floor, and the whole of the shadow side reflector, the large amount of reflected light from the interior of the umbrella, and from the three-fold screen, preventing any indication of the direct character of the light on the lower part of the subject.

C is a counterpoise weight which allows of the lamp being raised for full-length standing figures. The lamp may, of course, be hung at a fixed height and from a travelling pulley, but this is, in the majority of studios, quite unnecessary.

An alternative arrangement which we have used experimentally, and which has worked exceedingly well, is to suspend one of the smaller size lamps about three feet from the wall, which is covered with white blotting paper or a white lantern sheet, simply using a large tracing linen head screen for diffusing, as shown in Fig. 2. Working in this way the lamp may be very conveniently lowered for printing, or the cable may be detached, the lamp lifted down, and taken to the enlarging lantern or the printing room.

In portrait work it is most important to use a very efficient lens shield, or the plates will be badly fogged by light striking the lens.

is, of course, should be done with daylight work, but it is much more essential where the light is in front of the lens rather than at the side, and with artificial light the close proximity of the source of light to the sitter often brings the lamp only just outside the field of view. Possibly the best form of lens shields is a kind of box, the front of which may be moved nearer to the lens, or further away, as required. The opening in the front, reversible like the shutter of a camera, for upright or oblong portraits, should be arranged to allow nothing to be seen on the focussing screen except the required picture.

If the lamp is used for copying, care must be taken to secure even

illumination. With small prints no difficulty will occur, but when a large picture, says 15 to 20 inches in length, is to be copied, it will be necessary to use a reflector. Of course, the best arrangement is that adopted in process work, where two lamps are employed, one on each side of the original.

For enlarging, the most convenient method of using the same lamp in the lantern would be to have a large Russian iron box made, taking care to secure light tightness, with ample ventilation. The condenser should not be of too short a focus, so that it may be kept well away from the lamp and any risk of breakage removed.

C. H. HEWITT.

## A METHOD FOR THE PRODUCTION OF PHOTOGRAPHS ON SILK.

(A Paper read before the Society of Dyers and Colourists).

In 1896 a series of experiments was made by Mr. Ernest Bentz and myself on the diazotisation of the wool fibre, the results of which are published in a short paper read before the Manchester Section of the Society of Chemical Industry, and printed in the Journal of that society.

The object of these experiments was to determine whether the dyeing properties of the wool fibre depended in any degree on the assumed presence of an amido or imido group in the molecular complex of the fibre.

In order to accomplish this it was necessary to make dyeing experiments with wool in its unchanged condition, and wool from which the amido or imido group had been removed. The removal of the amido or imido group was effected by the well-known method of azotising (whereby the wool was rendered deep yellow in colour) and boiling. It became necessary to prove in the course of these experiments that the immersion of the wool fibre in a solution of nitrous acid was actually converted into a diazo (or diazonium compound). This was readily proved by experiments showing that combinations with alkaline, aromatic hydroxy compounds could be effected, coloured bodies being produced, the colour varying with the hydroxy compound employed from yellow to red or brown. For example, combined with beta naphthol a bright red shade is produced; with resorcinol a golden orange.

During the conduct of these experiments it was found that the light yellow colour of the diazotised wool fibre rapidly changes under the influence of sunlight, becoming very pale buff or deep cream in shade. When this change has occurred it is no longer capable of combining with alkaline hydroxy compounds.

The sensibility of the diazo compound to light suggested the possibility of applying the process photographically, and experiments showed that prints could be obtained. Owing, however, to the loose and fibrous surface of all wool fabrics, the prints produced were more or less blurred and indistinct, most of the fine detail being lost. The process was therefore only applicable in certain classes of subjects where the result depended more upon the broad general effect than on the sharpness of the finer details.

This defect led to a series of experiments with the silk fibre, which is also assumed to contain an amido or imido group in its molecular complex. It was found that the silk fibre by immersion in cold dilute solutions of nitrous acid for several hours was rendered deep yellow in colour, as in the case of wool, and that the colour so produced could be converted into coloured bodies by combination with aromatic hydroxy compounds in alkaline solutions. The yellow body, which I will call the silk diazo compound, is like the wool diazo compound, very sensitive to light. As silk fabrics can be obtained with a beautiful even surface—for example, satin—it seemed probable that a successful photographic process could be based on the sensitiveness to light of the silk diazo compound.

### Diazotising Silk.

In converting silk into the diazo compound, the fabric is first carefully washed to remove finishing matters, and any grease or soap left in the silk after the boiling off process. After rinsing well in water, it is immersed in a solution of nitrous acid made by dissolving 1 per cent. sodium nitrite in cold water and adding 1 per cent. of sulphuric or hydrochloric acid. The operation should take place

in the dark or in a room dimly lighted by artificial light. The silk remains in the nitrous acid for about six hours, and should be moved about from time to time to prevent the accumulation of gases under the folds of the fabric, which might lift it above the surface of the liquid and lead to the production of uneven results. The silk is now well rinsed in water, and after wringing or hydro-extracting, is dried at a moderate temperature under tension in the dark. The object of drying under tension is to produce an even surface ready for the printing process. The diazotised silk thus dried will keep in the dark unchanged for several months.

### The Printing Process.

The portions of the fabric which are exposed to light during the printing process are changed from the diazo compound into a body which is incapable of forming coloured compounds with alkaline solutions of hydroxy compounds, the portions not affected by light remaining unchanged and still capable of combining with hydroxy compounds. Hence it is obvious that printing must take place beneath a photographic positive and not beneath a negative, as in photographic processes depending upon silver compounds.

After exposing under the photographic positive the silk is ready for the process of development. This is effected in dilute solutions of aromatic hydroxy compounds in caustic soda or caustic potash, the colour produced depending upon the hydroxy compound employed.

It is found that the best results are obtained when the developing solution is warm, the temperature generally employed being from 25 degrees to 30 degrees C. Half per cent. solutions of the hydroxy compounds are used in a half per cent. solution of caustic soda or caustic potash. The caustic alkali solution of this strength has little or no action on the silk fibre at 30 degrees C. during the short time the development is carried out—a few minutes.

### Red, Brown and Violet Tones.

Development with beta naphthol produces a crimson shade, which, after well washing and finally rinsing in a dilute solution of acetic acid, becomes scarlet.

Alpha naphthol produces a duller and bluer shade than beta naphthol. Development with alkaline resorcinol produces a bright red, which, after washing and finally rinsing in dilute acetic acid, becomes golden orange. Other hydroxy compounds may be employed, the shades produced varying from yellow to red and brown. The colours produced in this manner may be considerably modified or altered by immersion in cold or slightly warm dilute solutions of certain metallic salts, e.g., iron, nickel, copper, chromium, cobalt, etc.

The golden orange produced by development with resorcinol is converted by dilute solutions of ferrous sulphate into a very dark brown by nickel salts into maroon, cobalt salts into red violet, etc. The red obtained from beta naphthol is converted by iron salts into a red brown, and into blue shades of red by nickel and cobalt salts.

Similar results are obtained by treatment with solutions of metallic salts of colours obtained with other developers.

Experiments were next made to determine whether the silk diazo compound would combine with aromatic amido compounds. In cold or slightly warm solutions negative results were obtained, but it was found that at or near the boiling point combination would take place.

With dilute solutions of alpha naphthylamine, at or near the boiling point, a deep violet shade is produced, which, after washing thoroughly in water, changes to orange. This orange shade again



changes to violet if treated with mineral acids. That the alpha naphthylamine has combined with the silk diazo compound in a position in the ring, and not as a diazo amido compound, is readily proved, as the free amido group can be diazotised by immersion for a few minutes in dilute nitrous acid solutions, and combinations effected with cold alkaline solutions of hydroxy compounds.

With resorcinol, a deep crimson is produced—a shade of considerable beauty. This shade can be further modified by treatment with solutions of iron, cobalt, nickel, copper, and other metallic salts, varying shades of brown and bluish red being produced. Other shades of red are produced by development in alkaline solutions of alpha and beta naphthol, which are further modified by treatment with metallic salts.

The only blue shade I have been able to produce was obtained by the development of the diazotised alpha naphthylamine—silk compound. Combined with amido naphthol di-sulphonic acid H (1:8:3:6) in a slight alkaline solution, a deep greenish blue is produced. Further treated with solutions of ferrous salts, this blue shade is converted into black (or a shade which very nearly approaches black).

Beta naphthylamine may also be employed for development, but the shades produced do not represent the same range of colour or brightness as those produced from alpha naphthylamine.

It is of interest to note that of the colours produced by development with naphthalene derivatives the best ranges of shades are obtained from beta hydroxy compounds and alpha amido compounds.

### An Intermediate Product of the Action of Light.

The silk diazo compound when exposed to light does not appear to change directly to a body incapable of continuing with aromatic hydroxy and amido compounds, but passes through a definite intermediate stage.

By careful observation it is apparent that the yellow diazo compound changes under the influence of the first few seconds' exposure to a pink shade, which then rapidly changes to the cream or buff inactive or undevelopable state.

The pink body produced by intercepting the exposure at the intermediate stage will not combine with aromatic hydroxy or amido compounds, but in the presence of caustic alkalies in dilute solutions gives a brown colour which is permanent.

I am of the opinion that the diazo compound first undergoes intramolecular change, being converted into a nitroso compound, which under the influence of further exposure to light decomposes into what is presumably a hydroxy compound.

Thus:— $X.N:N.OH \rightarrow X.NH.NO \rightarrow X.OH + N_2$ .

It is the nitroso compound which yields a brown colour when treated with caustic alkalies.

In making comparative experiments with Messrs. Green, Cross, and Bevan's Primuline diazotype process, I have observed that fabrics dyed with primuline diazotised and exposed to light pass through the same intermediate stage; if the exposure is stopped at this point and the fabric immersed in dilute caustic alkalies, a dark brown colour is produced.

It would be of interest to learn whether this observation has also been made by Messrs. Green, Cross, and Bevan. Although the results are of no great practical value, this observation can be utilised in the production of photographic prints.

### Modified Methods.

Diazotised silk is exposed under a photographic negative for a very short time, whereby the exposed portions have been changed to the pink or nitroso stage, the unexposed portions remaining as unchanged diazo compound. Immersion in warm dilute caustic soda or potash produces a brown positive print.

Another method of application is to expose the diazotised silk under a photographic positive until the exposed portions are converted to the undevelopable or "hydroxy" stage, the unexposed portions remaining as unchanged diazo compound. A short exposure to light of the whole surface of the fabric converts the diazo portions into the "nitroso" compound. Development in warm dilute caustic alkali yields a brown positive print.

The silk diazo compound is very slightly affected by exposure to

artificial light, hence the operations on sensitising, drying, developing, etc., may be safely carried out in gas light. Prolonged exposure to artificial light, however, converts the sensitive diazo compound to a golden yellow colour which is incapable of development with aromatic hydroxy or amido compounds.

The golden yellow colour is extremely fast to light, and appears to resemble very closely the colour produced on silk by treatment with nitric acid. Samples which I have had exposed to diffused sunlight for several years have changed but slightly.

Having outlined the process, I think it would be of use if I supplied a few suggestions for those who may wish to make experiments in silk diazotypes or serotypes as I think they should be designated.

### Subject.

Dealing first with the subjects which lend themselves to reproduction by the process, it is obvious from the surface of the fabric that subjects depending on very fine detail are not very suitable.

I have found that landscapes depending for their effect on the general scheme of light and shade, and particularly where the contrasts are very marked, give very good results, as the contrasts are always softened to some extent in the reproduction. Water effects and yachting scenes also reproduce admirably; in fact, any broad effect where the slight softening of the contrasts which always takes place does not destroy the balance of the picture.

### Positives.

The positives should be developed to keep the high-lights clear and white, and the photographic developer should be selected with this end in view. I have found that the best results are obtained by employing hydroquinone or hydroquinone and metol. Any developer suitable for photo-process work will give very satisfactory positives. It is essential that the positives should be absolutely "sharp" to allow for the softening effect to which I have already referred.

### Printing.

The time required for printing depends of course upon the light and the density of the positive.

Some experience with the process must be gained before really satisfactory results are obtained, but an excellent method of determining the time of exposure is to fasten a small piece of the sensitised silk on to the printing frame and observe when the yellow colour of the diazo compound has completely changed to the cream shade of the inactive or undevelopable body. In direct sunlight with a positive of ordinary density, about 20 to 30 seconds is a sufficient time for exposure.

### Development.

For the development of prints up to 12 x 10, a beaker or other vessel having a capacity of 200 c.c. suffices, the silk being moved about during the development with a glass stirring rod. From two to three minutes is usually sufficient to complete the development.

Care must be taken not to have an excess of caustic alkali for two reasons:—(1) Injury to the silk fibre may take place. (2) It is sometimes found that portions of the lighter shadows have only been acted upon by the light sufficiently to convert the diazo compound into the nitroso compound. In such cases the half-tones appear as dark browns, rendering the print useless.

After developing the silk should be well washed in water and finally rinsed in a half per cent. solution of acetic acid to brighten the silk fibres and also the developed colours. The fabric should be dried on a frame of suitable size and finally lightly ironed on the back.

The colours produced by this process are very fast to light, especially those obtained by the treatment of the developed colours with metallic salts.

The dark brown produced by development with resorcinol and subsequent treatment with ferrous sulphate is exceptionally fast; patterns which I have had exposed to direct and diffused sunlight for six or seven years remaining apparently unchanged.

They are also fast to boiling water, and boiling in neutral soap solutions has very little action on many of the colours.

Regarding the application of the process, I think there may be some opening in the realms of decorative art. The possibility of producing the photographs of great fastness to light, washing, etc., in shades to harmonise with the general colour scheme of a room, should lead to its adoption for the production of cushion covers, panels, frescoes, etc., and to those who may wish to make experi-

nts in this direction, I may say that the process is not protected, and they are therefore at liberty to apply it in any manner they desire.

To many amateurs, I am afraid the fact that the printing is effected

from positives may prove an insuperable difficulty, but to those students of photography who have taken up enlarging and lantern work the process should be of some interest and value.

FRANK J. FARRELL, M.Sc.

## THE LATENT IMAGE.

(A paper read before the London and Provincial Photographic Association on February 8th.)

The latent image of the photographic plate consists of some alteration of the sensitive surface, so that the silver haloid becomes more readily reducible to metallic silver by chemical reagents, or that the osmit from a solution precipitating metallic silver is directed to parts that have been affected.

Light is the form of energy with which we are more familiar as producing the change, but developable latent images are also produced by many other agencies, notably pressure, X rays, electric discharges, the emanations from radium, wood, and other radio-active substances, and by some chemicals such as stannous chloride. The continued action of many of these agencies, light particularly, produces changes which are visible, as in the various printing-out processes. These actions must be carefully distinguished from the phenomenon of the latent image, which is produced by much lower exposures, and which does not manifest itself before the application of the developer. The chemical changes produced by the continued action of light on silver haloids have very rightly received some considerable amount of attention, because of the possibility of their throwing light on the nature of the latent image. Prolonged exposure of the silver chloride produces a darkening of the compound and an evolution of hydrogen chloride. Now this liberation of chlorine must result either in the reduction of some silver to the metallic state or in the formation of some less highly oxidised compound than the chloride, or an oxychloride. Silver bromide is affected in a similar manner, but in less degree, while the iodide undergoes no change unless mixed with an iodine absorbent. Such changes are accelerated by the presence of moisture and oxygen. Robert Hunt, in fact, considered that he had demonstrated that the latter was essential to the darkening of silver chloride by light, and Meldola and others have suggested that an oxychloride may be a normal constituent of the hardened product, the formula  $\text{Ag}_2\text{OCl}_2$  having been given by Dr. R. Hodgkinson. However, probably the larger number of workers have concluded that sub-haloids are formed, formulae, such as  $\text{Ag}_2\text{Br}$  and  $\text{Ag}_2\text{I}$  being given, sometimes one sub-haloid and sometimes two being assumed to be formed, but in spite of the great amount of work that has been directed to this problem little is known with certainty.

### Sub-haloid Theories.

The hypotheses which have obtained the widest acceptance regarding the nature of the latent image are those which assume an identity between the coloured reduction (or oxy-haloid) products of the continued action of light and the constituents of the latent image. The thesis is that these reduction products are actually formed in the plate in such infinitesimal quantities that they escape detection, but at nuclei which the developer reduces to a metallic state. It is then further presumed that these particles of reduced silver act as centres of deposition, and that the silver bromide in their immediate neighbourhood is then reduced more rapidly than the bromide not in close association with these reduced particles, and that in this manner the negative image is gradually built up.

These hypotheses can only be accepted in proportion to the strength of supporting evidence, and in this case evidence is required, firstly, to the existence of the reduction products in the film; secondly, that the light should act selectively among the silver bromide molecules, only reducing, perhaps, one in many thousands, and leaving the others untouched, and that the number of these reduced molecules should be a function of the light stimulus; and thirdly, why the reduction products should act as nuclei facilitating the deposition of metallic silver under the action of a reducing agent.

Now, the chief basis of support for this class of theory appears to be that chemical reagents act towards the latent image in retarding or accelerating the effect in a similar manner as they do in regard

to the formation of the coloured reduction products. But this may or may not be considered as indicating the identity of the latent image with the reduction products, because, whatever theory was postulated, it would be expected that conditions which tended to help the change which rendered possible the reduction of the silver haloid after short exposure would also help in the same direction when the prolonged action of light was tending to produce reduction changes. And also against this view must be put the complete absence of evidence that anything in the nature of a chemical change has occurred. A chemical product differing in any respect from the constituents of the unexposed film has yet to be discovered.

Of a somewhat similar nature to the sub-haloid and oxy-haloid theories are those which suggest that the latent image is produced by the breaking down of associated molecules of silver bromide, or that it consists of silver grains. Luppé-Cramer considers that the destruction of the latent image of a collodion plate which remains after fixation by nitric action supports the silver grain theory, as silver would, of course, be soluble in that reagent. On the other hand, S. E. Sheppard has recently shown that an oxidising solution of ferric and ferrous oxalates, which bleached negatives and would have oxidised any silver grains, has no effect on the latent image.

Eder, in a recent paper, puts the sub-haloid theory forward as being the most probable, and draws a number of conclusions from the effects of "hypo," potassium cyanide, and nitric acid, but no crucial test of its chemical nature is attempted; this is assumed. I have noticed that in the acid development used in wet-plate work, a sub-haloid is certainly not essential to direct the deposition of the silver. For instance, if a glass plate have an electric spark passed over the surface, the track of the discharge can be developed by the usual iron developer (ferrous sulphate and acetic acid) to which a few drops of silver nitrate solution have been added. The image in this case is built up by silver deposited directly on the glass surface; there is no colloid or haloid present.

Some experiments of Sir J. Dewar, however, seem to render the idea of any chemical change forming the basis of the latent image quite untenable, for he has shown that the photographic plate retains some of its sensitiveness (10 per cent. of the original at  $-252^\circ\text{C}.$ ) at temperatures approaching the absolute zero. Now, the chemical activity of even elements like fluorine practically ceases at much higher temperatures, so that it is not reasonable to suppose that light could produce chemical changes under such conditions.

### Sensitisers.

Substances which have a chemical affinity for the halogens generally act as sensitisers, both as regards the formation of the latent image and also the production of coloured compounds, with long exposures. This would be expected whatever hypothesis concerning the nature of the latent image is postulated, for among the various factors determining the sensitiveness must be the unstableness of the silver haloid, which would be increased by the presence of any body which would readily absorb it, and this would affect the result, whether the latent image consisted in a partial reduction of the haloid during exposure, when the liberated halogen would be absorbed at the same time, or whether it resulted from some physical strain in the molecule. For in this latter case the presence of a substance having an affinity for the halogen would be to increase the ease with which the light produced the molecular change, and so the effect of the subsequent development would be enhanced.

It is, however, interesting to note that there does not appear to be any relation between the effect of a given sensitiser in accelerating the formation of coloured reduction products under the continued action of light, and in increasing the ordinary photographic speed



of a haloid. That there is no similarity between these two actions is a point which has been emphasised by Meldola. There does not appear to be any reason to suppose that a sensitiser is essential to a photographic action, although some such idea must have prompted suppositions of the class that  $\text{AgI}$  may act as its own sensitiser with the formation of higher iodides, because under some conditions silver might be tri-valent. While many substances—gelatine, for instance—may be supposed to act in this way, there does not seem to be any probability that the enormous increase of speed conferred on collodion emulsion by the modern colour sensitising dyes is of this nature.

### Chemical and Physical Actions.

It may be well for us to consider the difference between what may be called respectively a chemical and a physical change. If a compound is resolved into its constituent parts or groups, either to appear as such or to enter into fresh combinations, we say a chemical change has occurred; but if a substance, an elementary one, such as copper, for instance, changes perhaps its electrical resistance, we speak of the change as physical. But we know that no distinct line can be drawn between these changes; a different disposal of the constituents of a molecule produces the different physical properties of stereoisomers, catalytic actions cannot always be explained on purely chemical grounds, allotropic modifications of any element possess different chemical properties, while many cases occur where there is reason to presume the existence of so-called physical compounds between molecules.

These things tend to show that the distinction between a chemical and a physical change may sometimes be a somewhat arbitrary one, and that many changes may occur in the relationship of atoms within the molecule without any definite chemical change occurring. It is possible that the action of light on silver haloids may have the effect of weakening the inter-molecular bonds, an action which in the limit would result in a breaking up of the molecule—a chemical decomposition. We know that electro-magnetic radiation produces many physical changes which are readily detectable, changes of crystalline form, of electrical resistance and potential, and in view of such phenomena it is quite conceivable, in a case where the final action of light is the production of a chemical change, that before this point was reached the molecules would have been changing all their physical properties, and in the case of the photographic image there would, under such circumstances, have to be sufficient internal molecular friction to prevent the recovery of the substance to its initial state upon the expiration of the exposure.

### Molecular Phenomena and the Latent Image.

From the details of purely photographic phenomena let us turn to briefly survey the wider field of effects which are directly dependent on the properties of the molecule. And here the work of Professor Bose may be cited, for he has furnished the first practical demonstration of the identical character of all molecular phenomena, an identity that many had previously expected, and which further work will probably confirm as details are gradually unravelled. Expressed broadly, the generalisation is that all phenomena which are dependent on the properties of the molecule obey the same general laws.

The S-shaped characteristic curve of the photographic plate finds its parallel in all other cases that have been worked out, as with magnetic induction in iron, and the electro-motive changes produced by mechanical stimulus, and by the action of light. Visual luminosity, there is reason to believe, follows a similar law. Among molecular phenomena the time occupied in recovering to the initial state after the cessation of an applied force may vary within wide limits. With some Hertz wave receivers it may be less than one second; in magnetic work there is a partial recovery immediately after the removal of the magnetising force, but complete recovery does not take place without assistance, as with the usual Hertz wave receivers. In Professor Bose's experiments on the electric response to mechanical and light stimuli recovery was generally complete in from one to ten minutes, but in one case complete non-recovery was induced by the action of precipitated calcium oxalate. The latent image must be a case of non-recovery to the normal condition, but it is interesting to note that certain chemicals (nitric acid and potassium

bichromate, for instance), destroy the latent image—i.e., allow the plate to recover to its normal state.

Professor Woods has found that latent images produced by different means have not all the same stability, and that those which produce the more stable effects can obliterate the others. The order of stability was found to be pressure, X rays, a brief light exposure, and lastly, most stable of all, a long exposure to light of low intensity. Professor Woods is of opinion that these facts are opposed to Dr. Bose's suggestion that the latent image may be a molecular strain, but I think it would be easier to argue that they were in agreement with it, for if the light stress produced a physical strain between the molecular constituents it would be expected that this would be more permanent if built up by long continued rhythmic vibrations than when irregular stimuli were applied as with pressure.

Reversal, seen in the case of photography as a recurrent dropping of the density curve with long exposure, occurs in many molecular phenomena. Continuous exposure of a silver plate to light, or continuous mechanical stimulation of a plant or metallic wire, causes the electro-motive force induced to reach a maximum and then decline, while opposite effects, as in Hertz wave receivers, may sometimes be produced by small and large stimuli. In connection with the action of such chemicals as potassium bromide and sodium carbonate in photography, some experiments of Professor Bose are interesting. He found that the electrical responses of metallic wires under mechanical stimulus were affected by the presence of these reagents; the magnitude of the responses being lowered by the restrainer potassium bromide, and enhanced by the accelerator sodium carbonate, and this under conditions that precluded the possibility of any chemical action.

A point of importance in connection with the action of potassium bromide is that it is one of the products of the chemical changes taking place during development, and, as has been recently pointed out by C. E. K. Mees and S. E. Sheppard, development is, under some conditions, a reversible change, negatives being bleached by a mixture of quinine and potassium bromide, in the absence of alkali or alkali sulphite. In this case the quinone was reduced to quinol and the metallic silver converted to silver bromide. And later S. E. Sheppard has obtained the condition of equilibrium, with a mixture of ferrous and ferric oxalates, and has pointed out how this reversibility may account for the induction period observed in development when bromide is present.

The ripening of photographic emulsions is a point of great interest in connection with our subject. The increased sensitiveness conferred on gelatine emulsions by the application of heat or of ammonia is a physical change in the condition of the silver haloid, which finds a strict parallel in many other molecular phenomena. Among these may be mentioned the decrease of magnetic hysteresis in iron by annealing, and the increased sensitiveness and regularity of response of Hertz wave receivers conferred by gentle heating or the application of ammonia. Another case where these two agents have a similar effect is in Dr. Bose's experiments on the electric response of plants and metals to a mechanical stimulus, such as a torsional vibration. In these experiments two pieces of the same metallic wire were mounted side by side in water and connected to a high resistance galvanometer through a megohm. Upon giving one of the wires a torsional vibration a transitory electro-motive force was produced. Now this electro-motive variation was generally small and irregular at first, but by immersing the wires in hot water for a short time and "ripening," or, to employ a more general term, annealing them, the responses became more regular and larger. And, what is perhaps of still more interest to photographers, exactly the same result can be obtained by immersing the wires in weak ammonia, from which they are afterwards rinsed.

Similar phenomena accompany the electro-motive effect produced by light on silver plates, and there is little doubt that the effect is a perfectly general one among molecular phenomena. The phenomenon of ripening, or annealing, would appear to be most probably something in the nature of a reduction of internal molecular friction. The aggregation of silver bromide particles which takes place during the ripening of a gelatine emulsion have generally been considered an essential part of the change, if, indeed, the increased sensitiveness was not directly due to the aggregation. This aggregation, it has been suggested, is due in the case of ripening by heat to the solution

bility of silver bromide in potassium bromide and gelatine, and in case of the use of ammonia to the solubility of silver bromide in that reagent. With either process the supposition has been that silver bromide dissolved from the emulsion is reprecipitated upon the remaining particles. There do not, however, appear to be any sufficient reasons for postulating such a process as solution and reprecipitation to account for the very common phenomenon of the aggregation of precipitated particles into larger and larger masses, which usually proceeds from the time of precipitation, and which is accelerated by heating.

Regarding the electron theory suggested by Professor Joly, I do not feel that there is yet sufficient evidence to say much for or against, but it is not at all impossible, nor even improbable, that the loss of electrons may be the cause of the changes in properties, including change of potential, produced by the action of light on the photographic plate.

And, in conclusion, let me express the opinion that, until much more definite information is forthcoming, we must reject all the chemical theories and look upon the latent image as a physical modification of the silver haloid, accepting Dr. Bose's generalisation of its relation to molecular phenomena and reserving judgment as to the nature of the change.

A. J. BULL.

### VAGARIES OF COLOUR-BLINDNESS.

THE Thursday evening lectures which were so long a justly popular feature of the Camera Club are being continued, we are glad to say, under the auspices of the Blenheim Club, and judging from the attendance last week, when Dr. Edridge Green lectured on "Colour-Blindness," are received with favour by the older members of the "Blenheim." Yesterday (Thursday), the lecturer was Tempest Anderson, who was down to speak on a visit to South Africa with the British Association, and among the forthcoming fixtures are: "Mountain Travelling in the Eastern Countries," by G. P. Baker; "English Royal Heraldry," by Cyril Davenport; and "Morocco: Its Court, People, and Customs," by C. Rider Noble.

Passing now to the subject of Dr. Edridge Green's discourse. It appears that five per cent. of the population are dangerously colour-blind, not so colour-blind that they cannot match colours, but with vision sufficiently defective to prevent them from naming colours. The engine-driver or the pilot has to name his colours, not to match them. On ordinary occasions an engine-driver would not confuse red and green, but if the day were slightly foggy he would call every red light green and every green light red.

Dr. Green suggested that instead of the casual and absurd method of testing colour-vision at present in vogue, consisting of matching pools of various tints which the person who can see only two colours can generally accomplish, there should be a system of testing by means of coloured lights. These lights could be modified by means of neutral glasses, or could be slightly fogged, and in this way their appearance would be altered in the case of the colour-blind, but could remain the same in that of the normal sighted.

Colour-blind people, said Dr. Green, have no difficulty, as a rule, with yellows and blues. The man who is able to distinguish red, yellow, green, and violet, is sufficiently colour-sensitive for the practical purposes of life, while the man who is able to see, in addition to the colours mentioned, orange and indigo has quite exceptional colour perception. The cases in which the colour-sight is so defective at the solar spectrum appears as one tint from end to end are very rare. Men who see three colours never mistake red for green or green for red, while men who see four colours only become confused between the greens and blues.

The questions of the influence of temperament upon colour were discussed. Many creatures, including the octopus and cuttlefish, are sensitive to red, and in photographic work prolonged exposure to red light is harmful, acting upon the nerves as a fatiguing influence, and setting the sense of judgment. It was mentioned that some of Messrs. Lumière's workpeople had complained of ill-effects ensuing from working in red light.

Every child, said Dr. Green, comes into life colour-blind. The first two colours that he sees are black and white, and the perception of red and violet comes later on. Of men of various races who have worked under him as art students, said one speaker, the Japanese

were invariably the most accurate in their colour-sense. This might be due to a native sensitiveness to colour, but more probably it was due to the habit which the Japanese had of noticing trifles. In fact, says Dr. Green, the power of colour-perception is intimately bound up with the power of general observation. This is not to say that colour-blind people are unintelligent, but the fact remains that a colour-blind person can get along almost as well as a normal-sighted one if he will "take notice." The case of a colour-blind man who was an expert artist in black and white was mentioned. His shading was always accurate because he employed his powers of observation, and coloured objects had for him "a black and white expression which conveyed an accurate impression of colour." There is no defect, says Dr. Green, in the eye of a colour-blind man; the defect is in the colour-perceiving centre in the brain. Thus many forms of brain disease bring on colour-blindness.

The lecture was illustrated by a series of lantern slides showing side by side a coloured original and the copy of it made by a colour-blind person. In some instances, we believe, the slides were three-colour, reproduced by the Sanger-Shepherd process.

### THE INTERNATIONAL CONGRESS OF PHOTOGRAPHY.

THE resolutions adopted by the above Congress at its meeting in July last year have just been published. The following is an abstract:—

The standard light is to be the acetylene lamp as devised by M. Fouché, or the Fery-Monpillard lamp (see B.J. Almanac, p. 724). Further experiments are to be undertaken to establish the ratio of these with the Violle unit, and it is suggested that a photographic comparison should be made. The unit is to be the quantity of white light falling upon a square centimetre at a distance of one metre from the acetylene lamp, which is equivalent to 1.20 of the Violle unit. This is to be called B.P.M.S. (bougie photographique-mètre-seconde). The transparency of a deposit, examined by transmission, is the ratio of the quantity of light-transmitted to the quantity of light received. Opacity is the inverse of this ratio, and density is the logarithm of the opacity. The unit of density is that which transmits one-tenth of the light received.

The normal duration of development is such that with the density of 7 the densities should be proportional to the logarithms of the quantity of light transmitted by the negative and inversely proportional to the quantity of light received at the moment of exposure. The Congress admit that plates should be tested with the developer recommended by the makers, and recommend that makers should give on the box labels the formula and temperature of the developer.

The sensitiveness of an emulsion should be the quantity of light necessary to obtain the unit of density with normal duration of development. The latitude of an emulsion should be the interval where the densities, with normal development, remain proportional to the logarithms of the quantity of light, and should be expressed by the differences of the limiting densities. Every emulsion should be designated with its sensitiveness, its latitude, and its fog, the latter being the density obtained with normal development without exposure to light.

Orthochromatic plates should be designated by their maxima and minima of sensitiveness, and by the wave length on the less refrangible side where the sensitiveness practically ends. The sensitiveness to white light and their chromatic sensitiveness should be stated.

Formulae for colour-filters or screens should be given in specific weights of the colouring matter per square centimetre of surface, and the liquid filters should be one centimetre internal thickness. In all cases of organic dyes the names of the makers, the trade names and marks of the dyes should be given.

The Congress suggests that makers of optical glass should come to an "entente" to do away with the confusion now existing in the nomenclature of glasses, and that four groups should be made, or that, if this be not possible, the glasses should be divided into two

classes, using the usual notation  $v = \frac{D-1}{F-C}$ , and that all glasses with this power above 50 should be classed as "crowns," and all others as "flints."



Diaphragms are still to be numbered on the *f/x* solution, but the word "diameter" be substituted for "aperture." Experiments are to be undertaken to prove the loss of light by absorption and reflection, and some attempt should be made to determine a characteristic co-efficient. Shutters are to be marked with their speeds with an error of only 5 per cent.

The Congress recommends that photographic sensitive preparations should be passed by the postal authorities as samples, provided they bear the makers' labels and bands unbroken. Every maker should see that packets of his preparations bear such bands, and the label of a black star on a red ground which is recognised by the Customs authorities. It further suggests that postal authorities should admit photographs and works illustrated by direct photographs on the same terms as any book or magazine illustrated by a photo-mechanical process. Further, that the postal authorities should admit, on the usual terms, postcards illustrated by the photographs mounted thereon. Cinematograph films, when enclosed in metal boxes, should also be passed by the postal authorities as "samples."

## Photo-Mechanical Notes.

### Carl Hentschel, Ltd

The annual general meeting of the Carl Hentschel, Ltd., was held on February 22, when the chairman (Mr. Carl Hentschel) reviewed the progress of the company and submitted a scheme (which was approved) whereby the three branches of the Carl Hentschel business, Carl Hentschel, Ltd., the Meisenbach Co., and the Hentschel Colourtype, Ltd., are to be amalgamated into one company with a capital of £130,000. It was pointed out that the business of the companies has expanded enormously during the past few years—the net profits of the three concerns for the past two years averaging £10,191—a sum sufficient to pay a dividend of 6 per cent. on 60,000 preference shares, and 8 per cent. on 50,000 ordinary shares.

The history of the Carl Hentschel in "process" is quite one of the modern romances of industry. The facts are probably known to those intimately connected with illustration, but may be recalled on the eve of the firm's important new developments:—

In 1880 Carl Hentschel, then a lad of 16, was manager of one of the few photo-etching studios in London.

In 1887 he started in business for himself with six hands.

He next acquired the process of George Meisenbach, the founder of the modern half-tone process, which then became part of the Hentschel business.

Colour engraving has been added to the methods prosecuted, and the Hentschel Colourtype works at West Norwood is now possessed of processes which enable it to compete with and beat the German producers of colour printing.

These several processes of reproduction have been applied in many important commercial directions, chief among which the firm includes newspaper and magazine illustration, catalogues and illustrated books. The Colourtype process in particular has been taken up by publishers, as witness A. and C. Black's series, "Beautiful Books of Travel," and Heinemann's recent "Rip Van Winkle." Messrs. Hentschel likewise specialise in the illustration of catalogues in colours, and a prospectus which they have just issued shows what their process is capable of in the way of placing before the purchaser an actual facsimile of an article. In journalism also the "Colourtype" bids fair to show the way in magazine production just as the half-tone in newspapers has followed the first use of Meisenbach half-tone blocks in the "Daily Graphic." Thus the whole outlook for the Hentschel concerns under their centralised control seems extremely promising.

It may be added that two large screens of Messrs. Hentschel's colour work will be on view at the Southampton Convention.

### Fire at a Photo-Engraver's.

Last week a fire (the cause of which is unknown, but which was attended with disastrous results and damage to the extent of between £2,000 and £3,000) occurred at the premises of Messrs. André and Sleigh, photo-engravers, Bushey Grove Road, Bushey. The outbreak assumed serious proportions, for four or five departments were

gutted, including the negative store-room, the copper and zinc etching department, and the mounting and engraving rooms. The property and contents were insured.

### Three-colour Lithography.

According to the recent patent No. 5,473, 1905, taken out by Sir Joseph Causton and Sons, Ltd., and W. G. Meredith, a modified procedure is adopted in the making of negatives for printing in three or more colours by half tone lithography or other processes. For this purpose continuous tone negatives are first obtained, as usual, the use of lined or grained screens being dispensed with at this stage. From these negatives positives are printed upon roughened opal glasses or like surfaces suitable for drawing upon. The necessary corrections are then made to these positives. From these corrected positives half-tone or grained negatives are then taken and the process is completed in the ordinary manner. The invention is not limited to lithography, but is equally applicable to other printing surfaces.

## Exhibitions.

### BIRMINGHAM PHOTOGRAPHIC SOCIETY.

On Saturday, February 24, the twenty-first annual exhibition of the Birmingham Photographic Society was opened by Sir Benjamin Stone, M.P., a former President of the Society. Sir Benjamin congratulated the members on the very fine collection of photographs in the rooms, and pointed out how fortunate they were in having the beautiful galleries of the Royal Society of Artists at their disposal. He urged every member of the Society to bear in mind that belonging, as they did, to one of the leading associations of the country, it was their duty to emphasise the educational side of their work, and to do all in their power to suppress the vulgarity of photography as practised by the "camera fiend" in catching and publishing unauthorised "snapshots" of all and sundry. But he did not wish them to suppose that he would condemn snapshots, because it was possible to secure many things which could be obtained in no other way. The thanks of the meeting to Sir Benjamin and Lady Stone for their presence were happily expressed by the President, Mr. Howard J. Collins, and two of the Vice-presidents, Messrs. Shirley Smith and Thomas Taylor.

Mr. Lewis Lloyd, the hon. secretary, is to be congratulated on having surpassed all previous successes, for we have no hesitation in describing the exhibition as the finest that has yet been held in this country. Apart from much excellent work from British workers, the extraordinarily beautiful pictures sent from abroad would make any exhibition memorable. Nearly one hundred and fifty photographs have been sent from abroad, and the fact that they come from Spain, Denmark, France, Germany, Russia, America, Italy, and Hungary, spontaneously and without invitation, is a great compliment to the Birmingham Society. The judges in the Pictorial Section must have had an extremely difficult task, and we must confess that we do not agree with the bestowal of the awards in any one case, except in the Novices' Section.

In the Open Section a silver medal has been given to 111, "Portrait" by Alfred Ornano, a weak platinum or bromide with a palpably artificial lightening of the head and its surroundings; it is quite incomprehensible what special merit can have been discovered in this poor, feeble print, which is surrounded by at least a dozen superb pictures by Edoardo Garrone. Among them 120, "Bobo and Bebe," a young woman nursing a child, is perfect in its rendering of tones. 110, "Dolorosa," the figure of a melancholy woman, is almost as good in the same way, but the subject is not so pleasing. 113, "Torrissio de Sole," is a most audacious but quite successful attempt in rendering strong effects of light and shade—a little peasant boy, with a merry smile, is standing on a stool so that his head and shoulders are flecked with sunshine from a window above. 116, "Quieto Vivere," two girls in peasant costume, peeling fruit, would be considered excellent were it not eclipsed by others around it. 112, "Flora Montano," is another example by the same Italian worker—a group of three peasant girls in a wood; the effect of sunshine through the trees

and on the stream is most beautiful, and the grouping of the figures beyond criticism. The most striking feature of Edoardo Garrone's work is its perfect technique, and proves a fact which we have always maintained—that good technical work does not mean bad art. The same may be said of the eighteen photographs by R. Dürkoop, of Hamburg, whose work displays the same technical quality, and is no less pictorial in effect. The exhibition of such work ought to dispel the nonsense that is talked about good, clean photographic work being unable to produce artistic effects. 305, "Bildnis einer Dame," receives a medal, and it is a beautiful portrait of an old lady; but the hand on which the face is leaning appears too large, an effect which might have been avoided by a slight turn of the wrist. We prefer 308, "In der Dämmerung," or 302, "Lecture," the first, a lady and gentleman sitting near a window, all in low tones except a few gleams of light catching the lady's hand and dress; the second apparently the same models, the lady holding a book; the scheme of lighting is different, but equally pleasant. 304, "Verzückung," a full-length of a lady, with parted lips and closed eyes, gains a silver medal; but, although the poses, lighting, and general effect is excellent, there are several others by this worker to be preferred. 315, "Der Lampion," shows the versatility of the photographer. We look through a doorway into a sunlit garden with a child playing with a lantern. The effect is very quaint and pleasing. 303, "Im Kinderzimmer," is a group of three children looking at a large ball; although the children are cleverly arranged, and the technique is admirable, the result is not quite so successful as others around it, for it suffers by comparison with others by the same hand. 311, "Bildnis Zweier Herren," an unconventional group of two gentlemen, shows splendid rendering of textures.

The French photographers are well represented by R. Demachy with his "Motor Race," and several portraits in his well-known manner; by C. Puyo, Detaille, and by several whose names are new to us. 290, "La Forêt Enchantée," by A. G. Gimeno, is a most dainty bit of forest scenery, after the style of an old engraving, but it suffers by the imitation of the decorative title at the bottom of the photograph. 321, "Geese," by Chas. H. de Nagyrev, a study of geese with very strong effect of sunshine and shadows, receives a bronze medal. 319, "Moonlight," by the same, is a fine effect of sombre effect in gum, but marred by the introduction of the stars in the sky.

There is some fine work from America: dignified portraits, and 351, by Dudley Hoyt; two superb winter scenes, 340 and 341, by C. G. Dudley; and among many other interesting pictures several showing great variety by E. N. Sewell, of San Francisco; "A Portrait," a delicate head of a lady against a white background; 354, "The Man in the Boat," just a little bit, with nothing but a man in a boat and its reflection in the water, yet together charming; and 359, "A Foggy Morning in a Japanese Garden," one of the daintiest and tenderest things in the exhibition.

It is interesting to notice how the English exhibitors fare beside the wonderful work of the foreign schools. Perhaps the only one who holds his own is Arthur Marshall, whose "Dusty Day," 177, is equal to anything in the galleries; 263, "Sundown," a strong, and landscape, is very fine, but the red colour seems scarcely suitable to the subject. J. M. Whitehead has several good landscapes—"On the Clear Winding Devon," is fresh and dainty, while "Nightfall on the Moor," is strong and vigorous, and well suited to the title. W. T. Greatbatch shows several picturesque views in Normandy, printed in multiple gum, not for competition. We welcome his new departure—they are all excellent. Smedley Aston shows several portraits, landscape and architectural views, but none of them are equal to what is expected from J. Cruvys Richards shows a sad falling off, of which doubtless no one is more conscious than himself. It is evident that he has been too busy in other ways to do himself justice. 233, "Portrait," in gum of several colours, is not convincing; the colour of the face is livid, and suggests a model just recovering from a terrible assault. The result does not repay the labour spent upon the work. Mr. G. A. Barton gains three awards, two in the Members' class and one in the Open. No. 71, "Martha," which takes a silver medal, appears to be a Salvation Lass, but the head-dress is completely lost in the intense black of the background, and the drawing

of the face is spoiled by the straight line of black shadow on the left cheek, cutting off a piece of the face and giving a very lopsided shape. 66, "La Joie de Vie," takes a bronze medal, in spite of the fact that it is false in lighting and tones; the background is from a painted landscape, but the trunks of the trees are so dark that they come far in front of the figure, and should have been very much toned down; although the background is intended to represent open air the lighting of the face is that obtained in an ordinary room, with black, heavy shadows. 225, "St. Ursula," is the model and the sort of thing we have seen before too often. Three or four years ago Mrs. Barton leaped into fame, but we must say, "more in sorrow than in anger," that she has made no advance since. No. 17, "Miss Muriel Hampson," shows the "faults of her qualities" to a marked degree. The shadow on the cheek is as black as the deepest shadow in the black hair, and the hand in the left bottom corner is so dark that it might have been encased in a black glove. In the three, 64, 66, and 71, the grouping of the frames shows the sameness of the posing in an almost painful way. In the West Room is a special group of fifty-eight by the same clever lady, but in many the defects of the forced lighting and over-printing are very evident. James C. Batkin well fulfils his promise of last year, and has several excellent prints in gum, showing an appreciation of sparkling light and feeling for fresh, open air, most welcome in these days of murky prints; 259, "A Rift in the Fog," is a capital street scene, but would be greatly improved by trimming off the waggon on the left side. It is always pleasant to welcome a newcomer in the front ranks, and E. D. Taylor is to be congratulated on his work this year; he has made a decided advance in 52, "Sand-dunes"; 22, "Winter"; 30, "Mid Snow and Ice"; and 20, "Sunset." W. A. Clark keeps up his reputation for pictorial architecture, and in 169, "A Norman Procession Path," is the best he has exhibited, and shows strength and restraint. The portraits and figure studies by Ernest A. W. Moore are at first sight rather striking, but show too much effort and striving after effect, and in 87, "Summer Moon," the moon is very palpably put in by hand.

Rev. H. R. Campion shows several of the careful and charming interiors we always associate with his name, and in 242, "Lux Benigna," has caught an effect of bright sunshine in a cathedral aisle most difficult to render. Dr. Grindrod's work, with its murky tones of short range, suffer by comparison with the foreign workers, who secure such a long scale of tones, from bright light to deepest shadow. Arthur Smith's (241) "The Haunt of the Bee" is a grand piece of landscape, with strong, rich foreground of gorse and hemlock, and distance receding right away to the horizon. J. C. Warburg sends very much what we should expect from him, but 217, "Surf," is delightful in its feeling of bright light and rushing water. Miss Warburg's "Valley of Mists," 147, is very charming, and gives the clean white mist of the country—how different from a "London particular"! 161, "Until the Day-break," by S. G. Kimber, is a good rendering of sunshine in a cathedral retrochoir, with rays of sunshine lighting up a tomb, but the effect of light and shade might be a little stronger.

Fred Judge sends some beautiful landscapes. 166, "October," shows a fine effect of sun streaming through clouds, while the foreground and church tower are in shadow; in 193, "An October Evening," we see the same quaint church tower from another point of view—in a tender veil of mist.

The centre group consists of six of Alexander Keighley's magnificent pictures.

The exhibition contains so much fine work that it is impossible to mention more than a tithe of those that merit notice. We would urge all who can do so to visit the exhibition, which remains open till Monday, March 5.

It is pleasant to notice that the sales already amount to a considerable number; in some cases half-a-dozen duplicates have been ordered.

#### BOWES PARK PHOTOGRAPHIC SOCIETY.

A most successful exhibition was held for the last three days of last week by the Bowes Park Photographic Society, which, although only four years of age, has brought together a collection of members' work numbering 250 items, which is surely quite a record in the annals of



a photographic society. Whether this success is to be taken as proof of the assiduity of the Bowes Park members or of the ease with which a certain knack of turning out what is currently accepted as "pictorial photography," we cannot say. At any rate, the show is a triumphant success for so young a society, and contains some very creditable work. Mr. H. C. Bird's "A Street of the Past" (No. 11), and "Lingering Light" (No. 35), both gum prints, are good work, and show that a painstaking worker can use the gum process and resist the temptation to smudginess. C. S. Carr is likewise successful in "The Barge" (No. 90), and in "Evening Rays" (No. 187), where he uses carbon. "Westminster Towers" (No. 66), by A. E. Warner, approaches an oft photographed subject in a new way. There are other photographs which deserve special words of praise, but our space does not allow of further notes, except a concluding one, to congratulate the Bowes Park Society, and to hold it up to others as an example to follow.

#### EDINBURGH PHOTOGRAPHIC SOCIETY.

On Saturday the annual exhibition of this society was opened in their rooms, 38, Castle Street, Edinburgh, and will remain open until the 10th March. The 264 entries crowd one another on the walls so that taste in hanging is at a discount, the effect being somewhat of the nature of a patchwork quilt. John Hepburn, Glasgow, gains the blue ribbon, the Blanc Prize, with "The Wee Invalid," as hung at the R.P.S. The advent of Rudolph Duhrkoop, Hamburg, is a decided gain to the show, his work showing distinct "quality." One of his R.P.S. pictures, "Bildnis des Dichters, Gustav Freussen" — a simple but telling specimen of portraiture — is medalled. Other medalled pictures in the open class (150 entries) are "The Ghetto, Prague," by Miss Winifred H. Aitchison, Oxford; "Tugging Home," Wm. Clayden's (Plymouth) well-known picture; "The History of many a Winter Storm," by John M. Whitehead, which we noted at the Scottish Salon — a masterpiece of pictorial simplicity. "October," one of Fred Judge's (Hastings) series of "month" pictures. Miss Warburg and J. C. Warburg have some characteristic pictures; Miss Gertrude Aitchison shows "Flood," and Dan Dunlop, "The Village Preacher," both as reproduced in the R.P.S. catalogue; John Moffat, Edinburgh, shows "The Dance"; J. Drummond Shiels shows two portraits; Robert Dykes has evidently specialised in "night" photography with decorative aims in view. Many other known photographers are represented, but it is surely unusual for an E.P.S. exhibition to pass without any "open" awards going to Edinburgh; this is the first time I can remember such a state of affairs. What has come over Crooke, Patrick, Johnstone, Auld; their absence is noticeable. In the members' class there are 114 entries, and four medals are awarded, as follows: The President, J. Tudor Cundall, B.Sc., with "A Cottage Home"; "The Curfew Hour, Hexham," by Henry S. Harrison, is an effective "soft" picture, quite carrying out its title; "Finishing Touches," by Mrs. Mary Cooper, and "On Holiday Bent," an unconventional picture of a passenger train discharging its freight, by Charles McKean. Honourable mention is gained by D. W. Thomson, Thomas Kent, and Charles G. Thornton. A series of three lectures has been arranged. Messrs. J. Craig Annan, W. G. McGeorge, A.R.S.A., and Archibald Cochrane were judges.

THE Eastman Kodak Company, of New Jersey, announces the usual quarterly dividends of  $\frac{1}{4}$  per cent. (being at the rate of 6 per cent. per annum), upon the outstanding Preferred Stock, and of  $\frac{1}{4}$  per cent. (being at the rate of 10 per cent. per annum), upon the outstanding Common Stock, payable on April 2, 1906, to stockholders of record at the close of business on the 28th February, 1906.

PHOTOGRAPHIC Survey and Record of Surrey.—The annual meeting (open to the public) will be held in the Lecture Hall, Public Library, Kingston-upon-Thames, at 3.30 p.m., on Saturday, March 10, 1906. The President, Viscount Middleton, will give an address, and the report of the council and the accounts of the year ended December 31, 1905, will be submitted. Arrangements have been made for an exhibition consisting of a representative selection from the 2,000 prints already in the survey collection, in the Art Gallery, Public Library, Kingston-upon-Thames. This will be open on the day of meeting until 9 p.m., and again during the following fortnight until dusk. A short lecture, illustrated by lantern slides, will be given on each Saturday evening, at 8 p.m.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between February 12 and 17:—

DISHES.—No. 3,479. Improved non-spillable dish used in photographic work. Lewis William Donne, 181, Upton Lane, Forest Gate, London.

COLOUR PROJECTION.—No. 3,766. Improvements relating to the optical projection of coloured images. Benjamin Jumeaux, 7, Southampton Buildings, Chancery Lane, London.

COLOURED PHOTOGRAPHS.—No. 3,822. Improvements in coloured photographic pictures. Carl Pietzner, 51, Deansgate Arcade, Manchester.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

DEVELOPERS.—No. 9,537, 1905. This invention relates to the manufacture of a photographic developer from para-oxy-phenylglycinamide.  $\text{HO.C}_6\text{H}_4.\text{NH.CH}_2.\text{CO.NH}_2$  ( $\text{HO.NH.CH}_2.\text{CO.NH}_2 = 1:4$ ), for which purpose this compound is well fitted by its energetic action and by the fact that it yields clear and clean images. It is not necessary to mix it with caustic alkali in developing, alkaline carbonate sufficing to bring out its developing energy; nevertheless, an alkali may be used if desired. Alkaline solutions of the new developer can be kept for a long time without loss of developing energy. For use as a developer the compound may be supplied in an isolated condition or with suitable admixtures, and as a solid or in solution; or may be made at the time it is required for development. The following are examples of the methods of making up the developer:—(1) With potassium carbonate and sodium sulphite: One part of para-oxy-phenylglycinamide is dissolved in 200 parts of water with the addition of five parts of dry potassium carbonate and five parts of anhydrous sodium sulphite. (2) With potassium meta-bisulphite: One part of para-oxy-phenylglycinamide is dissolved in 200 parts of water with the addition of three parts of potassium meta-bisulphite and of six parts of dry potassium carbonate. (3) Concentrated developer. One part of para-oxy-phenylglycinamide is dissolved in ten parts of water, and this solution mixed with a solution prepared by dissolving 3–4 parts of anhydrous sodium sulphite, together with 3–4 parts of dry potassium carbonate in twenty parts of water. In using such a concentrated developer for developing, ten parts are to be diluted with 50–60 parts of water. C. D. Abel, for Actien-Gesellschaft für Anilin-fabrikation, Berlin.

THREE-COLOUR CAMERA.—No. 4,874, 1905. The invention consists in a photographic camera for taking three-colour photographs or ordinary photographs as required, the changing of the plate and the colour-filter being effected simultaneously and mechanically by pressing a spring knob or by pressing an air ball. A disc is employed fixed to a spindle and provided with three-colour filters and with a circular aperture which serves only for ordinary photography; this disc is also provided with pins which serve to momentarily stop the colour-filters behind the objective by coming in contact with a double detent or escapement comprising an upper tooth carried by a level turning freely on a pivot and having its free end abutting against a pin under the action of a spring. The escapement further comprises a lower tooth forming part of a second lever which can pivot upon the first lever, the small arm of this lever being provided with a slot in which is engaged the stem of a screw which is eccentrically fixed upon the pivot of the first lever. This method of mounting the second lever allows of further separating the two teeth by turning a knob when requiring to take ordinary photographs. The filter-carrying-disc is actuated by a spring placed in a barrel and which can be set up by turning a knob or handle mounted upon a spindle on which is fixed a toothed sector which gears with a pinion fixed to the disc. The toothed sector is provided with

three pins, the first of which is designed to act upon a pivoted bar which closes the shutter at the required moment; the second acts as a stop to an anchor-shaped piece, serving to limit the action of the spring according to whether it is required to take three-colour photographs or ordinary photographs; and the third is designed to transmit the movements of the toothed sector to the changing mechanism of the plates which must work simultaneously with the changing of the colour-filter. In order to allow of varying the duration of each operation the power of the spring can be moderated as required by means of a brake formed by a metal strip held at one end by a screw, and the free end of which can be raised or lowered by turning a knob, the stem of which is a screw, which, by screwing into the strip, causes more or less pressure upon the point of the spindle on which is fixed one of the ends of the spring. The plates are placed in metal frames having on their lower edges projecting pins located between a lower angle bar and an upper plate. These pins are seized by the teeth of rocking bars when the filter-carrying-disc turns one division and a photographic plate has at the same time to be changed. When requiring to take three-colour photographs the apparatus is set by turning the knob of the barrel-spring, the bars being turned upwards. When the knob for lifting the levers is pressed the third lever is raised and carries with it the two other levers; the first movement, which is produced in the rotation of the shutter which exposes the lens under the action of a spring, the said shutter being no longer retained by the pin on the third lever. The second movement is the passing of the colour-filter behind the lens, the first pin on the disc having passed between the teeth of the escapement whilst the uppermost ratchet teeth of the rocking bars change the first plate by causing the pins on the plate-frames to slide over the inclined planes in order to lay this plate in the bottom of the apparatus. To expose the second plate behind the second colour-filter the knob is pressed a second time and the second plate is changed by the second ratchet teeth of the rocking bars. The knob is pressed a third time in order to expose and change the third plate. J. E. Bousfield, for Société du Photochrome, of 4, Rue de Stockholm, Paris.

## New Apparatus, &c.

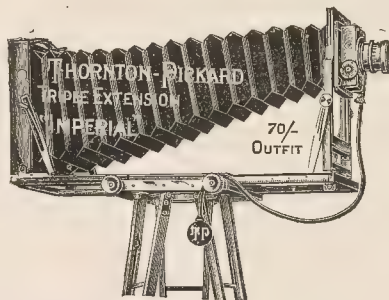
Thornton-Pickard Cameras: "Imperial Triple Extension," "Imperial Perfecta," and "Imperial Focal-plane Two-Shutter." These three cameras have been designed and brought out by the Thornton-Pickard Manufacturing Co. in response to the demand for cameras possessing every possible movement and yet offered to the public at a moderate price. We do not have to go back very far in our recollections to a time when such facilities in camera construction were undreamt of except in apparatus of the most expensive description, and not in all of those. Stage by stage the perfection has been reached in which the man with 70s. in his pocket can command the luxuries of camera construction. The Thornton-Pickard Co. will not plead guilty, we are sure, to having inaugurated an era of low prices, but such being the demand of the trade, they are girded their loins for the battle and set themselves to produce an instrument which was as good as their experience in high-class camera construction could make it. Hence the cameras we have described above, and hence our task of describing what they will accomplish.

The "Imperial Triple Extension" is sold as a set, which costs, in half-plate size, 70s. The set includes:—Camera, 1 double slide, lens at  $f/8$ , T.P. time and instantaneous shutter, three-fold stand. The specifications of the camera would fill a column of the "B. J.," therefore we will attempt compression in the hope of bringing facts more directly before the reader:—

Long extension, 21 inches.	Swing back.
Short " 3 "	Swing front.
Rising front	Hinged front.
Falling front	Wide front and bellows.

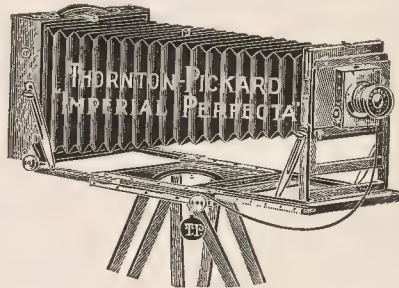
A noteworthy feature of the camera is the use of spring stretchers which automatically secure back or front squarely with the baseboard when the camera is being set up, or after either back or front have

been moved out of position. The adjustment makes for rapidity and certainty in practical work, and the same remark can be made of many inconspicuous features of these Thornton-Pickard cameras; the movements are not merely a show list of accomplishments of doubtful utility, but are evidently designed from practical conclusions



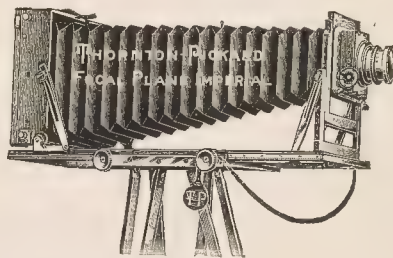
of what a camera should be for daily use. The shutter is the T.P. Time and Instantaneous, exposing from 1-5th to 1-90th of a second, and giving prolonged exposures of any length. The lens is the Beck symmetrical, working at  $f/8$ , or for 5s. extra the new T. P. "Pantoplanat" can be had, a lens of which we have reason to give an excellent account, and which is evidently worth the increased price. However, we are now speaking of the whole outfit, as priced at £3 10s., and we must characterise it as extraordinarily good value for the money, and a tribute to the factory organisation of the company which is enabled to produce it.

The "Imperial Perfecta" is in most respects the counterpart of the "Triple Extension," but it has an independent rising front, for effective use at very short foci, an extra wide front and bellows,



and a focussing movement with extra rack and pinion for the back of the camera. It is, in fact, the "Triple Extension" with these added qualifications, and the price of the set in half-plate size, with Pantoplanat lens, is £4 4s.

The "Focal Plane Two-Shutter" camera completes the series. It is the Thornton-Pickard embodiment of a focal-plane shutter built



as the back of the camera. With this special exception it is a replica of the "Triple Extension," and its price is but 95s. in the half-plate size, or £5 with Pantoplanat. The focal-plane shutter is a slightly



modified form of the well-known Thornton-Pickard instrument. It has a slit of fixed width, and is made to permit of exposures up to 1-500th of a second. The blind shutter on the front, as before, supplies exposures from 1-15th to 1-90th.

## New Materials.

T. and M. Matt Albumen Papers. Sold by L. Trapp and Co., 8 and 9, Chiswell Street, London, E.C.

In these papers the makers have associated a matt surface with the qualities which are familiar to users of albumenized paper. Yet the finished prints before us do not suggest albumen paper in the least, having, in fact, the appearance of prints on plain paper, and permitting of treatment which only a paper innocent of a colloid coating could be expected to withstand. The paper prints with about the rapidity of P.O.P., but tones in considerably less time. In a gold bath with acetate and carbonate (one grain of gold in 20 grains of water), it gives excellent warm brown tones. In a platinum bath made up with phosphoric acid, a fine range of tones from sepia to cold black are readily obtained, and accord well with the fine velvety appearance of the prints. The paper is obtainable in three grades, one on a thin Rives paper, another on a so-called "Bütten" paper of pleasing banded texture, and another on a stouter and coarser paper of a cream tint. Such are the samples we have used and the selection in our judgment, is one which should meet all the varied requirements of matt papers. The T. and M. papers are sold also as postcards, and perhaps the best advice we can give is the purchase of a shilling sample half-plate packet, which will enable the reader to see for himself the claims which it has upon his notice.

## CATALOGUES AND TRADE NOTICES.

FALLOWFIELD'S clearance sale being an annual event, at which many of an economical turn of mind make a point of picking up some piece of apparatus which is none the worse for being shop soiled, it may be well to note that the sale commenced on Monday last and is continued for three weeks. The price lists disclose an immense variety of apparatus and materials offered at reductions which are one-third and less the original prices. The miscellaneous bargains run to nearly 2,000, and, in addition, the firm offers 500 job lots of mounts. We should state that damaged goods are so described, and that Mr. Fallowfield pays carriage on goods over £5.

THE Northern Exhibition (Manchester).—The prospectus for this exhibition is now ready and is being sent out to all known exhibitors. It may be had upon application to Mr. G. M. Morris, 9, Chandos Road, Chorlton-cum-Hardy, near Manchester. Exhibitors should note that entry fees for pictures not hung will be returned, and all the pictures sent in will be submitted to the judges. As is usual with the Northern exhibitions, a fine illustrated catalogue will be issued. Exhibitors sending in pictures early will have the best chance of their pictures being reproduced.

THE Worthing Camera Club holds its annual exhibition on March 27 and 28. The open classes are for (1) prints, and (2) lantern-slides, and silver and bronze plaques are offered. The secretary is Mr. E. F. H. Crouch, 11, South Street, Worthing.

DURING a performance at the Pavilion Music Hall, Leicester, last week, a cinematograph film in the lantern ignited and caused some alarm, but the flames were extinguished at once, and the entertainment concluded as usual.

A SOCIETY for Hanley (Staffs.).—A meeting was held last week in the rooms of the Young Men's Christian Association, Hanley, for the purpose of forming a photographic society. There was a good attendance, and many of those present expressed themselves in favour of the proposal to establish a society. Mr. C. A. Leech and Mr. F. R. Cox were appointed secretaries pro tem.

THE Photographic Convention.—In addition to other novelties in the way of colour-photography, including the new Lumière process, to be shown at the Southampton Convention, we learn that the cinematographic projection in colours of Captain Lascelles-Davidson is to be shown on a large scale by Captain Davidson and Mr. Friese Greene.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
2.....	Aberdeen Amat. Photo. Assn.	"The Artful Dodger." Mr. Ford.
2.....	Colne Camera Club .....	"Practical Bromide Enlarging." Demonstrated. Mr. J. J. Hartley.
2.....	Bromley Camera Club .....	"Bayeux Tapestry." Illustrated. Rev. H. Bedford-Pim.
2.....	Sutton Photographic Club ....	"Reminiscences." Mr. G. W. Bradshaw.
2.....	Watford Photographic Society ..	"Gum-Bichromate Printing Process." Mr. J. G. S. Munro, F.R.P.S.
3.....	South London Photo. Society ...	Seventeenth Annual Exhibition.
5.....	Southampton Camera Club .....	"Pictorial Photography from the Practical Side." Illustrated. Mr. A. Horsley Hinton.
5.....	Dewsbury Photo. Society.....	Yorkshire Photographic Union Invitation Portfolio.
5.....	Scarborough and Dis. Ph. Soc.	"Platinotype." Demonstrated. Rev. J. Beauland, M.A.
5.....	Catford & Forest Hill Ph. Soc.	"Stereoscopic Photography with a Single Camera." Mr. E. Large.
5.....	Wallasey Amat. Photo. Soc. ....	Lantern Slide Competition for Members only.
5.....	Wandsworth Camera Club .....	"Focus Priz." Lantern Slides—"Stories without Words."
5.....	Bowes Pk. and Dis. Ph. Soc. ...	Fifteen Minute Lecture Competition.
5.....	Leek and District Photo. Soc. ...	Lantern Night. Miscellaneous Slides.
5.....	Heaton & Dis. Camera Club.....	"Amateur Photographer 1905 Prize Lantern Slides."
6.....	Royal Photographic Soc. ....	"Prints in Natural Colours by Platype Process and with Superimposed Carbon Tissues." Demonstrated. Mr. E. J. Wall, F.R.P.S.
6.....	Stafford Photographic Society...	"Tele-Photography." Goerz Lecture.
6.....	Gloucestershire Photo. Society ..	"Winchester Cathedral." Mr. S. G. Kimber.
6.....	Cardiff Windsor Amat. Ph. Soc.	Set of Slides Illustrating Isle of Man Scenery.
6.....	Darlington Camera Club .....	"Toning Bromides." Mr. W. T. Bailey.
6.....	St. Helens Camera Club .....	Exhibition Meeting.
6.....	Nelson Photo. Society .....	Y.P.U. Lantern Slides.
6.....	Sheffield Photographic Society ..	Lantern Lecture. The President.
6.....	Rotherham Photo. Society .....	"Portraiture." Mr. Harold Baker.
6.....	Colne Camera Club .....	"An Evening with the Microscope." Mr. J. Duckworth.
6.....	Halifax Camera Club .....	"Some Uses of the Camera." Mr. S. Sugden.
6.....	Birmingham Photo. Society. ...	"Zigo and Carbon Tissue." Demonstrated. Messrs. Thos. Illingworth.
6.....	Manchester Amat. Photo. Soc.	"Making and Adjusting of Light Boxes for Orthochromatic Photography." Mr. Francis Fielding.
6.....	Newcastle-on-Tyne Photo. Assn.	"Rambles with a Gamekeeper." Mr. W. Percy Mail.
6.....	Jersey Photographic Society .....	Belgian Excursion.
6.....	Warrington Photo. Society .....	"Odd Traipses." Mr. A. H. Hughes.
6.....	Bristol Photographic Club .....	"Lantern Slides by Reduction and Contact." Mr. Fred Little.
6.....	Redhill and District Cam. Club ..	Social Evening. Exhibition of Pictures by Mr. T. Percival Padwick.
6.....	Brentford Photo. Society .....	Affiliation Competition Slides R.P.S. 1905 Set.
6.....	Otley & Dis. Cam. & Art Soc.	"Natural History Photography." Mr. R. Fortune, F.Z.S.
7.....	Hampstead Scientific Society ...	"Orthochromatic Photography." Mr. R. W. Wylie, M.A.
7.....	Redcar and Coatham Ph. Soc.	"Enlarged Negatives." Mr. J. W. Walte.
7.....	Photographic Club .....	"Bunyan."
7.....	Cricklewood Photo. Society.....	"The 'Richmond' Self Toning Paper." Mr. R. Morgan & Kidd.
7.....	Everton Camera Club.....	"Wheel Wanderings in History Places." Mr. W. S. Johnson.
7.....	Leeds Camera Club .....	"Genre Work." Illustrated. Mr. Henry W. Dick.
7.....	North Middlesex Photo. Soc. ..	Lantern Slide and Print Competitions.
7.....	G.E.R. Mechanics' Institution...	"Amateur Portraiture." Mr. H. W. Bennett, F.R.P.S.
7.....	Sunderland Camera Club .....	Amateur Photographer Prize Slides.
7.....	Edinburgh Photo. Society .....	"A Sketch History of Engraving." Illustrated. Mr. Geo. M. Alkman.
7.....	Coventry Photo. Club. ....	"Velox and its New Applications." Messrs. Griffin.
8.....	Hastings and St. Leonards P.S.	Photography Prize Slides.
8.....	Richmond Camera Club .....	"A Winter Holiday in Greece." Mr. A. Cheese.
8.....	Pudsey and District Photo. Soc.	Members' Competition. Making Lantern Slides.
8.....	London and Prov. Photo. Assn.	Open Night.
8.....	Hull Photographic Society .....	"Finland." Mr. E. Hewat Fraser, M.D.
8.....	Liverpool Amateur Ph. Assn....	"Architecture for Photographers." Mr. F. O. Cresswell.
8.....	Harrrogate Camera Club .....	Members' Night.
8.....	Rodley, Farsley, & Calverley Dis.	Members' Night.
8.....	Blenheim Club.....	Smoking Concert.
8.....	Rugby Photographic Society ..	Members' Night.

WALKLEY CONSERVATIVE CLUB, CAMERA, AND OPTICAL LANTERN SOCIETY.—"Crystals under the Microscope" was the subject of a lecture given last week by Mr. J. Wreaks.

## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING, Tuesday, February 27, the President, Major-General Waterhouse, in the chair. Mr. J. Page Croft gave a demonstration of his new ready-made gum-bichromate paper. He showed, by developing a number of prints, the very great opportunity for controlling the character of the result. Development was very rapid and could be accelerated as much as might be desired by the use of hot water. It was not advisable, however, to exceed a moderate temperature as the coating of colloid and pigment then became so thick that it was difficult to control its removal by hand. The chief danger of the process was over-exposure. The paper was at least five times the rapidity of P.O.P.—some people put it at six times—so that if too much exposure was given the development had to be forced and the range of tones which was otherwise obtained was lacking in the finished print. A number of questions were asked by members of the audience and answered by Mr. Croft.

Messrs. C. E. Kenneth Mees and S. E. Sheppard then gave their paper on "The Estimation of the Colour Sensitiveness of Plates." They reviewed the various methods of testing orthochromatic plates, including Abney's various forms of sensitometer, the Chapman plates plate-tester, and Eder's method of using three screens in front of a rotating sector wheel. They naturally laid great stress upon the spectral composition of the light used for testing, and gave the formulae for colour filters which would so adjust their actinylene that it gave a very close approximation to daylight. The method they adopt is to find the H. and D. inertia numbers beneath blue, green, and a red screen, so that some practical data can be arrived at; that is to say, they practically divide the spectrum by means of broad banded filters into three parts, and determine the H. and D. speed for each. Numerous tables and curves of various tests, thus measured, were shown, and incidentally the value of this method was proved by a series of results of bathing plates with acyanol in baths of different strengths, and for different times, and the authors prove that a 2 per cent. solution and three minutes' bathing, followed by ten minutes' washing, is the best. The conclusions drawn from the experiments by the authors is that the sensitising power of a dye is connected with its instability to light, and a sensitiser must have an absorption band in the region for which it sensitises, and that it must dye the silver bromide itself, and not merely the gelatine. Finally, a new method of spectro-sensitometry was outlined, in which a narrow band of the spectrum could be isolated and allowed to fall upon a plate wave-length by wave-length, plotting the results in energy units; or by using broad bands of light the integrating effects of broad-banded filters can be obtained. The difficulty lies in the amount of time required to ensure the plates, as one plate would require about 200 density measurements, and the plotting of from 15 to 30 separate curves. The authors, however, held out the hope that a new type of measuring instrument might remove this difficulty.

A brief discussion followed, in which Mr. Renwick and the chair took part.

NOVEL POSTCARD COMPETITION.—The Bristol Photographic Club arranged an original form of competition in connection with their exhibition next October. This is a daily competition for postal postcards during the run of the exhibition. The cards received each day will be judged separately and prizes given; they will then be immediately shown on a screen in the exhibition, and will prove a popular and interesting variation to the other bits. In addition to the "Open" classes already announced, there will be five "Members'" classes, and a General Subject class for residents within a 25 mile radius of Bristol. The latter is intended as an inducement for the local clubs and pictorial workers to take a special interest in the exhibition, and to bring them into contact with each other. The Hon. Exhibition Secretary is J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.

WATFORD CAMERA CLUB.—The annual dinner of the Watford Camera Club was held on Monday, the 19th February, at the Malden Hotel, Watford, Lord Hyde, the president, in the chair. A presentation was made to Mr. E. H. Jackson, in the shape of an album of contributions by members, in recognition of his work as secretary.

EDINBURGH PHOTOGRAPHIC SOCIETY.—The fifth annual dinner of the society was held on February 22 at the Carlton Hotel, the president, J. Tudor Cundall, B.Sc., occupying the chair. The menu and toast list was produced by J. F. Buttrick, vice-president, the items being printed on the plain side of a stout bromide paper, which bore on the reverse, photographic impressions of Edinburgh and the Society's emblem. The toast of the Edinburgh Photographic Society was proposed by J. Craig Annan, and was responded to by D. W. Thompson.

BLAIRGOWRIE AND DISTRICT PHOTOGRAPHIC ASSOCIATION.—The annual meeting held last Tuesday in the Photographic Rooms, Blairgowrie, was presided over by Vice-President Deuchars. The secretary showed an increased membership, and the treasurer a depleted exchequer owing to loss sustained in connection with the last exhibition. Office-bearers were elected at follows:—President, Alex. Geekie; vice-presidents, James Deuchars and James Richardson; secretary, Lake Falconer, junior, James Street Cottage, Blairgowrie; treasurer, D. S. MacLennan. On Thursday the association held its annual "At Home" in the Public Hall, when about eighty were present. The dull sameness of the walls was relieved by pictures from the association's permanent collection, as well as several from private members. The wee tables, decorated with dainty spring flowers, made an enticing picture. Provost Smith welcomed the visitors on behalf of the association, and ex-Bailie Spalding proposed thanks to the ladies committee who had so excellently attended to the purveying. During one dance the lights were lowered, and the coloured limelight playing over the dancers provided pleasing effects. Ogilvie's orchestra was in great form. J. D. Petrie was an energetic M.C., and the whole function went with pleasurable vim from start to finish.

SOUTHSEA PHOTOGRAPHIC SOCIETY.—The Southsea Photographic Society held their eighteenth annual general meeting in their premises, 5, Pembroke Road, Portsmouth, on February 21. The honorary secretary congratulated the members on the great success of the exhibitions held by the linked societies of Hove, Southampton, and Southsea, the support accorded them justifying their being adopted as permanent fixtures. The financial statement showed a substantial balance in hand. A unanimous vote of thanks (following the presentation of a handsome camera) was given to the retiring secretary, Mr. J. J. Lawton, for his invaluable services during the past two years.

BRISTOL PHOTOGRAPHIC CLUB.—On Tuesday in last week, Mr. Percy G. R. Wright gave a lantern lecture, entitled "A Square Mile in Holland." The "square mile" was in and about the little fishing village of Volendam, situated on the Zuyder Zee, and the high pictorial quality of the slides shown furnished a good object lesson of what large possibilities there are in a limited area to a photographer with a "seeing eye." While the lecturer's humorous discourse provoked much laughter, his pictures gave a very real insight into the quaint customs and surroundings of these Dutch fishing folk. Mr. Wright's method of dealing with the overpowering attentions of the Dutch children is worth noting. It was to single out the ringleader, rush up to him, effusively shake his hand, and continue to do so while dragging him along the road, talking volubly in English, until the boy in dismay turned tail and ran, followed by his companions. Also, it is well to know that there is only one inn in Volendam. It is practically monopolized by artists, so that it is best to get an introduction before applying for accommodation there.

EDMONTON AND DISTRICT PHOTOGRAPHIC SOCIETY.—On Wednesday, February 31, Mr. Ernest Human gave a practical demonstration of carbon printing. After explaining the theory of the process, he described the sensitising of the tissue, and recommended the following bath:—Potash bichromate,  $\frac{1}{2}$  oz.; water, 19 ozs. Dissolve and add two or three drops per ounce of liq. ammonia, .880, the tissue to be immersed in the bath from thirty to fifty seconds, taking care that no air bells formed upon it. He explained the safe edge and its use, saying that he preferred to use paper masks rather than the opaque colour on each negative, as by their use much saving of time could be effected. He passed round five different print meters used for the process, but said that perhaps the better plan for beginners was to choose another negative of about the same density, and print side by side with a sheet of ordinary P.O.P., which, when printed to



finished, *not to toning*, depth would give the correct exposure for the tissue.

**OXFORD CAMERA CLUB.**—At the close of the annual meeting a lecture was given by Miss Poulton, illustrated by a remarkable series of photographs taken by Mrs. Poulton. The particular marriage described appeared to have particular interest in as far as the bride had been chosen from among the other brides of the chief to be the queen of the people. The photographs showed the gathering of the bride's party and of the friends of the bridegroom. These took up positions some distance apart, and between them sat the bridegroom alone. Then followed a series of war dances, after which the bride appeared with presents. The public interrogator questioned the bride on her feeling towards the bridegroom, thereby obtaining indirectly marriage vows. At the conclusion of the ceremony, the bride ran away suddenly, and the bridegroom had to pursue and capture her before claiming her as his wife. The ceremony lasted on the occasion in question a whole day.

**CROYDON CAMERA CLUB.**—Mr. H. W. Bennett, on the 21st ult., gave a most interesting and instructive lecture on "Architecture and the Camera." Nothing, in his opinion, could be fitter subjects for the camera than old stone and wood work, but their form and character should be preserved faithfully, and with no attempt to get away from texture, under the pretence of furnishing a so-called pictorial rendering. The latter would be secured by a proper selection of time and circumstance. The churches were practically open to everyone, but all should remember that they were allowed to photograph in sacred edifices, not as a right, but as a favour. The lecturer then passed on to a clear description of the various styles of architecture, from the Conquest to the Reformation. Architecture was then a living art, progressing and developing. A very large proportion of the buildings remained, and would probably be still in existence a thousand years hence. The Reformation marked the beginning of the decline, the decorative style existing then producing ornaments merely for ornament's sake. The photographer should study the various styles, and the modifications necessarily imposed by local materials and conditions, and endeavour to give prominence to the salient features of each style. Turning to practical points of procedure, Mr. Bennett said, in dealing with near objects, a great deal might be done by changing the height of the camera. If it were placed too high, the floor had frequently a curious up-hill appearance. The generality of subjects were best taken with the plate vertical, which gave an impression of height oftentimes wished to be conveyed. Further emphasis in this direction could be secured in the print by trimming it long and narrow. Never, said the speaker, show an arch or column, *almost*, but not *quite* complete; depict them broken away early, the "almost complete" being invariably bad. He also uttered a word of caution against the absence of foregrounds, a very common fault in architectural photographs. As to apparatus, whatever form was chosen, rigidity must be regarded as essential, and the tripod should be capable of an up and down movement, without altering the adjustments of the camera. Personally, he employed fast, but not ultra-rapid brands of plates. The anastigmat lenses were far and away the best for the work, for a 1-1 plate he generally used three, about 11, 8, and 6 inches focal length. If only one lens was available, then this should be a little shorter than the length of the plate. The detached triangular levels, for application to the focussing screen, or the side of the camera, were convenient, as was a focussing magnifier for examining the image. In the subsequent discussion, Mr. Bennett said he did not place reliance on meters. As an illustration, the exposure for the same shadow—in which the meter might be placed—could very easily vary in the proportions of 4 to 1, or even more, according to the point of view. An apparently guileless question by Mr. Sellors, as to whether Mr. Bennett advocated mechanical or factorial time development systems, drew the lecturer immediately in strong opposition thereto. With the names of Messrs. Hurter and Driffield, flying through the air, and graphic curves falling thickly on the blackboard, a battle royal appeared imminent. The hour was, however, late, and the vice-chairman, Mr. Terry, pleasantly applied the closure by proposing a hearty vote of thanks to Mr. Bennett, which was carried in the usual way. Before leaving, Mr. Bennett kindly expressed his willingness to devote an evening to a discussion on that much-vexed question, "Control in Development." It is anticipated that the evening will be a lively one.

## Correspondence.

\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### WANTED: A BOOK ON STUDIO LIGHTING.

To the Editors.

Gentlemen,—In pursuance of my contribution to your valuable paper dated 9th December, 1904, I felt highly flattered to meet, on my return to England, quite a number of the photographic fraternity, who carefully preserved their copies of that date, and who racked their muddled intellects to find the solution of my theory, and were so eager to put it into practice.

And I confess that my fear was changed to disappointment at not receiving the expected R.S.V.P. from one or other of the more enlightened members of the profession.

In the days of my photographic beginnings, and which does not date far back, I was under the false impression that, except for a smattering on a ruddy hill in Surrey, all the knowledge of studio lighting had gone adrift, and was eventually centred in a little spot Transatlantic; and where your esteemed contemporary took an active part in publishing a pretty picture pamphlet in which I was foolish enough to invest half a dollar.

Surely it is a lamentable state of things not to find a practical treatise on the subject. Yea! more lamentable, indeed, to find so many incapable of grasping it.—Yours truly, ANGLO-INDIAN.

Birmingham, February 26, 1906.

### COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—In your issue of last week Mr. Edw. T. Butler challenges a statement of mine. Please allow me a few words on the same subject.

It is said that Ducos du Hauron invented a reflector system for colour photography. I could not find any information on this point in the Patent Office Library, which contains about 40 volumes on this subject, nor in the patent records of England and France kept at the same place.

The first English patent I have to quote is that of Ives, 4,606, 1892; then again, Ives, 2,305 and 3,784, both in 1895. The first one of these patents is the camera, of which the illustration is now shown in all the text-books; the second one is a three-step arrangement, which also allows a two-step variety, and is known as the chromoscope. The payments of these patents have not been kept up. Why? Because no negatives of equal size could be produced for printing purposes, and when the boom for chromoscope had passed away the thing was of no further commercial value. Nevertheless Edwards 3,613, 1895, tried to file a patent with two-step arrangement, which was contested and lost; then White, 8,663, 1896, turned the camera upside down, also not showing any steps.

The Edwards form, by changing the place for colour screens was resuscitated in 29,353, 1897. But Bénéto, with 28,920, 1897, took a perfectly new line with only one screen, which latter patent Butler, 9,936, 1900, adapted for stereoscope. Ives' first idea is rejuvenated with patent 10,993, 1902, having an addition of faced mirrors. In this year's "Almanac," Mr. Butler's third attempt in three-colour one-exposure cameras, Patent No. 4,209, 1905, is given, which patent differs from his first in that the screens are placed nearer the slides, and in the same "Almanac" an illustration is shown from Hans Schmidt, giving in a few lines the apparent action of light rays on two mirrors, which latter are supposed to act also as colour filters.

I may take Schmidt's interpretation—being despoiled of all invented shells—as being the solution of all the above-named patents, and I maintain that not one of them will give three pictures of the same size.

I believe that Ives has abandoned the here-quoted ideas long ago, because he tries to solve the problem by other means.

If in the above patents an angle of view of 5 to 10 degrees only is used, and also optical glass of not more than 0.5 mm. is employed for the mirrors, then approximately correct size is possible, but if

ass of 2 mm. thickness is used for the reflectors, and if an angle of view of not less than 25 degrees is permitted, that is, if practical requirements for daily use and not delicate playthings are aimed at, then permit me to repeat, not one of the above now known reflector systems will give negatives for accurate superposition for printing methods. Mr. Butler does not ask me to give him the optical solution on which I base my contention; he maintains that prints are sufficient proof. May I go one step further and say negatives sufficient for the present, and even not smaller than half-plate

herewith send our respected Editor a half-plate set of negatives verification. The negatives will show unmistakable proof that they were taken with one-exposure, and they are all the same size as are taken with a system (to my knowledge) not yet known. Will Mr. Butler, or any one else, willing to contest my assertion, bring forward similar proofs, in a word, by independent judgment firm or contradict my statement on the above-named patents.—Yours respectfully,  
OTTO PFENNINGER.  
105, Hythe Road, Brighton, February 26, 1906.  
It seems to us that our correspondent adduces proof of a kind which he is not willing to admit from others. The negatives, however, which he sends, are excellent in respect of equality of size. —B.J.P.]

# THE INTERNATIONAL PHOTOGRAPHIC EXHIBITION IN PARIS.

To the Editors.

Gentlemen,—You have published in your issue of the 9th February note on the second Exhibition of Photography of Paris, 1906, the article of which compels me to send you the following reply, which I rely on your sense of justice, your devotion to the British interests, your solicitude for your readers to insert in your next issue. From the reading of the paragraph in your No. 2,388, it may be inferred that the forthcoming Exhibition has a close connection with the now in progress in one small room in the Grand Palais des Champs Elysees. This is absolutely without foundation. You further suggest that the help and patronage of the Photo-Club Société Française de Photographie are essential to the success of the proposed Exhibition, and have still to be obtained. I shall be glad if you will allow the organisers of the Exhibition to point out that they do not intend to apply for this patronage. I do so would be to relinquish into the hands of the above-named societies much of the control of the Exhibition, and as organisers hold the strong opinion that the success of the Exhibition rests entirely on its absolute independence and its international character it is obvious that there has been no intention of seeking official support.

view of the publicity which has been accorded to this mistaken view of affairs, the organisers hope that you will enable your readers to understand their actual intentions.

The thirteen groups composing the Exhibition only one deals with the amateur aspect of photography, with which the Societies concerned are concerned, and their good will, or their ill will, is material to the success of the Exhibition.

The best reply that can be offered to the suggestion that the Exhibition is unsupported is to give the names of some of its distinguished supporters: The Ministries of Commerce and Industry, the Works, the State Departments of Post and Telegraphs, Fine Arts and such eminent men as the Presidents of the General Council of the Seine and the Municipal Council of Paris. Mm. Becquerel, Delat, Lippmann, Loewy, Edmund Perrier, Emile Roux, etc., etc. will also be exhibitors from the national Printers, the Observatory, the Museum, the Trocadéro. Collections of Historical monuments and the National-Conservatoire of Arts and Crafts, the d'Histoire Naturelle, etc.—Yours faithfully,

L. GASTINE, Le Commissaire Général.

Place de Vaugirard, Paris, February 25, 1906.

was not our intention to suggest that there is any connection between the proposed exhibition and that recently held, nor do we the paragraph bears this interpretation. It was precisely with a motive to which our correspondent refers that we alluded to matter, and to the fact that the official bodies representing French artists and the photographic trade have expressed their intention to participate in the Exhibition.—Eds., B.J.P.]

## SENSITOMETRIC TESTS.

To the Editors.

Gentlemen,—Allow me to offer my sincere thanks for the delightful articles on sensitometry by Mr. Mees. Two things occur to me through reading them.

How is one to obtain the constants of the various plates on the market?—the only place I have ever seen them in is the B.J.P.

The other point is to ask if it would be possible for Mr. Mees to give us some information as to how to obtain a constant development factor under varying temperatures?

The method of Mr. Watkins is the only one I know of which attempts to do this, but I fancy it is liable to wide error.

Could Mr. Mees not discuss this for us?—Yours faithfully, Q. S.

Mr. Mees writes:—"In reply to your correspondent, 'Q. S.,' the articles on sensitometry were written to explain the constants given in the B.J. I think that readers might possibly find these for themselves, but I couldn't advise them to try. As regards the effects of temperature, this has been discussed by Ferguson and Howard (PHOT. JOURNAL, March, 1905, and B.J., March 31, 1905). The effect of altering temperature is simply to alter the value of K. (The theory of Phot. Processes, Part II., Phot. Journal, October, 1905). This same paper contains a preliminary discussion on Mr. Watkins' theory. The Watkins method may, under some circumstances, produce wide errors, but I should have said that usually, with care, it would compensate for variations of temperature in a quite satisfactory manner."

## Commercial & Legal Intelligence.

**BANKRUPTCY** at Smethwick.—At West Bromwich County-court, last week, Charles Frederick Morris, of Cheshire Road, Smethwick, and carrying on business in Dudley Road, Birmingham, as a photographer, came up for his public examination. The meeting of the creditors was reported in our issue of February 16. The bankrupt said he was engaged as a photographer's assistant until 1887, when he commenced business on his own account in Dudley Road, Birmingham, with a capital of £5, which he had saved. In 1900 he opened a branch shop at High Street, Smethwick. He subsequently purchased the property for £350 with money advanced by his bankers, who were secured by the deeds of the property and two policies. He traded without difficulty until December, 1903, when he was in arrear with his rent, and his landlord lent him £50. A few months later he borrowed £20 from a professional moneylender, and agreed to repay £25. During the last two or three years his receipts had not been sufficient to pay his expenses. In June, 1905, the Smethwick property and the two life policies were sold by his banker, who received £494. Witness admitted that his wife signed some of the bills as surety to money societies, but in five out of six transactions the bills were signed by one of his servants, who at the time was in receipt of wages amounting to £2 5s. a week. These bills were for £50 each. The debtor was allowed to pass.

THE application of Miss Florence Smithson, of the Lyric Theatre, for an injunction against the Rotary Photographic Company, Ltd., and Mr. Chandler, a photographer, of Exeter, to restrain them from publishing certain of her photographs has been adjourned. The case will come before the High Court about the time of publication of this issue of the B.J.

**NATIONAL Photographic Printing Co., Ltd.** (Manchester).—Issue on January 8 of £800 Five per Cent. Debentures, being the whole of a series created same date, charged on the company's undertakings and property, including uncalled capital. Holders: Palatine Pictorial Company, Ltd., 281, Deansgate, Manchester. No trustees.

**COMPANIES Registered.**—Wilfred Emery, Ltd. (87,641). Registered February 17. Capital, £2,000 in £1 shares. Object: to acquire and take over as a going concern the business of photographers, developers, and enlargers of photographs, photographic printers, manufacturers of and dealers in cameras, lenses, papers, cards, and photographic materials, etc., carried on at 89, Cricklewood Broadway, as Wilfred Emery. No initial public issue. Registered without articles of association. Registered office: 89 Cricklewood Broadway, Cricklewood.



## Answers to Correspondents.

- \*.\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \*.\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \*.\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \*.\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- F. Proctor, 27, Bark Street, Bolton. *Photograph of Mr. A. H. Gill, M.P. for Bolton.*
- Mrs. M. McBride, 29, Market Square, Lisburn, County Antrim. *Photograph of the Revs. J. McGroth, J. Meealey, J. Fuller, and M. McCashin.*
- V. C. Baird, Gowanbrae, Broughtly Ferry, Forfarshire. *Photograph of Victoria Galleries Dundee.*
- J. W. Bernard, 26, Union Street, Wednesbury, Staffs. *Two Photographs:—Wednesbury Park, General View with Snow on Ground, and Wednesbury Park Lodge.*
- A. Hubbard, 7A, Exchange Walk, Nottingham. *Photograph of Five St. Bernard Dogs held by a Lady.*
- A. J. Sanders, 13, Mill Street, Bideford, Devon. *Photograph of North Down Hall, (Charles Kingsley's Bideford Residence).*
- G. W. C. Speight, The Studio, Colton Road, Nuneaton. *Photograph of the Interior of the Abbey Church of St. Mary, Nuneaton.*
- S. Foxon, 88, Sharrow Lane, Sheffield, Yorkshire. *Photograph of the late D. Parkes, Esq.*

### DRAWING REGISTERED:—

- J. S. H. Bates, 13, Evington Street, Leicester. *Drawing for Cover of:—"La Pille Du Tambour Major."*

SILVER STAINS.—Please say in your next issue whether you know of any means of removing silver stains off negatives that have got wet.—F. C.

Soak the negative in potass iodide, 200 grains; water, 10 grains, and after washing transfer to potass cyanide, 300 grains; water, 10 ozs., in which rub the stained part with a pledget of cotton wool. If the stain does not yield to this treatment a solution of iodine (in potass iodide) may be used in place of the first solution, but with caution.

COPYRIGHT.—Sometime ago a professional friend of mine had his photograph taken by photographers in Belfast, and paid for same in the ordinary way. After some weeks duration he was surprised to find that — had put the same on the market in post-card form. He immediately wrote to the firm of photographers complaining of this, and told them to stop the sale, as he had not given his permission for their publication, but up to the present he has received no satisfaction whatever. Now, what I want to know is, Do you consider this a case under the copyright law? I should like to make it plain to you although my friend is a professional man, he went into the studio as any ordinary individual would, not at the photographer's invitation.—SILENCE.

If your friend paid for the sitting in the usual way the copyright is certainly his, and neither the photographer nor the — have any right to use it. You will find the conditions under which he can proceed against the parties explained in the article on "Copyright" in the "Almanac."

PRINTER.—We have no authentic information beyond the fact that wages are from two to three times those in England, and living correspondingly expensive.

F. D.—We can only suggest that you ask the people for a prospectus of the proposed exhibition.

H. BRADSHAW.—1. We hardly think that you will be able to obtain a purple tone with the bath you name. You had better try that given just above it in the same article. 2. As regards the thiocarbamide bath you should dilute the bath still more, as it works too quickly to give you the warm purple. 3. No, carbonate of soda is not the bicarbonate; use carbonate of soda pure crystal.

A. G. NEWARK.—There are two principal causes for the mottled appearance of your prints. The first is damp in the printing

frames, and secondly, too cold a developer. We presume you are using rubber pads in your frame. See to this, and raise the temperature of your developer to at least 65 deg. Fahr.

MISS MAY BROOKS (Leeds).—We have made enquiries, but cannot discover the present address.

GLAZING P.O.P.—Can you give me a method of obtaining a gloss P.O.P. postcards, beyond the tedious way of squeegeeing or plate-glass?—NO-IT.

We know of none. If the squeegeeing method is carried out on a large scale, and in a well-warmed room, it need not be tedious.

BLACK-LINE COPIES.—The enclosed print is from a tracing with black lines. Can you let me know by what process it is done. If so, please give formula for same.—W. H. S.

The print is made by a process which is on the market in several forms, and is probably somewhat as follows:—Smooth sized paper is coated with:—Gum arabic, 110 grains; potass bichromate, 30 grains; alcohol, 5 minims; water, 1 ounce. It is exposed and washed in water until the lines look engraved. It is then coated with shellac and lamp-black (applied with a sponge), and when dry placed in sulphuric acid, wherein the superfluous black is removed. You will find these methods described in "Ferric and Heliographic Processes," published by Dawbarn and Ward, price 2s.

DRY MOUNTING.—I have made the formula for dry mounting (of M. Briand's) given in "Almanac," page 846, and cannot get it to stick with once coating. If I coat the tissue paper both sides twice it sticks well. Can you suggest any alteration in the formula to give more body, so as to save the second coating, I use the best bleached tissue. If you cannot suggest any alteration, could you give me M. Briand's address, or the address of the "Photo Gazette"?—RUSTICUS.

Possibly all the shellac has not been got into solution. About 800 ccs. spirit should be used to dissolve it, and the remainder employed for the elemi and balsam. You will find the address of the "Photo Gazette" on page 872.

E. J. P.—The results will be made known in a few weeks.

G. J. II.—In our next.

J. C. B.—We are unable to offer any explanation. We would suggest that the maker's formula for the developer be used.

J. P. S.—T. S. Bruce, 4, Villas on Heath, Vale, Hampstead, N.W.

T. V. BIGGINS—See the list published from time to time in our pages—last on January 12.

IMPROPER Postcards.—The police-court reports each week for some time past have added to the list of convictions of tradesmen selling picture postcards of an objectionable kind. At Hastings last week the magistrates sentenced a tradesman to three months' hard labour, without the option of a fine, for exposing objectionable postcards for sale. An order was made for the destruction of several hundred cards. At Marlborough-street three shopkeepers in the neighbourhood of Leicester Square were heavily fined for displaying picture postcards of the same character in their shops. In two cases the fine was £25, and in the third £5.

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## SUMMARY.

An exhibition of work by the Pulligny-Puyo "anachromatic" is opened at the Photo-Club in Paris on Thursday in last week. A review by M. Robert Demachy appears on page 184. Some notes on the optics and advantages of the lenses in portraiture are contributed by MM. Puyo and de Pulligny. (P. 184.)

Gastine, the Commissionnaire-Générale of the forthcoming International Photographic Exhibition in Paris, informs us that the abstention of the various "chambres syndicales" is not preventing individual firms from granting the exhibition their support. (P. 197.)

our Photography.—Mr. Howard Farmer suggests that the exhibition of examples of colour photography, which remains open at offices until March 17, should be established in some suitable as a permanent collection. (P. 198.)

our Photography.—The latest account of the forthcoming starch-grain process has been published. MM. Lumière also patented a one-lens one-exposure camera. (P. 190.)

Simmance-Abady photometer of the flicker type has been applicable to density measurements. A record of some experiments explains the method of using and comments on the readiness with which accurate readings can be taken. (P. 183.)

patent has been taken out for casein as the vehicle of pigment bichromate in a printing process. (P. 193.)

the rather unexpected properties of silver sulphide are described their bearing on the permanence of sulphide-toned bromide discussed. (P. 180.)

## EX CATHEDRA.

### Artistic Lenses.

The space devoted in this issue to a unique exhibition which opened in Paris at the end of last week should be deemed well filled by all concerned with photographic portraiture. The fact that a certain degree of softness is obtainable without destruction of textures is no new discovery, though the advantages of a certain amount and a certain kind of aberration in a lens for portraiture has not received a fair share of attention. It is significant of greater interest in the matter that simultaneously with the opening of the "anachromatic" exhibition in Paris last week, Messrs. Dallmeyer should have come out with a convenient method of producing diffusion by the old expedient of displacing the back cell of the portrait lens. MM. Puyo and de Pulligny claim for their partially corrected lenses facilities in soft definition, long focus, and small cost. They do not put them forward as substitutes for anastigmats in critically covering a wide angle or for portrait lenses in giving the very finest definition at a very large aperture.

\* \* \*

### Reducing Sulphide-toned Prints.

In a previous note (February 16) on sulphide-toning we suggested two possible explanations of the action of reducing solutions, such as "Sanzol," on the brown toned image. The first was that as silver sulphide is readily chlorised, the solutions might act directly on the sulphide in the image. The second was that the sulphiding action might be incomplete, and residual silver salts soluble in the reducing solution might exist in the image. We have now tested both suggestions. The second proves to be possible but unlikely, for while silver salts undoubtedly exist in very slightly toned images, none can be found if the ordinary sodium sulphide bath is applied for ten minutes or so. Boiling in a thiosulphate solution failed to remove any silver from a number of prints that had been passed through the sulphiding process under quite ordinary conditions. In testing the other suggestion, however, we arrived at what may appear to be surprising results, considering the reputation that silver sulphide has achieved for stability. We prepared some black monosulphide by precipitation from silver nitrate with ammonium sulphide, and found that this compound is affected by various solutions in precisely the same way as brown toned prints. It is chlorised by potassium bichromate and hydrochloric acid; very readily iodised by a solution of iodine in potassium iodide; and very rapidly attacked by bromine water. It is slowly affected by a solution of potassium ferricyanide and potassium bromide, while Farmer's reducer, ammonium persulphate, and chromic acid all dissolve out silver from the black sulphide. It



therefore, appears that the facts that the toned bromide image is affected by reducing solutions, and that the toning process can be repeated over and over again, do not in any way disprove the existence of silver monosulphide in the brown toned image. On the other hand, it seems that the stability of silver sulphide has been somewhat exaggerated. It is proof against sulphuretted hydrogen, which is the chief enemy of the silver print, but if the halogens are also looked upon as potential enemies, there is little to choose between the sulphide and the metal.

\* \* \*

#### **Washing Sulphide-toned Prints.**

In the course of experiments made on the action of reducers, we had occasion to soak some toned prints in acid solutions. As a result, all these prints that had been treated with the potassium ferricyanide and potassium bromide bleaching solution showed blue stains, which clearly indicated the presence of ferri- (or ferro-) cyanide compounds in the paper. None of these prints had been washed for less than half an hour, but it is evident that the operation was very incomplete, and that much longer washing is desirable. We are inclined to think that as a rule the washing is very much underdone. Published instructions often suggest that little more than mere rinsing is required, but from our experience it would appear that as much washing is required after toning as after fixing. Ferrocyanides left in the paper must decompose sooner or later, and blue stains will inevitably be the result.

\* \* \*

#### **Caseine In Photography.**

As will be seen from our "Patent News" column the specification of a patent has been published for a pigment printing process without transfer. The vehicle holding the pigment is an emulsion of caseine, soap, and gum arabic. Caseine is really no new substance in connection with bichromate photography. In 1870 the late Mr. J. R. Johnson obtained a patent, in the carbon process, in which caseine was to be used in the tissue, wholly or in part, in place of gelatine. As it may be of interest to some of our readers who may not know how to prepare caseine for photographic purposes, we here quote from the official abridgment of Johnson's specification, No. 201, 1870: "Third improvement—Replacing the gelatine, in the above compounds, wholly or in part by curd or caseine, etc., which is insoluble in warm water, but which is rendered soluble by ammonia or other alkali. The caseine is precipitated, with rennet, or by an acid, from skimmed milk. The resulting curd is collected on a filter, dried by pressure, and dissolved in dilute ammonia. This solution is used instead of a portion of the gelatine solution." In the same, and following, year patents were obtained by Baldock, Denne, and Hentschell for producing printing surfaces with caseine, soap, and bichromate of potash. In the recent patent it is mentioned that the ingredients do not combine so intimately as they do with gelatine, and the print has not the same homogeneous surface, but appears granular and irregular. The working of the process generally seems to be similar to that of the ordinary gum-bichromate process.

\* \* \*

#### **Human Electricity.**

According to one of the German lay papers, Herr Einthoven has invented an extremely sensitive galvanometer, by means of which he has measured the electricity of the body. The instrument, which will measure the millionth of an ampere, consists of

a silvered quartz fibre stretched between the poles of a strong electro-magnet. When the faintest current passes through this fibre it moves in the direction of the lines of the magnetic field, and the movement can be directly measured by means of a microscope, or it can be recorded by means of photography. The new instrument may be used to study the current of electricity that flows through the human nerves. The action of the human heart has already been measured by Lippmann's electro-capillary instrument. It is well known that the muscular contractions in the beating of the heart produce variations in the electric resistance of this organ; this was determined by Waller in 1898. Einthoven claims now to have detected, by the aid of photography, electric waves, which correspond to the beating of the heart, and proved that the electric phenomena alter with every beat. The waves are similar in form to those of the cardiograph invented by the late Professor Marey. Possibly in the future we shall be able to record by the aid of photography the state of a person's health, or the phases of neurotism and hysteria, or Mr. Mees may be able to plot the wailing and fretfulness of a peevish child.

\* \* \*

#### **Measuring Shutter Speeds.**

A writer to a contemporary revives in modified form the method of timing a shutter in which the object moving at an alleged known speed is a pendulum swinging under the influence of gravity. The method is as follows:—A heavy pendulum is suspended a few inches from its upper end, to which is attached a small platform on which a camera is mounted. The platform is adjustable so that the lens of the camera can be pointed to the sun—which must be shining at the time the measurement is made. The pendulum is to be of length to swing seconds, and it is set swinging over such an arc that the image of the sun falls on the focussing screen at each end of the swing, and at this amplitude of swing an exposure is given during one complete swing. Result, a line on the plate representing the movement of the sun's image in one second. The next step is to make another exposure for a time provided by the shutter to be tested. The writer directs that the pendulum should be started from the same point as in the previous exposure to ensure equal angular motion, and suggests that the result obtained—a short rod representing the time the shutter remained open—correctly expresses the ratio of this time to the one second obtained by the first exposure.

Even with certain precautions which the writer mentions it seems to us that it can rarely do so. The writer appears to ignore the law of the velocity of the pendulum, viz., that the velocity is zero at each end of the swing and a maximum at the mid position. Hence the length of a short sun line will vary with the position of the pendulum when the exposure was made, and for this reason, in the first place, the method cannot be accurate. In addition, the friction which must enter into the case, considering the very primitive method of suspending the pendulum, will disturb the velocity irregularly, and further, a certain amount of work is done in bending the flexible tube, and will make the velocity again more variable. It may be that one of these indeterminate errors will partly neutralise another, but that fact can hardly excuse a method which is claimed to be more accurate than the revolving wheel method, which the writer describes as "little better than useless." However, we will spare the letter further criticism since the writer appears to have some haunting fear that all is not right, else why the last paragraph:—"The exposure of the shutter should not be made at just the end of the swing of the pendulum, or when the bob is at the lowest point of the arc of movement. At these two places there

ther a slight acceleration or retardation of the angular movement. To ensure accuracy the snapping of the shutter should take place at another part of the swing." We ask the writer: What part?

\* \* \*

**Reading in Photography.** Frequently has it been found necessary for us to comment upon the way that some modern writers refer to, or describe, the processes that were in use in the earlier days of the art. This they have done innocently enough, through ignorance of what the processes really were. To give two examples of this we may mention that the cyanotype process and the wax paper process are often counted as being one and the same, inasmuch as in each the negative has been waxed. The Sel d'or toning process is sometimes applied to the old combined toning and fixing process, while the difference between them is just as great as the modern separate toning and fixing methods, and the combined bath. Seeing these misconceptions now, it is difficult to imagine that similar ones will obtain in the future with regard to the processes of the present day, and that with perhaps quite a good reason. By way of example, the three now most popular printing processes: P.O.P (printing out paper), albumen, and collodio-chloride. These are popularly known as "P.O.P.," "silver," and "chloride," and are so noted in advertisements of printers requiring situations, and photographers requiring assistants. Similarly terms were used in the catalogues of the Royal Photographic Society's Exhibitions, when the processes by which the pictures were made were mentioned. As all three processes are essentially the same, and as the essential difference between them is the vehicle in which the sensitive salts are held, would it not be better to distinguish them by simply calling them gelatine, albumen, and collodion?

### THE FLICKER PHOTOMETER.

Some time ago we had, through the kindness of a friend, the opportunity of trying a Simmance and Abady flicker photometer for the purpose of measuring densities, and as the flicker photometer is not often employed for such work, an account of our experiences may be interesting. The apparatus is generally arranged for the special work of measuring illuminants, hence it had to be modified slightly. A logarithmic scale of the Hurter and Driffield was used, and perforated screens were erected at the ends of the shortened bench, with single filament Nernst lamps behind the apertures. The general arrangement was nearly as possible that of the H. and D. photometer, the flicker photometer head taking the place of the spot chamber. As some readers are probably acquainted with the arrangement of the flicker apparatus we will be as well to describe it in detail.

One essential feature is a vertical revolving plaster of Paris disc with an alternately bevelled edge. The plane of the disc is at right angles to the bench, and the observer looks down on to its top edge, which is seen through a vertical tube fitted with a reflector. With the disc in position the right hand bevel alone is seen, and this is illuminated by the right hand source of light. As the disc makes half a revolution the right hand bevel

is at the bottom, and the observer sees only the left hand bevel, which is illuminated by the left hand source of light. If the right and left sources of light are unequal then one bevel is more brightly illuminated than the other, and the continuous revolution of the disc shows a more or less violent flicker. If, however, both bevels are equally illuminated, no flicker is observed. In use the disc is set rotating and moved right or left until all sign of flicker disappears. The correct adjustment is easily determined, and, though we were quite unfamiliar with the apparatus and not at all practised in photometric work generally, within a very short time from the start we were taking observations as readily and as accurately as the owner of the apparatus, who worked with us throughout.

This ease in taking observations is largely due to the fact that the sensitiveness of the apparatus is adjustable. The speed of the disc is regulated by a brake, and the violence of the flicker can be increased by lowering the speed. Therefore, when dealing with great densities that transmit very little light the speed of the disc is reduced to its lowest rate, and the flicker so rendered more obvious. Such high densities are then nearly as easy to read as the lower densities that transmit plenty of light. With the latter a low speed of revolution gives a painfully and quite unnecessarily violent flicker, therefore the speed of the disc is increased until there is just sufficient flicker for the purpose. It is, of course, obvious that persistence of vision will cause the flicker to disappear altogether if the speed is much too great for the intensity of the light. One of the advantages claimed for this apparatus is the fact that lights of different colours can be compared with the same ease as lights of the same colour. When the flicker is observed the two colours are, of course, given, but when the neutral point is reached and the flicker disappears, one sees simply a monochrome patch representing a mixture of the two colours. For some reason that is not very apparent it is not quite so easy to make an exact adjustment with differently coloured lights (there seems to be a certain amount of latitude of adjustment), but the error is not great, and the advantages of the flicker apparatus in the comparison of coloured lights are very great, though, perhaps, this is not a matter of much moment in photographic photometry.

As the apparatus has not been specially designed for density measuring it is naturally not so well adapted to such work as it might be. The disc and the driving clock are contained in the same chamber, hence this is somewhat bulky. In fact it is too bulky to permit the disc to be brought so close to a high density as is sometimes necessary. Supplementary densities on the other side can, of course, be employed, but if not prepared with sufficiently high ones the observations may be prematurely stopped. This occurred in our experiments, and we were compelled to abandon the measurement of two very high densities. This defect could, of course, be easily remedied. The disc could be contained in a very narrow chamber, while the clock occupied a larger receptacle underneath. The disc could then be brought close up to a density while the clock passed under it, or, better still, the clock could be fitted on the opposite side of the disc to the density. The clock might also be arranged to run for a longer time, and be fitted with a brake capable of more delicate adjustment.



These are, however, minor details in no way affecting the principle of the photometer, which struck us as being excellent and most readily adaptable to the purpose of density measuring. Incidentally we may mention that the Nernst

lamps proved very successful. The zero point was repeatedly determined in the course of about four hours work, and no fluctuations of any possible consequence were detected.

## ARTISTIC LENSES.

### THE EXHIBITION AT THE PHOTO-CLUB DE PARIS.

AN exhibition of photographs is now being held in the Paris Photo-Club Rooms. It is not an exhibition of pictorial works, yet it will prove more valuable to pictorial photographers than any salon.

Some years back M. L. de Pulligny and Major C. Puyo, both members of the Photo-Club, began to study, with improvements in view, the deficiency of pictorial rendering of the average sort of lens used by the average pictorial worker, and they soon came to the conclusion that ninety per cent. of the instruments on the market were over-corrected for this special purpose, and nearly all the rest under-corrected. In other words, the sharp pictorial work is generally too sharp and the soft pictures too fuzzy; there is excess of detail in the former, loss of drawing in the latter.

The Photo-Club exhibition of prints taken with anachromatic lenses has been organised with the hope of demonstrating *de visio* the particularly pleasing quality of the pictures produced by such optical combinations. The exhibition was open to all the different makers of this kind of instrument, but outside the Pulligny and Puyo lenses we only notice the single lens of M. Rolato Petion. The pictures sent in passed before a jury, who examined them from a purely technical point of view rejecting those that showed sufficient errors in development or lighting of the subject to neutralise the distinctive qualities of the optical combinations used in their production. Pictorial composition was not taken into account, and on my special request gum bichromate prints were excluded from the show, for an expert in gum can use a negative taken with an anastigmatic lens stopped down to *f*/60, and get an exasperated Bergheim fuzziness out of the resulting print simply by sugaring his sensitive mixture or grossly underexposing his print; in fact, we wanted pictures on a medium that did not run at will. Still, an important proportion of exhibits are printed on Fresson Artistique paper, ready made, and that goes under the name of gum-bichromate. I have no wish to risk an action for libel, so I will not say that there is no gum at all in the Fresson coating; but I can, at any rate, vouch from personal experience that the film acts as if there was mighty little and a great deal of something else. The outlines of the figures are always perfectly clear and sharp, and there is no softening effect due to overlapping of more or less soluble zones. This seems to point towards gelatine.

So Fresson paper was admitted, and is responsible for more than seventy-five prints. Those on Ilford matt, P.O.P. number fourteen, and the rest are equally distributed between bromide and platinum. Thus the public who crowded the club-rooms on the opening day was able to judge the merit of the different effects given by various optical combinations, foci, and apertures, without being disturbed by doubts on the origin of the effect noticed. The pictures were divided into five classes—single anachromatic lens, symmetrical, adjustable landscape, studio telephoto lens (semi-anachromatic and anachromatic). Each combination had its separate panel, with title attached, and a special one was reserved for comparative examples demonstrating the result of correct and over exposure, incomplete correction and focussing, etc., etc.

The most crowded were those reserved to the symmetrical lens, which was to be expected from the handiness of the instru-

ment and its beautiful results. Thirty-three exhibitors in this class showed 140 prints. The adjustable landscape lens, though of quite recent date, has eight exponents with twenty-one prints; the single lens, the first of those constructed by Messrs. Pulligny and Puyo, gives sixty-one prints by eighteen exhibitors; the studio telephoto lens twelve prints by five exhibitors. Of course Major Puyo is at the head of the exponents of the new objectives in quantity and quality; while M. de Pulligny, busy chief engineer of the Roads and Bridges Department, only shows six prints. There are some most interesting pictures—M. Hachette taken on the banks of the Seine with the adjustable landscape lens, some figure studies by M. Pein d'Origine, Dubreuil, Schneider, Garnier, Besson, Vte. de Singly, Rolato Petion, Cte. de Montgermont, etc. The "adjustable landscape" examples by Major Puyo are most convincing; there is a softness in the gradation of distant planes that is distinctive of the lens employed. His large heads—some of them nearly life-size—taken with the studio telephoto lens, have lost all the harshness of outline that one generally associates with such productions, yet the drawing is firm and absolutely correct.

In fine, the anachromatic lens has just scored a victory, but one must not believe that because of this the cup will go to the fuzzy school, neither will it stay with the *f*/64 micrographer. The great majority of the pictures exhibited at our club, and especially those that won universal approval give the impression of sharpness, the suggestion of detail without being either sharp in definition or minute in analysis; and they are certainly not fuzzy—of that woolly fuzziness that all real artists detest—*not* true to nature—if you will put it that way, but true to the impression that nature gives us, which is better.

Theoretical explanations are being given in these same columns by Messrs. de Pulligny and Puyo, therefore I have only to speak about the practical results of these theories. Practical they undoubtedly are, in one sense of the word, though the question of cost has not been the leading idea in their evolution. In another sense, also, for the pictorial photographer who uses an anachromatic combination, such as a symmetrical one for portraits or the adjustable for landscape, is much nearer to the painter's rendering of nature than he was before. His work is begun for him by the lens; he will hardly finish it with his brains and fingers if he wishes to make his personal work—a picture—out of it; but even if he uses neither his portrait or his landscape will never be offensive through exaggeration of detail or distinctive focussing of planes.

This point—and it was not one of the least interesting of in the exhibition—was amply demonstrated by all the untouchable straight prints hung on the walls. Here—except, perhaps, the case of Fresson paper, which under expert hands allows of value correction, the quality of the negative and the balance of its composition were pitilessly exposed. Now and then an obedient lens had softened, according to its nature, the contour of an ill-posed arm or the complicated folds of a clumsily-dressed dress, but arm and folds remained with their ugly wrong line as a protest. Other men, like Puyo, for instance, passed unscathed through the ordeal. Of his work we had all seen the gum transcripts, but many of us ignored the negative, how faithful replica, minus the finishing touch of the author's hand, showed by elimination exactly how much had been due to the

... gum juiciness, and the cleverness of fingers in the other complete pictures. With some silver or bromide prints practically unknown authors the undeniable charm of the picture was proved to come wholly from the use of the anachromatic lens, for there is such a thing as *treatment*—though many photographers smile at the word—and the treatment, the *parti*

# MAJOR C. PUYO ON THE PROPERTIES OF ANACHROMATIC LENSES.

from a pictorial point of view the advantages conferred by the use of anachromatic lenses compared to corrected lenses are of two kinds:—

The pictures which they give have a higher value, esthetically. The simple construction of the lenses allows of greater focal lengths, and hence there is a better perspective rendering. We will consider these two aspects of the question in turn.

I presume that the reader has an elementary acquaintance with lenses, and that therefore he will understand that in the case of a lens uncorrected for chromatic aberration, the plate has to be



MAJOR C. PUYO. Self-portrait.

The above is a reproduction of the first portrait made with the single plano-convex lens. The original is whole-plate.

... at the focus of the violet rays representing the most actinic part of the spectrum. Under these circumstances the violet image is the sharpest, which produces the sharp definition on the plate; the other rays, blue, yellow and red, which do not come to a focus at this same point, infringe on the violet image. Thus the image of a point becomes a point surrounded by a halo: the image of a straight line becomes a line bordered on either side by a gradated region. Thus the image of a straight line is made up of:—(1). The violet image V V, sharp. (2). The unsbarr image of the blue rays which spreads from B B to B<sup>1</sup> B<sup>1</sup>. The unsbarr images of the yellow rays which spread up to Y Y, Y<sup>1</sup> Y<sup>1</sup>, and of the red rays which spread up to R, R<sup>1</sup> R<sup>1</sup> (Fig. 1). The effect of this double region of diffused light constitutes synthetical rendering. This double fringe of diffused rays simplifies the rendering of masses without altering their fundamental lines. And are not precision in the drawing, synthesis and simplification in the rendering the first conditions of art?

*pris* of these lenses, when there are no faults in composition and lighting to spoil things, will suffice to attract favourable attention, and cause a considerable degree of pleasure to those who know how to look at things. The first result is *pleasing*—that is the real way of expressing it, and to work on such a foundation is also a pleasure.

ROBERT DEMACHY.

Consider, for example, a surface made of very thin bands, arranged alternatively, black and white. A corrected lens will give a negative image of such an object, consisting of sharply defined regions, as in Fig. 2, which is supposed to represent a part of the negative greatly enlarged. If the lens, however, is anachromatic, the straight edge of the band A A<sup>1</sup> will be blurred. This blurred fringe will encroach on the white portion B B<sup>1</sup>, and will cover it if the breadth of this white band is about the same size as that of the blurred fringe. The fringe on the left hand of the band C C<sup>1</sup> will act in the same way in toning down B B<sup>1</sup>, and if the exposure be prolonged, B B<sup>1</sup> will be more or less tinted.

On the other hand, the quantity of light received on  $\alpha \beta$  and  $\gamma \delta$  being the same, the bands A A<sup>1</sup> and C C<sup>1</sup>, if equally exposed, will print less strongly.

Thus it will be seen that the square  $\alpha \beta \gamma \delta$ , instead of consisting of black and white bands, will tend to become a grey patch of tone midway between that and the white and black (Fig. 3).



FIG. 1.



FIG. 2.



FIG. 3.

Now, the synthesis which consists in replacing a varied surface by a continuous tone, the value of which represents the integrals of all the tones in that surface, is of the kind which we hold to be pictorial. Does a painter put into his landscape a house roofed with slates, some light, some dark, and others covered with lichen? He half shuts his eyes, and with one stroke of the brush sums up the whole effect of the roof in one tone which is a summary of all the tones in the roof. Suppose he has to paint a face covered with freckles. Again he half closes his eyes and mixes on his palette the mean tone which represents the skin. The anachromatic lens does the same.

From this explanation it will be understood that so far as relates to outlines the chromatic blur or diffusion softens the passage from one tone to its neighbour, thus assisting the figure to merge into the background. If the reader has noticed the way in which the painter Henner merges the outlines of his nymphs into the dark background, and the simple way in which he models his figures in full light, he will have a fairly precise idea of the effect of the anachromatic lens.

To sum up:—Chromatic aberration tends to give us simplification of surfaces without alteration of the drawing; this is our object. But it will do better.

The breadth, L, of the blurred fringe (Fig. 1) is proportional to the absolute diameter of the stop. It is equal to 1-100th of its diameter. Thus, if we consider a series of anachromatic lenses, having the same relative aperture, but with focal lengths in increasing series, the chromatic blur will increase in proportion to the focal length, and consequently will be greater, as the scale of the image is greater. Thus the rendering becomes simpler and broader, proportionately, to the size of the image. The value of such a relation, from an esthetic standpoint, will be easily understood. But the anachromatic diffusion is not only a useful agent, it is a docile agent, for we have at our disposal several means of regulating its action.

(1). BY DECREASING THE SIZE OF THE STOP.—The breadth of the blurred fringe (Fig. 1) is, as I have said, equal to 1-100th of the diameter of the stop. By decreasing the latter, we diminish the blur.



(2). BY ALTERING THE EXPOSURE.—Returning to Fig. 1 we see that the blurred outline is supplied by the less active rays, and, therefore, if we cut down the exposure, the red rays will not have time to exert their action, and the image, instead of spreading to  $R R, R^1 R^1$ , will spread only to  $Y Y, Y^1 Y^1$ . If the yellow rays are allowed sufficient time for their action, the chromatic blur will be still more restricted, viz., to  $B B, B^1 B^1$ . Thus the degree of synthesis will be proportionate to the length of exposure.

(3). BY THE PARTIAL CORRECTION OF THE ANACHROMATIC LENS.—For this reason one of the special lenses has been called the semi-anachromatic, the chromatic aberration in it being reduced about half to one-third the breadth of the blurred region, diminishing in equal proportion.

The advantages of the anachromatic lenses may be summed up as follows:—Drawing without hardness; blurring of details, and therefore suppression of retouching; unison of the figure with the background; breadth of drawing proportional to the scale of the image.

II.—Anastigmats, and even the portrait lenses of the Petzval type have much too short focal lengths in regard to proper perspective. If bad drawing and exaggerated perspective are to be avoided the lens must be placed far from the sitter, and thus the photographer is driven to the use of lenses of considerable focal length.

The simplicity of the anachromatic combinations supplies us with great latitude in this respect. A plano-convex lens of 16 inches focus, having a diameter of 4 or 5 inches, and working at an aperture of  $f/7$  or  $f/8$ , costs only a few shillings. The only limit is the exten-

sion of the camera. But this last restriction may be avoided by use of the telephoto form of the lenses.

We have worked out for the studio very simple forms of the telephoto lens of sufficient rapidity—the diameter of the front lens 4, 5, or 6 inches—and giving a range of foci which allows of taking heads life size at a distance of three or four yards.

For landscape work experience has shown us that the most useful focal lengths are those comprised between double the shorter axis of the plate and double the diagonal. A small telephoto lens, which we have named the “adjustable landscape lens,” has been therefore constructed and supplies all these useful focal lengths. It is of course necessary to draw out the extension of the camera, and the result focus is equal to length of the draw plus a few centimetres.

In the “adjustable landscape lens” a residue of spherical aberration comes into play in addition to chromatism. The effect of the former tends towards broadening the drawing so that in spite of a smaller diaphragm which must sometimes be used to get aerial perspective, the image remains soft and broad. This residue of spherical aberration gives the lens great depth. As a result several planes in a landscape decrease in definition regularly, and distance is particularly well rendered.

To resume, pictorial photography should find in the use of anachromatic lenses many new and valuable resources.

By courtesy of the Royal Photographic Society a collection of prints made with the various lenses here described, and arranged under my supervision, will be included in the next exhibition of the Society in London.

C. PUYO.

### M. LECLERC DE PULLIGNY ON THE LENSES.

THE BRITISH JOURNAL OF PHOTOGRAPHY, in its issue of January 6, last year, devoted several columns under the above title to the lenses, specially intended for pictorial photography, which my friend, Major Puyo, and myself have been attempting (since 1902) to add to the equipment of the photographer. One of the articles was a translation of Major Puyo's description of the new lenses. The other put forward some observations in regard to them, and drew attention to certain points which appeared to call for explanation. In the following article I propose to recall and amplify the information given by Major Puyo and to answer the questions which have been raised.

This further consideration of the subject seems to be justified by the fact that the new lenses have largely been taken up by the group of artist-photographers who are members of the Photo-Club of Paris, by whom the success of the new instruments has been demonstrated in the present exhibition at the Photo-Club. M. Demachy, who needs no introduction to English readers as a leading exponent of pictorial photography, reviews this exhibition with the authority which attaches to whatever he takes it upon him to write, and therefore it will be my care not to trespass on the ground which he will cover, but to confine myself to considering the lenses themselves.

These “artistic lenses” are called “anachromatic” to denote that they are not achromatic, just as “anastigmats” are so called to indicate the absence of astigmatism. The words “chromatic” and “stigmatic” could, of course, be used in the respective cases, but custom has already sanctioned the latter, and the former may therefore be adopted.

#### Anachromatic Lenses.

The anachromatic lenses are of a very simple kind. Several types of them have been made. Some consist of one single plano-convex or meniscus lens; others of two thin meniscus lenses assembled symmetrically; still others (the telephoto lenses) consist of a converging lens (plano-convex) and a diverging lens (plano-concave).

One special form designated by the English name, “adjustable landscape lens” has its purpose sufficiently indicated thereby. It consists of a converging and diverging lens after the manner of the telephoto form, and as it has only four reflecting surfaces gives exceedingly brilliant images.

These lenses are all made in crown glass, any ordinary crown lens glass being suitable for the purpose. Even the less commonly used “St. Gobain” glass employed for the manufacture of spectacles can be used. As the lenses have frequently very considerable focal length (20 to 40 inches), and as their aperture is usually  $f/10$  to  $f/5$ , their diameter is bound to be great—from 3 to 6 inches.

In spite of this fact the cost of the lenses is very small. The

plano-convex lens of St. Gobain crown,  $3\frac{1}{2}$  inches in diameter mechanically worked, costs only four francs to make; the meniscus of the same diameter costs five francs. The cost becomes greater with greater diameter of the lens, and it must be multiplied by three for genuine crown lens glass, and if the glasses are to be worked by hand.

All the lenses which Major Puyo and I have employed in investigation have been of St. Gobain crown and machine-worked. It is true that the St. Gobain works manufacture a glass specially adapted for spectacles, which they melt with special precautions. The pieces intended for our lenses were selected from the centres of large samples then moulded hot, and cooled with every care. Under these circumstances I have never seen any defect due to lack of homogeneity of the glass or to any other cause, and I have used lenses up to 6 inches in diameter.

Though the glasses themselves may be inexpensive, the mounting of such large glasses is costly. However, those who possess large portrait lenses can have the glasses removed, and on stating their size and positions to the makers of anachromatic lenses, may be supplied with glasses adapted to any particular portrait-lens mount. At the same time a black cardboard ring, of the same height as the lens previously used, is inserted to prevent the new ones from moving. The lens makers can supply rings of blackened copper for this purpose, on the necessary height being given them.

In certain cases the mounting can be adapted to receive the anachromatic lenses. The method to be followed will be found in a book, “Objectifs d'Artiste,” shortly to be published. The lenses thus be mounted by the photographer himself on the front of camera, and the expense of mounting reduced to about four francs for a lens of 16 inches focal length, an instrument which permits of every artistic portraiture being done. Thus any amateur who is owner of a camera taking plates  $7 \times 5$ , or whole-plate, is able to discover for himself to what extent the anachromatic lenses will assist him in portraiture.

#### Softness at Will

The chief characteristic of the lenses is the production at any aperture of an image of great softness in which, nevertheless, rendering of the features and of the expression is respected. Chromatic “fuzziness” by its nature, is not produced in the parts of the image which receive the least light. The deep shadows therefore preserve all their depth, and this chromatic fuzziness may not be ob-

\* The French word “flou” is thus rendered, though diffusion or softness are other appropriate synonyms.

ended with woolly diffusion due to errors in focussing or to the use of an R.R. lens, which suffers from spherical aberration.

According to the combinations employed, to the diaphragm, to the rate of exposure and the degree of correction, all imaginable varieties of fuzziness can be obtained, from a total destruction of definition suggesting the works of the painter, Carrière, to a minute amount of fuzziness—a mere *soupeçon* such as the professional photographer might offer in a portrait to the most Philistine of his customers.

from the sitter. He takes the nearer standpoint in order better to distinguish features—his eye not having the defining power of the photographic lens—but he mentally assumes a position more than double this distance.

To quote Charles Blanc:—"If a photographer wishes to portray a person without diminishing the parts removed from him, his standpoint should be at least ten yards from his sitter. When a painter cannot retreat so far, he obtains the same effect by a knowledge of



M. E. Turillon.



M. Leclerc de Pulligny.



M. E. Morin.

#### MAKERS AND DESIGNER OF THE ANACHROMATIC LENSES.

between these two extremes are the coarse and pronounced effects reminiscent of the nude studies of Henner.

In every case the effect is to suppress or reduce details, the minute reproduction of which is the cause of the usual nagging character of photographs. Trifling defects of the skin disappear and the touch of the aid becomes superfluous, in the case of negatives in which a fair amount of fuzziness has been admitted, and lightened in the case of those in which an anachromatic lens, such as a professional photographer might use, has been employed. These two advantages—artistic effect and suppression of retouching—would seem to assure the success of the anachromatic lenses in the hands of artists, of professionals who are compelled to produce what their customers require, as well as of amateurs. The latter frequently produce photographs which are unsatisfactory to the sitters, chiefly for the reason that the amateur cannot retouch, and that the lighting in an ordinary portrait is almost always hard in its results. The anachromat does its work in retouching, its *estompage* corrects the hardness of the lighting, and hence it would seem that the amateur has a better chance of making a pleasing portrait with this lens than with any other.

#### Long Focus for Good Perspective.

Beyond this artistic effect and the suppression of retouching, the lenses have another advantage:—Practically they are the only ones available, at a moderate price, in focal lengths sufficient to realise the perspective which the eye sees, which artists adopt instinctively, and which the pictorial photograph lacks. The evil of the lens in perspective is its absolute truthfulness. Say you have to make a portrait of a soldier in uniform (the breast 20 inches across) placed half as wise to the line of sight. If your sitter is placed only one yard from the lens the image of one epaulette will be noticeably smaller than that of the other. At two yards distance the defect will not be so pronounced, but nevertheless, will be quite unpleasantly apparent. A painter, placing himself two yards from his sitter would draw his epaulettes almost the same size. At the most he would not make the rear epaulette less than 9-10th that of the one nearer to him. He would be assuming a point of view some four or five yards

perspective which enables him to correct what he sees and to make his drawing as though he were at the necessary distance."

We said ten yards, but if the model projects an arm or a leg in a direction towards or away from the camera, the point of view should be 15 or 20 yards. If he stretched towards the point of view, like Mantegna's "Christ," a distance of 30 or 40 yards should intervene. But, however, the considerable distances of ten yards and upwards refer to portraits of the full length figure in which hands, feet and shoulders can be at notable distances from a plane at right angles to their line of sight and parallel to the ground glass. In the case of a head or bust skilfully placed, the most prominent features of the subject relatively to its mean plane are considerably reduced, and experience shows that at a distance of 10 to 13 feet the perspective rendering is satisfactory. This distance is necessary, for whenever a head is photographed at a less distance than 3 or 4 yards the lens distorts the sitter, the nose becomes that of Cyrano, the lips those of a mulatto, whilst the forehead slopes back, and the ears are dwarfed in the distance.

#### Optical Conditions for Large Heads.

Professional photographers most frequently employ a Petzval lens known as "three-inch" or "two-inch," according to the diameter. These lenses supply heads up to the so-called carte size without it being necessary to overstep the distance of at least 10 ft., which should separate sitter and camera. But frequently the photographer will employ a lens of short focus and large aperture at close quarters for portraits of children. When the reduction in size is considerable the distortion is scarcely observable. But as soon as we photograph, with the same lens, a head alone, the defects can easily be seen. If under these conditions an enlargement is obtained direct the caricature will be striking.

We may thus assume that 10 ft. is the minimum distance at which to photograph. But if, in addition, we wish to make large heads, we soon see that we are forced to use immense focal length, lenses of corresponding diameter, and cameras of like proportions. Thus, at a distance of 10 ft., I wish to make a head one-third the size at an



aperture of  $f/8$ , I shall need a lens of 30 inches, 4 inches diameter, and with an extension of camera of 40 inches. For a photograph half-size, the figures will be:—Focal length, 40 inches; diameter, 4½ inches; camera extension, 60 inches.

The same inconvenience follows us in photographing so as to fill, say, a whole-plate,  $8\frac{1}{2} \times 6\frac{1}{2}$  inches, with the portrait of a person 30 ft. distant. In order to obtain an image one-tenth the size we should need a focal length of:—

$$F = \frac{30}{\frac{1}{10} \times 1} = 33 \text{ inches,}$$

and a camera extension of gigantic proportions.\*

To expose quickly, a relative aperture of  $1/9$  will be necessary, that is to say, a diaphragm of four inches and a lens of 4½ inches diameter.

The whole conclusion is that we should work at considerable distances, with long extensions, with large lenses and with long foci. Under what conditions can we obtain these essentials?

Distances up to 13 or 14 ft. may be assumed to be available in the case of the great majority of studios. The amateur working out of doors, with a head- and side-screens can produce all the forms of lighting which his fancy may dictate, and his exposures will be shorter than in the studio. The distance of the standpoint will not be an obstacle to him.

Nor will the camera extension be an insuperable difficulty. An ordinary landscape camera, about whole-plate in size, will have an extension of at least 24 inches, and usually the photographer possesses an enlarging camera with which he can obtain extensions from 24 inches to 5 ft.

#### Anachromat v. Anastigmat.

In regard to the choice of focal length, the conditions are not so satisfactory. With lenses of focus exceeding about 16 inches the optician experiences considerable difficulties in fulfilling the many and various perfections required of a modern anastigmat. These perfections, useful in making portraits or landscapes in small sizes, justify their existence in the case of lenses for large plates only for the purposes of copying plans and maps or for photographing a regimental group around its colonel. However, justified or not, these properties call for the most lengthy and arduous labours, for complex calculations, endless experiments, and highly trained workmen, all of which costs the lens-maker and the customer dearly. I have before me the catalogue of a noted firm which recommends for all-round purposes, including portraiture, lenses of aperture from  $f/3.6$  to  $f/5$  covering the entire plate without astigmatism and with extremely fine definition. For a plate  $7 \times 5$  inches, and focal length of 10 inches, the lens cost 535 francs. For a plate about "whole-plate" in size, the cost is 865 francs. For  $12 \times 10$  the cost will be 1,250 francs, and lastly, for a plate  $15 \times 12$  and focus of 24 inches, the price is 2,500 francs. It is a tidy sum of money, and I feel a certain amount of pleasure in saying that a double lens of the same focus and the same aperture,  $f/5$ , would cost, in the anachromatic series, about 100 francs. It would not be in any way comparable to the anastigmat except in rapidity, but it would possess other qualities, which, for artistic purpose, are to be preferred.

Difficulties of distance and of camera extension, together with high prices, combine to lead the photographer away from the use of lenses of long focus. The idea, more or less clearly defined, that he has all these obstacles in his way, persuades him to the view that, after all, perspective in portraiture is a Will o' the Wisp, that it is just as well to ignore it or make believe to ignore it. And then he forces his lens to do what is beyond it. He places it three feet or less from the sitter and obtains faces in which the right eye is much smaller than the left, of floors which appear inclined at 45 deg., and similarly in landscapes in which the distance is dwarfed into insignificance, and milestones compete with Mont Blanc for pre-eminence of height. Of all this the great public perceives nothing, because it does not observe anything until it is pointed out to it, and also because it has been so long accustomed to see false perspec-

tive in its albums and on its walls that use has become second nature and it accepts them as the truth.

Artists, however, have not been content. For æsthetic reasons they feel bound to work with a long focus, a demand on their purses which they can satisfy at small expense in the anachromatic ordinary or telephoto lenses.

A landscape camera will always permit of a focal length down to the shorter side of the plate, and for portrait lenses, intended for these instruments, we would select focal lengths of at least the same magnitude. On a triple-extension studio camera we should not hesitate to place a lens of 24, 30 or 40 inches focus. We should not hesitate for the reason that a single plano-convex lens of 40 inches focus would cost a few francs, whilst an anastigmat of the same focal length would mean the price of an estate in Beauce, and, moreover, would yield a result quite foreign to our purpose.

The extension of our camera is too short? The addition of a single diverging lens will convert our objective into a telephoto lens, permitting us, if we will, to take life-size heads at 10 to 15 feet.

The portraitist with pictorial intent will thus acquire, at little cost, an immense latitude in his work. He will place his model as far from the camera as his studio permits, and, taking his position behind the focussing screen, will adjust the size of the image to his liking by a turn of the screws actuating the back and front of the camera. His procedure is a contrast to the method of the user of a lens of fixed focus, who must wheel his camera to and fro to the discomfort of the sitter.

In outdoor photography the difference is no less marked. While one worker is at trouble to replace one lens by another from his outfit, his more discreet companion will have only to turn the screws of his "adjustable landscape lens" and, according as he wishes, will fill the whole or part of his ground glass with the subject before him.

To pass to a description of the anachromats we must say that the single lenses are of considerable rapidity ( $f/9$ ), and the double combinations of twice this speed, viz.,  $f/5$ . They thus permit of ordinary work in a studio. In regard to the telephoto lenses the rapidity will be proportional to the square of the diaphragm of the front lens, as in all lenses of this kind.†

If one wishes the head as large as possible (one-third to one-half natural size), and the distance from the sitter to be great (10 to 15 feet), one must provide a telephoto lens by taking an instrument of large diameter as front lens. The old 4-inch, 5-inch, and 6-inch portrait lenses are admirable for this purpose, as are also anachromatics of the same diameter.

#### Focussing.

Focussing with the anachromats should be done carefully as with all lenses, if the maximum sharpness is desired in one part of the image rather than in another. The best plan is to focus on printed characters (the title of a journal) held by the sitter and with a medium stop. A larger or smaller stop is then inserted as may be desired before exposing the plate. A small correction must be made in the focus before exposure, but the correction does not need to be very exactly made, nor need it involve calculation of any sort. Several ways of making it are dealt with in the forthcoming "Artistic Lenses."

The theory of the anachromatic lenses, the practice with them, and their advantages in photography, were published for the first time by the author as follows in a memoir in the "Bulletin of the Photo-Club," in March, 1902,‡ and some time later the lenses were tried and adopted by the members of this artistic society. Major C.

\* I have given an English name to this lens in acknowledgement of the admirable landscape work of photographers in Great Britain, and for the further reason that the day of its production, in June, 1905, coincided with the public expression of the "entente cordiale" a sentiment which has been identified with my own warm feelings for England and for many English friends.

† In the little work, "Artistic Lenses," I have shown that in the telephoto lens, as in all optical instruments, the illumination of the image, and, therefore, the rapidity is proportional to the expression:—

$$\left(\frac{d}{aG}\right)^2,$$

where  $d$  represents the diameter of the diaphragm of the front lens,  $a$  represents the distance of the object from the front lens, and  $G$  is the scale on which the image is reproduced, i.e., the ratio 1:0 of any dimension in the image to the corresponding dimension in the object.

‡ Le Flou chromatique. "Bulletin du Photo-Club," March, 1902.

\* The following is the formula for solving problems of this kind:—To reproduce an object on a scale of  $1/n$ , it must be placed at a distance  $D$ , from a lens of focal length,  $f$  such that

$$D = (n+1)f \quad (a),$$

and in this case the camera extension will be:—

$$T = f + \frac{1}{n}f \quad (b),$$

Puyo, whose beautiful productions in portraiture are well known, has used no other since this time. He submitted new combinations to systematic investigation, which have entirely confirmed the theoretical predictions and have fixed the forms of lenses. Major Puyo embodied his technical and artistic results in articles in the "Revue de Photographie,"\* and in May, 1904, he arranged in his studio an exhibition of prints by the new lenses, which were classified according to the method of production. The remarkable results impressed amateur and professional photographers who visited the exhibition.

Lastly, at the Congress of the Union of French Photographic Societies at Nancy in July, 1904, Professor Wallon presented a lengthy communication on the anachromatic lens† and discussed fully the scientific theory of these instruments and their applications in photography.

It now remains for me to answer the interesting questions raised in reference to the anachromatic lenses by "The British Journal of Photography" last year.

### The Price of the Lenses.

Of this I have already spoken; the cost of the lenses in machine-worked St. Gobain glass is ridiculously low. In hand-worked crown glass it is much more. It is also much more for lenses of large diameter mounted in copper, but even under these conditions a symmetrical anachromatic lens will be one-fourth or one-fifth the price of an anastigmat of the same focus. If the worker is content with a single plano-convex lens, working at  $f/9$ , and suitable for portraiture of the head and the full figure as well as for landscape, the mounting can be dispensed with, and such a lens in machine-worked St. Gobain glass, if made by a good firm, answers perfectly. Major Puyo, I myself, and friends of ours have never employed any other. In this case the expense is reduced to the purchase of the lens, that is, to 4 francs for a lens of  $3\frac{1}{4}$  inches diameter and 16 inches focus; to 6 francs for one of 4 inches and 20 inches focus, and to 16 francs for one of  $6\frac{1}{4}$  inches diameter and 32 inches focal length.

### The Novelty of the Anachromatic Lenses.

In articles on this subject I have mentioned the former use of lenses uncorrected for chromatic aberration. The sets of spectacle lenses such as those of Comte d'Assche are an example of the use of these lenses:—the periscopic lens of Steinheil is another. But both these forms of lens are employed at a very small aperture,  $f/40$ , and less, and little or no correction is made for the chemical focus. The small working apertures greatly limit the usefulness of the lenses. The anachromatic lenses, on the other hand, can be used at  $f/9$  in the case of the single lenses, and at  $f/5$  in the case of the doublets. They bear the same relation to the periscopic lenses of Steinheil as do the portrait eyescopes of Voigtlander to the ordinary wide-angle rectilinear. It will not be denied that there is a difference between these lenses and that it is important to provide one rather than the other. The anachromatic lenses can be applied to purposes which were beyond the less rapid predecessors, but with the employment of a large aperture comes the necessity of making the chromatic correction with accuracy, and I think I may claim to have studied this part of the question thoroughly, and to have worked out a novel, theoretical and practical solution.

I have shown also by calculation that for very small diaphragms and exact correction, the "fuzziness" of chromatic aberration disappears entirely. The "fuzziness" of the spectacle lenses is due to spherical aberration, and the periscopic actually does not give any fuzziness at all. It seems that one might employ a good R.R.

If in place of making an exact correction, one made none at all, the effect would be the same as if a slight alteration in the focus obtained with a corrected lens were made before exposure. The result consists in a displacement of the maximum of sharpness, which removed before or behind the subject which is focussed. If the diaphragm is sufficiently small the depth of field is great, and the defect is not perceptible. If the diaphragm is large enough for the defect to be seen the parts which are not sharp suffer a general and uniform confusion of outline which is not at all pleasing. Hence it

comes about that certain zones of the photograph are too sharp, whilst others are not sharp enough; and the zone in which the diffusion is altogether pleasing is too restricted for us to arrange the composition in it, and the total result is *nil*. In both cases the effect is quite different from that produced by chromatic diffusion.

### Can the Corrected Lens Imitate the Anachromatic?

Can the same results be obtained by suitably employing rectilinear or anastigmat lenses? From what I have said it will be seen that it is not enough to displace the focussing screen after focussing. The "out-of-focusness" thus obtained is of a kind which I have described already as uniform and destructive of the drawing. With anastigmats with iris diaphragm I do not see that we can do more than this, for even at full aperture their corrections of chromatism and spherical aberration are usually perfect. The same question may be asked in reference to the old rapid rectilinears and single lenses. As a rule these lenses are so made that they can be used with a stop a little larger than the one for which they were intended for the proper correction of their aberrations. But under these circumstances they often have a small chemical focus, and if the larger diaphragm gives less sharpness it is more because of this insufficient achromatism than through the very slight effect which the spherical aberration can produce for an enlargement of the diaphragm in the ratio of 2 to 1. If a print be carefully examined it will be seen that the fuzziness is nothing else than our enemy the diffusion produced by putting out of focus. To make good use of these lenses it is necessary to make an exact chromatic correction, which amounts to bringing the lenses into line with the anachromatic theory. In "Artistic Lenses" will be found some experiments on an old, so-called, achromatic, landscape lens; it was  $3\frac{1}{4}$  inches in diameter and 20 inches in focal length, and was intended to be used at an aperture of  $f/30$  or smaller. Used without a stop at all, say at  $f/5$ , but with exact chromatic correction, it was found to produce very soft portraits of the anachromatic quality.

One word more in reply and I have finished. The author of the article concludes by saying, in effect:—"I prefer a corrected lens, for by suitably employing it I obtain results equivalent to those of chromatic fuzziness, and the same lens would supply me with critically sharp photographs when I had need of them, whilst the anachromatic lens is useless to me in such a case."

I believe that such a view involves a double error. I have shown that the corrected lens cannot give the chromatic softness. I would add that by using a sufficiently small stop in an anachromatic lens, all diffusion disappears, and the results are as sharp as may be desired. At  $f/10$ , and still more at  $f/15$ , the results with a symmetrical anachromat can scarcely be distinguished from those of a rectilinear. The anachromat can be used for excellent instantaneous work, and is better for the special purpose of hand-camera work than a badly corrected lens. The adjustable landscape lens when stopped down to  $f/45$  will serve for the copying of plans over a critically flat field.

In thanking "The British Journal of Photography" for the opportunity of stating the claims of the anachromats, it may be mentioned that Major Puyo and myself have no interest in the production of these "artistic lenses" other than the pleasure of contributing to the progress of pictorial photography. We have published in the "Bulletin of the Photo-Club," and in other publications on photography, all the formulæ relating to the lenses, so that no patent can be taken out as to their principle, and that all opticians can manufacture them. Those who desire to undertake the manufacture, and all those who wish to investigate for themselves the properties of the lenses, may consult the work, "Objectifs d'Artiste,"\* to which we have referred already. Moreover, two French firms of high standing, one in Paris and one in the provinces, are now in a position to supply the lenses and all the information relating to them. We wish those interested all the pleasure in this new branch of photography which we ourselves have discovered.

LECLERC DE PULLIGNY.

\* La Photographie synthétique. "Revue de Photographie," April 15, May 15, June 15, 1904.

† Bulletin de la Société de Photographie, October 1, 1904. Compte rendu of the Union Nancy. Telephoto and anachromatic lenses by E. Wallon, p. 455.

\* "Les Objectifs d'Artiste. Theory and Practice of Anachromatic Lenses." By L. de Pulligny and C. Puyo. One volume, 232 pages, 49 figures in the text and 6 plate illustrations. London: Dawbarn and Ward, Limited. Price 5s. Postage 3d.



## COLOUR PHOTOGRAPHY.

### A LUMIERE ONE-LENS ONE-EXPOSURE CAMERA.

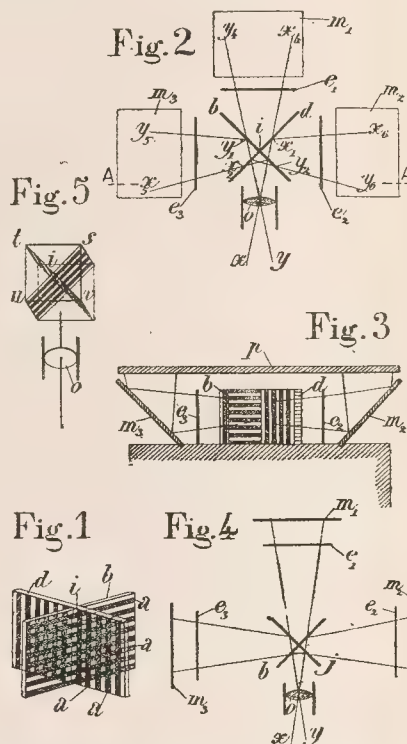
THE detailed description of a one-lens one-exposure camera for three-colour work is the subject of a recent French patent, No. 350,004 (June 20, 1904), by MM. A. and L. Lumière. According to the specification, the purpose of the invention is to obtain simultaneously with one lens, three images similar in size and lighting. The principal part of the apparatus is a divider, Fig. 1, formed of two sheets of glass,  $d$ ,  $b$ , at right angles to one another and placed behind the lens  $o$ , in the position shown in Fig. 2. The function of this divider is to direct the image formed by the lens into three directions so as to permit of the separation of rays by filters suitably placed. The divider may be placed as shown in Fig. 1. The sheets of glass  $b$ ,  $d$ , are silvered on their surfaces next the lens in parallel bands  $a$ ,  $a$ , the width of these being equal to their distance apart, so that each sheet of glass is divided into alternate and equal transparent and reflecting surfaces. On one of these glasses  $b$ , these bands are perpendicular to the intersection  $i$  of the glasses; on the other,  $d$ , they are parallel to the intersection. The divider thus formed is placed behind the lens  $o$ , so that the axis of the lens is perpendicular to the intersection  $i$  of the two sheets of glass, and so that it forms equal angles with each.

The rays  $x$ ,  $y$ , which are transmitted by the lens, fall on the front surfaces of the glasses  $b$ ,  $d$ , and are primarily divided into two equal parts, one of which traverses the transparent parts of the sheets of glass and falls on the posterior halves  $x_1$ ,  $y_1$  (Fig. 2) of the glasses. The other, which is reflected by the silvered bands, encounters the anterior halves,  $x_2$ ,  $y_2$ . The rays which arrive direct on the posterior part of the glasses are divided into two equal parts, the  $y_1$ ,  $x_1$ , one which passes through the transparent parts and arrives without reflection at  $y_4$ ,  $x_4$ , on the surface  $m_1$ , the other part, which is reflected by the silvered bands, arrives at  $y_5$ ,  $x_5$ , on the surfaces  $m_2$ ,  $m_3$ . The rays which are reflected on to the back of the two glasses  $x_2$ ,  $y_2$ , are also divided into two equal parts, one of which traverses the transparent and reaches  $x_6$ ,  $y_6$ , on the surfaces  $m_2$ ,  $m_3$ ; the other part, which is reflected by the silvered bands, is sent back through the lens and is useless. In practice, the surfaces  $m_1$ ,  $m_2$ ,  $m_3$ , are mirrors (at an angle of 45 degrees), which reflect the images on to a sensitive plate  $p$ , placed, as shown in Fig. 3, parallel to the axis of the lens.

The necessary colour-filters,  $e_1$ ,  $e_2$ ,  $e_3$ , are placed in the path of the rays corresponding to each image, and the three fundamental negatives are obtained on  $p$ . Ordinary positives can be made from them by any of the well-known methods. If in place of the sensitive plate,  $p$ , the triple positive images are inserted, and the necessary filters placed in the path of the rays, the lens  $o$  will give by projection or direct vision one image, reproducing all the colours of the original.

Instead of using the glasses with silvered bands one may use coloured glasses without the silvered bands. Fundamental colours must be chosen for these glasses, such as yellow and blue, blue and red, or yellow and red. If, in Fig. 4,  $j$  is a yellow glass, and  $b$  a blue glass, the rays  $x$ ,  $y$  transmitted by the lens and falling on the yellow glass  $j$ , are divided into yellow rays which pass through this glass, and into rays of the complementary colours which are reflected and traverse

the blue glass  $b$ , which is in their path. This glass constitutes part of the coloured medium the absorption of which is supplemented by the violet filter  $e_3$ . These rays form an image on the surface  $m_1$ , and this is a negative image of the yellow rays. The rays which fall on the blue glass  $b$  are also divided equally into blue rays which pass through this glass, and into complementary colour rays, which are re-



lected and traverse the yellow glass which is in their path. This screen constitutes a part of the coloured medium, the absorption of which is completed by the orange screen  $e_2$ , and these rays form an image on  $m_2$ , and this is the negative image of the blue rays. Finally the yellow and blue rays which pass through the two sheets of glass, traverse a third green screen  $e$ , which forms with the two sheets of glass a colour absorptive medium which gives the image on the surface  $m_3$ , this being the negative image of the red rays.

### THE TECHNICS AND PRACTICE OF THE LUMIERE STARCH GRAIN PROCESS.

IN the latest issue of the "Agenda Lumière," a collection of facts and formulæ, compiled and published by the Lumière Company, of Lyons, is an article on the forthcoming process which may be translated in full in view of the assurances from Lyons that the sensitive plates are to be on the English market in a month's time. The article repeats certain facts, but it gives a graphic account of the process by which M.M. Lumière have at length succeeded in reducing colour-photography to the simplicity of ordinary exposure and development.—Eds., B.J.P.

\* \* \* \* \*

#### Principle of the Process.

If on the surface of a sheet of glass, and in the form of a thin single film, a collection of microscopic elements, transparent and coloured reddish orange, green, and violet are spread, we shall find if the

spectral absorption of these elements are correct, and if they are in correct proportions, that the film thus obtained, when examined by transmitted light, will not appear coloured; this film will only absorb a fraction of the transmitted light.

The luminous rays traversing the fundamental screens, orange, green, and violet, are reconstructed and form white light if the sum of their surfaces for each colour, and the intensity of the colouration of the constituent elements exist in proportions which are well known. The thin trichromatic film thus formed is subsequently coated with a panchromatic emulsion.

If now such a plate be submitted to the action of a coloured image, taking the precaution to expose it through the back, the light rays traversing the fundamental screens, will, according to their colour and the colour of the screens they encounter, suffer a variable absorption. We thus realise a selection by the microscopic elements which en-

ables us, after development and fixation, to obtain coloured images, the colours being complementary to those of the original.

### How the Complementary (Negative) Image is Formed.

If we take, for example, a part of the image coloured red, the red rays will be absorbed by the green elements of the film, whilst the violet and orange elements will transmit them. The panchromatic film, therefore, will be acted upon under the orange and violet elements, and the green elements will appear after fixation because the panchromatic film has not been acted on under the green elements.

Development will reduce the silver bromide of the film and mask the orange and violet elements, and the green elements will appear because the silver bromide has not been reduced under them. We have then in this case a residue coloured green, which is complementary to the red rays we have been considering. The same phenomena will occur with the other colours; that is to say, with green light the green elements will be masked, and the film appear red. In the case of yellow, the violet image will appear, and so on.

It will be seen that a negative in these complementary colours ought to give, with a plate prepared in the same way, positives which would be complementary to the negatives, that is to say, positives which would reproduce the colours of the original.

One might also, after development of the negative image, omit the fixation, and reverse the image by one of the well-known methods so as to obtain a positive direct which would present all the colours of the original object.

The difficulties which we have encountered in the application of this method are numerous and considerable, but after laborious researches we have surmounted them, and the Lumière Company are preparing to supply such plates.

It will be sufficient to briefly indicate some of the most important conditions which had to be fulfilled to prove how delicate the problem was.

### Technical Problems of the Process.

We had first to find a film formed of microscopic filters, orange, green and violet. It was necessary that this film should adhere to its support, be very thin, and that the colouration of the elements of which it should be composed should be rigidly determined as regards intensity and exactness of colour, and as regards the number of elements to a given area. The colours must be stable, they must not run, and there must be no superposition of the coloured filters, and no interspaces. Finally, the film has to be covered with a varnish having the same index of refraction as the grains.

It was essential that the sensitive film should be orthochromatised—that there should be no false rendering of colours—and that this orthochromatism should be in relation to the nature of the emulsion and the colour of the elementary filters. The film of emulsion should be of a special nature to prevent diffusion, and the manipulations, development and exposure should be appropriate to these preparations.

The simple enumeration of one of the conditions will serve to show how much care and method was necessary. First, potato starch had to be separated by instruments specially devised for the work, for the grains have a diameter of from 15 to 20 millimetres. These grains are divided into three lots, which were respectively stained reddish orange, green and violet, by the aid of special colouring matters.

The coloured powders thus obtained were mixed, after complete dissociation, in such proportions that the mixture did not show any residual colour. The resultant powder was then brushed on to a sheet of glass covered with a sticky substratum. With suitable precautions, we shall obtain a single film of grains which touch each other without any superposition.

The interspaces had to be filled up by a similar process of powdering so that no white light was transmitted. This obscuration is effected by means of an extremely fine, black powder of wood charcoal, for example.

We have thus formed a screen on every square millimetre of surface of which there are eight or nine millions of small elementary grains, orange, green and violet. The surface thus prepared is protected by a varnish, having about the same refractive index as that of the starch grains, a varnish as impermeable as possible, on

which finally a thin film of sensitive panchromatic emulsion of silver bromide is coated.

The exposure is made in the ordinary way in any camera, but in every case taking the precaution to reverse the plate, so that the rays from the lens traverse first the coloured particles before reaching the sensitive film. It is also necessary to interpose a special yellow screen to compensate for the excessive activity of the violet and blue rays. The absorption due to the interposition of the coloured elements, although a very sensitive emulsion is used, necessitates a somewhat longer exposure than usual. Still, it is possible to obtain results in sunshine in one-fifth of a second with a lens working at  $f/3$ .

Development is effected as in an ordinary photograph, and if one is content to fix the image, the result will be, as we have already pointed out, a negative presenting by transmitted light the colours complementary to those of the object photographed. But it is preferable to re-establish the order of the colours on the same plate by chemical reversal of the image. For this the silver reduced by the developer is dissolved by a suitable bath, and then the remaining silver bromide is developed, producing a black image which is complementary to the negative obtained by the first development.

It will thus be seen that the manipulations are simple and only slightly different from those of ordinary photography.

### A MAKER OF GUM PAPER ON THE PROCESS.

EVEN the best workers in "gum" often go astray because they desire to get great depth of colour, and, on account of this desire, they sometimes use too much pigment, with the result that they get a very steep scale of tones as well as a gritty surface. Too much gum again—or what is the same—gum too strong, usually gives chalky high lights. The sensitiser cannot be too strong, however, and a saturated solution is usually used. The exposure (writes Mr. A. W. Hill, in the "Secretary's Letter" of the Scottish Photographic Federation) must obviously be such as will suit the process of development that the worker prefers or finds himself best able to accomplish.

For an ideal gum print—which is to preserve most of the tones of the negative, besides possessing that subtle something which only gum prints have, and which is usually termed a "running over" of the pigment—just sufficient exposure must be given as will keep the details in the high lights. If less exposure be given, the result is chalky whites and no detail in the shadows. If more then, the half tone and shadows are clogged up and the luscious ideal print is not. Gum printing, being very similar to water-colour drawing, the swelling of the film and the exudation of the unaffected pigment is the ideal method of development. There are other methods, not so much ideal, but eminently practical all the same for special effects, and these, especially brush development, should be utilised where necessary and desirable. But it will be found that brush-developed prints never have the luscious appearance that is the charm of the perfect gum print.

Always use some sort of actinometer when printing, because not only do you then know exactly when exposure has been correct, but if, by accident, over-exposure should occur, you will be forewarned and therefore forearmed when you come to develop.

During the experimental—or shall we call it apprenticeship stage?—it is a good plan to use up any spoiled prints by trying to modify the tonal values with the brush, by vignetting large heads, putting in clouds, or causing the distance to appear really distant, and not merely, as usually happens in the ordinary negative, simply smaller. It is in these valuable methods of control that gum scores over all other processes, and as they cannot be used successfully unless after considerable practice, it is essential that, along with perfection of coating and development, after-work on the print should have a great deal of attention. Indeed, unless the worker feels he can help his print after development, or during the same, he need not go to the trouble of becoming an adept at the preliminary stages. At the same time, once a worker really begins to get good results in gum, the process has such a fascination for him that he seldom altogether deserts it. And when he realises the extent of "help" he can give his negative by working on the print, his art-education has fairly begun, and in a short time he has placed a tremendous gulf between his old work and his new.



Possibly "the man in the street" will not appreciate your work. Never mind. No one takes his opinions or beliefs in art from the general public. Indeed the applause of the public so much wooed by some photographers should rather be avoided, for there lies the downward path to the realms of the "cheap and nasty."

## TWO ENLARGING QUESTIONS.

IN the course of an article in the "Photo-Era" on a number of practical matters relating to the making of enlargements, Mr. Edward S. King, of the Harvard Observatory, mentions two points which may be quoted as being novel to some who have had a good deal of enlarging experience. In focussing an enlargement, said Mr. King, it had been found by Professor W. H. Pickering that bad definition is sometimes valuable

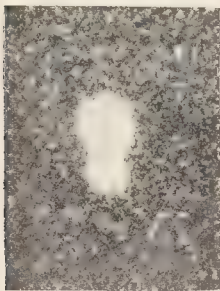


Fig. 1.



Fig. 2.

for destroying the grain of a negative. Figures 1 and 2 show the image of a double star enlarged in focus and out of focus, the enlargement being the same in both cases. The silver particles which appear prominently in the first photograph are almost obliterated in the second.

The question of what exposure to give is frequently a perplexing one, although an old operator will be able to make a close estimate by noting the brightness of the light on a dummy plate. All persons, however, cannot turn their eyes into light meters, and some better means of measuring the light through all its transitions is



Fig. 3.

desirable. It will not always do to expose a trial plate, as the conditions may change completely before it can be developed and examined. A simple test is to interpose a lighted candle in the beam of light from the lens and note the shadow of the candle itself as cast on the dummy. This effect is shown in Figure 3. By moving the candle toward the dummy, a position is found where the light from the candle just obliterates the shadow cast by the light from the lens. The distance of the candle from the dummy is a measure of the light, and the exposure is proportional to its square. For example, I found for a certain class of work with Seed process plates that squaring the distance expressed in inches, and dividing

by 4, gave the exposure in seconds. The relation of the exposure in seconds to the square of the distance in inches is easily found by trial, for we can use the candle test with exposures obtained by any method, and determine the ratio from the best results. The kind of candle is not material so long as we use the same for all our experiments. There is some difficulty in noting just where the shadow disappears, and different eyes may vary in fixing the exact point. In general, a gentle lateral movement of the candle will enable one to see the shadow better, and make the observation of the disappearance more accurate. If the light from the lens is too faint to cast a shadow of the candle at a reasonable distance from the dummy when the aperture to be used for the enlargement is in place, we may increase the aperture for the test and allow for the change in the computation. This method of finding the exposure, if not exact, nevertheless affords a better approximation than given by the unaided judgment.

## Exhibitions.

### SOUTH LONDON PHOTOGRAPHIC SOCIETY.

THE seventeenth annual exhibition of the South London Photographic Society was opened at the Public Baths, Camberwell, last Saturday, March 3, and closes to-morrow, Saturday, at 10 p.m. The energy of the South London members finds its expression in the large number of frames on the walls, nearly 550, besides lantern-slides and stereoscopic. The exhibition would gain, we think, from a somewhat more rigorous selection, especially in the open classes, where the inducement to hang the work of members is not so great as it is in the case of the classes which are made up solely from members of the society. Architecture, always a strong feature at South London, is also a notable feature of the present exhibition, especially in the open class, which is one of the strongest in the show. The open landscape is large, but rather weak, and a goodly number of the photographs might well have been spared. In Class A, portraiture, figures, studies, etc., by members, the first bronze plaque goes to "A Bit of Old Glastonbury," by W. Llewellyn White, a clever combination of a figure, standing in an archway, and architectural surroundings. The second award is to a picturesque rendering of Staple Inn, by Gideon Clark, whose photograph might have just as suitably been classed with landscape, for the figures, though excellently placed in the composition, are not the chief object of interest in the picture. We do not care for Dr. Evershed's portrait of Mr. E. T. Holding, which, to our mind, gives a wrong suggestion of physique. Other work in this class which is worthy of notice is "A Canny Customer," by Miss Maude A. Craigie-Halkett (No. 15); "His Daily Toil," by T. E. Walter (No. 2), and No. 47, "A Dutch Figure Study," by W. F. Slater. Class B shows the good architectural photography which we have always associated with the South London Society, and includes some very fine technical work. The awards go to C. J. T. Walford, "Light and Shadows" (No. 72), and to E. R. Bull, "Wren's Cloister, Lincoln" (No. 84). Class C, devoted to landscape, contains some exceedingly good technical work though in this class and in the architecture we are impressed by the fact that the leading South London members hold somewhat too closely to traditions of composition and technical quality. The result, in our judgment, is the absence of work which appeals strongly to the imagination. In the architecture we can discover no photograph which has the charm for us possessed by many of Mr. Fredk. H. Evans' photographs of such subjects, and the same criticism may be applied to the landscape section. The first bronze plaque goes to E. W. Taylor for a breezy seascape, "Away to the Fishing Ground" (No. 177), which owes a good deal of its success to the way the fishing boat is placed in the space of the print. The second award falls to a photograph by G. R. Nicholls, "Evening Glow" (No. 158), which impresses us as a case of super-chromatic correction. The planes of the subject could have done with a greater suppression of tone as they recede from the camera. As it is, the windmill in the distance is too near the foreground in tone. "The Haven under the Hill" (No. 124) suggests a tiny seaport, but turns out to be a

village in a vale. We forgive the mis-used title, for the photographer has rendered the subject effectively. The photograph would be better still on a larger scale. In "The Crane," Dr. Evershed gets some good feeling into a picture of a dock wharf in November, and his success is the more notable in its environment of factual prints. "Snow and Fog," a picture of the tops of suburban villas in the snow, however, is quite ordinary and uninteresting. The class devoted to photographs made on society excursions is the least satisfactory in the hall, and confirms the general belief that for pictorial work the worker had better be alone.

In the open class for portraiture and figure studies the silver plaque is gained by C. B. Howdill's well-known "Modeller." Three other awards suggest that the judges were in pensive mood, for their awards go to "Sad Tidings," "Sad Memories," and "Memories." However, things are not as bad as they appear, for the first-named, by C. Peacock, might just as well have been entitled "Gossip," and the second, an old man in a church porch, by E. A. W. Moore, does not particularly bear out its title.

In the landscape open class the first award goes to Basil Schön for a strong treatment of a roadway in winter (No. 448), and the second to a familiar picture, "Tugging Home," by W. Clayden. We should like to find a word of commendation for "A City Highway, Custom House, Dublin," by Mrs. D. Mahoney, and we must also not omit the Edwards' Memorial Competition for the best reproduction in monochrome of a coloured original. Mr. E. J. Wall was the judge in this section, which has been a feature of the South London Exhibition for some years past, and has thoroughly outworn its technical interest. We suggest that the competition might be modified to keep in step with current progress, and actual reproductions in colours of a coloured picture be demanded. Such a contest would be true to the spirit of the original plan of the competition, and would possess a great technical interest.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between February 19 and 24:—

**DARK-ROOM LAMP.**—No. 4,306. An improved dark-room lamp. James Rankin Garrow and Houghtons Limited, 88, High Holborn, London.

**COLOUR PRINTS.**—No. 4,476. Process of producing multi-colour prints. John Bachmann, 18, Southampton Buildings, London.

**TELEPHOTO LENSES.**—No. 4,523. Improvements in photographic tele-objectives. Carl Zeiss, Jena, Germany.

**PRINTING FRAMES.**—No. 4,527. Improvements in photographic printing frames. Leon Faure, trading as Guy and Co., Temple Buildings, Albert Street, Nottingham.

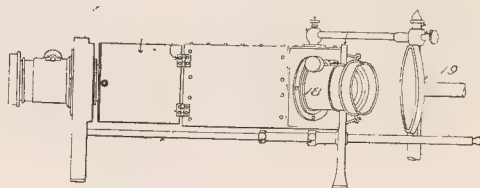
### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

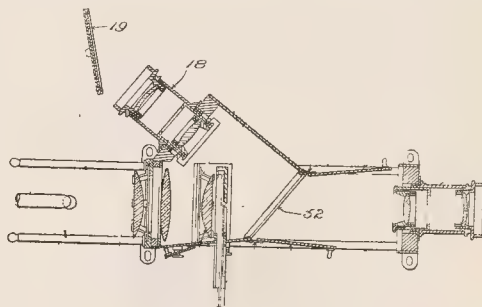
**PIGMENT PRINTS.**—No. 12,867, 1905. The process has for its object a simple manufacture of carbon papers, and in order to attain this another vehicle than gelatine must be used, such as will permit the development on the side which is exposed to the light and will produce direct pictures. Such a vehicle, which permits the development on the exposed side has been discovered in emulsified casein and soap. If the materials are emulsified in a suitable manner and mixed with the required pigment and gum arabic an emulsion is obtained which can be poured on to a support of gelatine, and will become sensitive to light in a solution of bichromate of potassium in such a manner that on subsequent exposure to light, the parts acted on by light are rendered insoluble in warm water. The excess of colouring substance is then removed by washing with water, and the picture

is developed. This new vehicle of the pigment, which does not combine so intimately with the latter as gelatine, gives a different appearance to the print. The print has no homogenous surface, but appears granular in a strong light and irregular. In the deeper shadow where the effect of light was stronger, the grain decreases, however, and disappears in the deepest shadow. This grain, i.e., perfectly white spaces adjacent to the black pigment, gives a highly plastic effect to the picture, which has not been obtained in any other manner, and is a characteristic point of the vehicle. Having now particularly described and ascertained the nature of my said invention, and in what manner the same is to be performed, I declare that what I claim is:—Pigment printing process consisting of an emulsion of casein and soap as a vehicle and binding means for the layer of pigment, with or without the addition of the usual admixtures, substantially as described. Fell and James, for Emil Bühler, Schneisheim, Germany.

**PROJECTION APPARATUS.**—No. 6,169, 1905. The apparatus consists of an arrangement whereby transparent objects such as ordinary lantern slides and opaque objects (photographic prints, etc.), may be projected in rapid alternation by the same apparatus. As shown in the figures the construction of the apparatus in-



cludes a side projection lens 18, which receives the image of the opaque object 52, and transmits it to the screen by reflection from the mirror 19. The specification describes the carriers per-



mitting the expeditious change of transparent and opaque objects. Albert Thornton Thomson, 15, Tremont Place, Boston, Suffolk, Mass, U.S.A.

**PHOTOGRAPHING THE EYE.**—Referring to the letter of Mr. Arthur Whiting, and our comment upon it in our issue of February 9, "The Dioptric Review" says:—"We should suggest that the principle of telephotography be employed. If it be true that the condition of the iris is a reflex of certain bodily conditions, then the subject is one that will well repay investigation. The method of Dr. Dimmer and Dr. Thorner is, however, for taking photographs of the interior of the eye and not the exterior. Such photographs have been taken with exceptionally large pupils, e.g., those of cats under the influence of atropine."

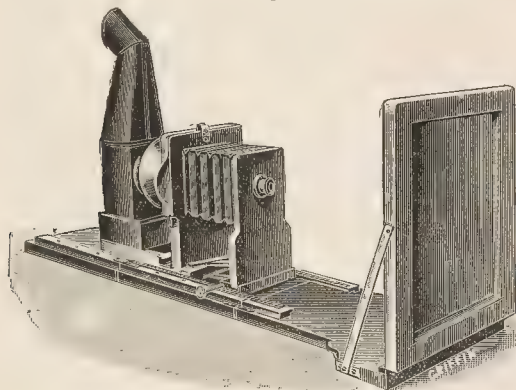
A RETIRED photographer (aged 70) named Albert Betts, late of Treherne Road, Mortlake, met his death last week on the South-Western Railway. The deceased was found dead on the line close to Richmond Station, where, it is supposed, he wandered without realising his danger.



## New Apparatus, &c.

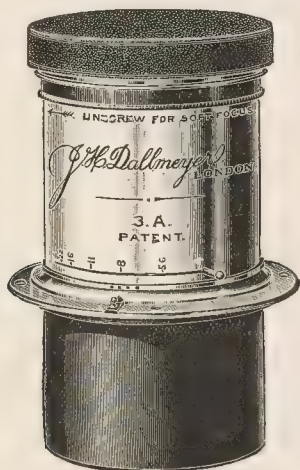
The "Autokon" Enlarger. Sold by Messrs. John J. Griffin and Sons, Ltd., Kingsway, London.

The distinctive feature of this enlarger is the automatic focussing obtained by an arrangement of levers geared to the front and back of the camera, whereby the movement of the former, necessary for sharp definition at any given enlargement, is obtained from a curved slot in the baseboard. The enlargement thus remains in focus as



its size is increased or diminished by actuating the pinion which moves the camera. The method should save a good deal of time in making a number of enlargements. In other respects the "Autokon" is a well-equipped instrument. The easel is provided with removable panel in place of which a carrier is inserted when slide-making by reduction. The negative carrier is adjustable all ways for correction of errors in verticality or for selection of part of a negative, and the illuminant may be either oil-lamp or incandescent gas. The prices of the enlarger range from £3 5s. to £9 9s.

A NEW form of mount for the Dallmeyer portrait lenses has just been introduced by the makers, Messrs. J. H. Dallmeyer, Ltd., New-man Street, London, W., with the purpose of facilitating the use of the lens in giving diffusion of focus. As is known to many users of the Dallmeyer lenses—we are informed that many, on the other hand, are ignorant of it—the posterior cell can be unscrewed and thus



produce a general distribution of focus throughout the various planes. This adjustment has hitherto had to be made by removing the lens from its flange, or by inserting the hand in the bellows of

the camera, in both cases an operation which is not at all expeditious. The new mount is made (as shown in the figure) so that the turning of the lens barrel displaces the posterior cell, and the amount of the turning—through one or more revolutions—is noted on the mount by bringing an appropriate part of the 4-section scale opposite the catch on the flange. On the catch being released the rotation of the lens tube unscrews the lens from the flange in the ordinary manner. The lenses are now issued in this improved mounting at the same prices. Existing lenses can be adapted at a small charge. It will be understood that this movement does not prejudice the use of the lens for critically sharp work, but it places the photographer in the position to produce softened definition, and to repeat these effects with certainty. This step on the part of Messrs. Dallmeyer will thus be noted with interest in connection with the articles on the advantage of chromatic diffusion which appear from several French authorities elsewhere in our pages this week, although it is not to be assumed that the effect obtained is the same as with the so-called "anachromatic" lenses.

### CATALOGUES AND TRADE NOTICES.

The newly-issued 1906 catalogue of Messrs. J. Lancaster and Son, Ltd., which reaches our table from Colmore Row, Birmingham, maintains the traditions of this well known firm, which, thirty years ago, commenced the popularisation of amateur photography. The present list of 84 pages is an eloquent testimony to the energy and enterprise with which during this period the affairs of the firm have been prosecuted, for it describes cameras and other apparatus, which embody the latest conceptions in photographic instruments, and are offered at prices which place them at the disposal of the great middle-class public. Messrs. Lancaster place their total sales of cameras at 400,000, and the list before us, by its variety for selection, justifies the firm in its appeal to photographers of all descriptions.

Messrs. Houghtons, Ltd., send us the classified list of their clearance sale, in which they are offering a great variety of apparatus and materials.

A list of trade work reaches us from Messrs. Flamank and Towns, send, 69, Whitehead Road, Aston, Birmingham, a firm which makes a speciality of bromide enlargements within twenty-four hours of order, and is also establishing a connection for half-tone blocks, dry mounting. The firm has also a number of special lines for amateurs.

A FIRE took place last week on premises occupied by the Midgley Photo Company, Loughborough. The outbreak was caused through the accidental overturning of an oil-stove, but was not serious.

LA CHAMBRE Syndicale des Fabricants et des Négociants de la Photographie, 54, rue Etienne-Marcel, à Paris.—The following are the recently elected officers:—President, Charles Mendel; Vice-President, Grieshaber; President of the Manufacturers' Section, P. Mercier; President of the Dealers' Section, Faine; General Secretary, Reeb; Secretaries of the Sections, Bondon and Trambouze; Treasurer, Bœspflug; Recorder, Daynes; Librarian, Duplouch; Delegates to the Caisse, Degen and Korsten.

MESSRS. B. J. Edwards and Co. desire us to make known that Mr. H. A. Crabb will in future represent them in the North of England, Scotland, and Ireland.

BOLTON Amateur Photographic Society.—The exhibition which is to be held on the 18th, 19th, and 21st of April promises well. Through the courtesy of the committee of the Northern Photographic Exhibition the Society has been able to arrange that all pictures intended for that exhibition will be forwarded and delivered by special messenger (free of cost to the exhibitor), so as to be in time for judging at Manchester. It is to be hoped that many of the best workers of the day will take advantage of this arrangement and show at both exhibitions. The exhibition secretary is Mr. W. Midgley, of 9, Ducie Avenue, Bolton.

TESTING Gelatine.—A paper before the New York Section of the Society of Chemical Industry, printed in the Society's Journal for February 28, deals with the measurements of viscosity, etc., necessary for the valuation of glues and coarse gelatines. The author, Jerome Alexander, announces the prosecution of other tests to be applied to photographic gelatines in the laboratories of the National Glue and Gelatine Works.

# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
.....	Aberdeen Photo Art Club .....	"Enlarging." Mr. D. Duff.
.....	Colne Camera Club .....	Miscellaneous Slides. Mr. E. A. Spivey.
.....	Aberdeen Amat. Photo. Assn. ....	Members' Slides.—Critic, Mr. J. Milne.
.....	Bromley Camera Club .....	"The Photographic Lens." Illustrated. Dr. John Scott.
.....	Leicester Lit. and P. Society.....	Election of Officers. "Toning of Lantern Slides by Variation of Exposure and Development." Demonstrated. A Member. Royal Photographic Society Affiliation Prize Lantern Slides, 1905.
.....	Loughton Photographic Society .....	Demonstration. Mr. Stearns.
.....	Photographic Society of Ireland .....	"Photography as an Aid to the Study of Archaeology." Mr. T. K. Hackett.
.....	Sutton Photographic Club .....	"Bromide and Gaslight Papers." Messrs. A. P. Hoole and E. De Clifford.
.....	Aberdeen Amat. Photo. Assn. ....	<i>Amateur Photographer</i> Prize Slides. Annual Exhibition.
.....	St. Helens Camera Club .....	"A Naturalist's Photographs." Mr. H. Lazenby.
.....	Scarborough and Dis. Ph. Soc. ....	Exhibition of Members' Prints.
.....	Leek and District Photo. Soc. ....	Lecture Competition.
.....	Oxford Camera Club .....	Yorkshire Photographic Union Lantern Slides.
.....	Dewsbury Photo. Society.....	Annual Exhibition.
.....	Cripplegate Photo. Society .....	<i>Focus</i> Prize Slides. "Stories without Words."
.....	Otley & Dis. Cam. & Art Soc. ....	Competition.—Landscape.
.....	Burton-on-Trent Nat. His. Soc. ....	Eight Annual Exhibition.
.....	Brentford Photo. Society .....	"Exposure." Mr. Watkins.
.....	Cardiff Windsor Amat. Ph. Soc. ....	"Doctoring the Negative." Messrs. Holdsworth and Crossley.
.....	Holmfirth Photographic Soc. ....	"After-Treatment of the Negative." Mr. A. B. Gardiner.
.....	Gateshead Camera Club .....	"Stereoscopic Photography." Mr. T. H. Muxlow.
.....	Sheffield Photographic Society .....	Y.P.U. Invitation Folio.
.....	Halifax Camera Club .....	"Arnside and its Possibilities." Mr. J. J. Hartley.
.....	Nelson Photo. Society .....	"Retouching." Illustrated. Mrs. Walter J. Gardiner.
.....	Worthing Camera Club.....	Annual Lantern Exhibition of Members' Work.
.....	Leeds Photographic Society .....	"How to Make Enlarged Negatives." Demonstrated. Dr. Martin.
.....	Darlington Camera Club .....	"East Devon."
.....	Cricklewood Photo. Society.....	Annual Smoker.
.....	Everton Camera Club .....	Ten Minutes' Papers by Members.
.....	North Middlesex Photo. Soc. ....	Lantern Evening. Members' Slide and Lecture Competition.
.....	Acton Photographic Society .....	Members' Lantern Night and Yorkshire Photographic Union Circulating Set of Lantern Slides.
.....	Leeds Camera Club .....	"Bromide and Gaslight Printing." Tri-Colour Films. Rotary Photographic Co.
.....	South Essex Camera Club .....	"The Afterwork of the Picture: Stretching, Mounting, and Framing." Demonstrated. Mr. J. Perrin, A.R.I.C.
.....	Huddersfield Nat. and Ph. Soc. ....	Snow Subject Competition.
.....	Croydon Camera Club.....	"Mountain Travelling in the Eastern Caucasus, with an Ascent of Mount Ararat." Mr. G. P. Baker.
.....	Blenheim Club.....	Exhibition of Members' Prints and Slides.
.....	Harrogate Camera Club .....	"Drapery." Mr. Fred. Burridge, R.E.
.....	Liverpool Amateur Ph. Assn. ....	"Natural History Photography." Mr. Riley Fortune, F.Z.S.
.....	Hull Photographic Society .....	"Pictures with the Goetz Lens." Illustrated. Mr. C. P. Goetz.
.....	Pudsey and District Photo. Soc. ....	"Control in Photographic Printing." Mr. G. J. T. Walford.
.....	Richmond Camera Club .....	"Enlarging by Gaslight without Condenser." Mr. A. Almond.
.....	Darwen Photographic Assn. ....	Annual Exhibition.
.....	Coventry Photo. Club.....	"Architectural Photography." Mr. A. E. Sharples.
.....	Southport Photographic Soc. ....	"Carbon Printing." Messrs. Medhurst.
.....	Cardiff Windsor Amat. Ph. Soc. ....	Annual Meeting, Election of Officers, &c.
.....	Sheffield Friends' Sch. Ph. Soc. ....	"Rotograph Bromide and Rotox Gaslight." Demonstrated. The Rotary Photographic Company.
.....	Chelsea and District Ph. Soc. ....	

**SHANGHAI PHOTOGRAPHIC SOCIETY.**—Dr. Patrick gave a lantern lecture in the Union Church Hall on January 25, on "British India: Races and People." During the evening a few slides from negatives taken in Nanking Road during the recent riot were shown, by kind permission of Messrs. Max Nossler and Co., owners of the negatives.

**BURTON-ON-TRENT NATURAL HISTORY AND ARCHEOLOGICAL SOCIETY (PHOTOGRAPHIC SECTION).**—The secretary of the above section is now Mr. George Moore, 254, Branston Road, Burton-on-Trent, to whom all communications should be addressed.

## ROYAL PHOTOGRAPHIC SOCIETY.

Meeting held Tuesday, March 6, the President, Major-General Waterhouse, I.A., in the chair.

Mr. E. J. Wall gave a demonstration of pinatype and the Rotary Company's superimposed carbon colour tissues, explaining first, by means of a triple lantern, the difference between additive and subtractive colour processes, and the necessity for using red, yellow, and blue pigments. Briefly, pinatype is a process of colour printing in which three transparencies are made from the three colour negatives, and these printed on to gelatinised plates sensitised with bichromate. The print plates thus obtained are stained up in red, blue, and yellow dyes, and then successively superimposed on to damp gelatinised paper. Stress was laid on the necessity of obtaining very soft transparencies in the first place, and also on transferring the yellow image on to the blue, as otherwise it was rather difficult to secure accurate register. The constituent images were shown, together with the final print. The process is also applicable to lantern-slide making, and the three images are successively printed on to bichromated gelatine, after each exposure the image being stained and coated afresh with gelatine. The yellow image could also be used as a cover glass by making a reversed positive, and printing from this and staining up. For making the reversed positive a method was described in which the image was printed on to bichromated gelatine and stained up in a new dye, which gave a good black-brown image. Incidentally some good transparencies were shown prepared by this method in green, blue, olive, and brown, and the images were naturally remarkable for the absence of grain and great transparency of the shadows. In dealing with the carbon tissues, which are coated on thin celluloid and exposed through the back, the lecturer stated that he had abandoned the maker's instructions and used a 2 per cent. solution of ammonium bichromate and dried the films during the night. An actinometer had to be used, and, having once determined the necessary insolation for the blue image, the yellow film takes one tint less and the red one tint more. A finished print and also printed and developed tissues were handed round. The tissues had to be mounted, the yellow first, with an 8 per cent. solution of gelatine. Mr. Wall stated that neither process presented any particular difficulty, and both were open to considerable modification of results, as in pinatype the prints could be reduced or strengthened in any one or all colours, and that precisely the same effect, though to a less degree, was possible with the carbon tissues by using longer or shorter development of the exposed tissue.

A discussion followed, in which Messrs. Snowden Ward, O'Farrell, F. C. Lambert, and J. S. Teape, took part.

**SOUTHAMPTON CAMERA CLUB.**—On Monday evening Mr. Horsley Hinton, who is one of the Presidents of the Club, lectured on "Pictorial Photography." Mr. Hinton first dealt with his subject by way of precept and advice, and later illustrated his views with convincing slides. The lecturer defined "pictorial photography" as being the attempt to convey by means of photographic apparatus and means an artistic impression received by a worker. He pointed out at the beginning that ordinary photographic apparatus was not necessarily, as at present used, the most suitable for the purpose, nor did photography as taught to most beginners necessarily lead to really artistic work. The picture which might be properly so called should have something which answered to body and to spirit. It was the business of the picture-maker to secure, if possible, upon his plate a result which should correctly render the impression which he had received from his subject. But if he had failed to do this, and yet had in his negative the recorded image or body of his picture, it was justifiable and desirable to put into it the motive or spirit, the impression which had induced him to make his exposure. Mr. Hinton expressed the opinion that far too much was photographed. The exposing of plates on merely pretty scenes was deprecated, and the necessity for a motive in the picture, some combination of line or design or some attempt to express emotion in some degree, laid down. The searching for a composed subject in laboured fashion was pointed out as a far less satisfactory method than the acknowledgment of the principle that the worker should wait until some subject should strike his appreciative attention. Mr. Hinton was most cordially thanked at the conclusion of his valuable lecture.



**BOLTON AMATEUR PHOTOGRAPHIC SOCIETY.**—On February 22 Mr. Von Schevon, of the Bayer Company, Limited, demonstrated the working of "Pan" paper. One of the most attractive features of this paper is the great ease with which a variety of different tones and colours may be attained by merely varying the exposure and developer. This property, it must be understood, does not leave anything to chance, as by a careful adherence to the makers' instructions any desired result may be achieved. The first essential is to ascertain the correct exposure for a black tone and then to increase the exposure according to the tone desired, and dilute the developer proportionately. Fixing from five to fifteen minutes in a 10 per cent. solution of hypo and washing are to follow.

## Commercial & Legal Intelligence.

**THE first meeting of the creditors interested under the failure of Francis Edwin Ellis, photographic artist, "Ivycroft," Stockfield Road, Streatham Hill, S.W.,** was held at the offices of the official receiver for the Wandsworth district, York Road, S.E., on the 1st inst., but the proceedings were of a purely formal character, as there were not enough creditors present to form a quorum, consequently the meeting was adjourned until the 9th inst.

**HEAVY Sentence on a Bradford Photographer.**—At the Bingley Police Court on February 28 Arthur Lister Bradley, photographer, of Picton Street, Bradford, was charged in three cases with obtaining money by false pretences, and a similar charge was preferred against Lawrence Boulger, canvasser, of Bradford. Mr. C. P. Cass, of Keighley, appeared on behalf of Bradley. The case was outlined by Inspector Kemshell, who stated that on January 24 the men were paid 2s. 6d. by a young lady named Miss Maud Ellis, of Crossflats, for a dozen picture postcards of herself and a cousin, photographed together. On Christmas Day they obtained 1s. 6d. from Mrs. Sarah Barker, of Eldwick, and 2s. 6d. from Fred Hanson, market gardener, Eldwick, also for picture postcards from photographs which were then taken. In each instance a receipt was given for the money paid, signed with the name "A. Bradley," and giving the address "Lumb Lane, Bradford." In no instance, however, were any photographs supplied until after the proceedings had been commenced against them, but he (the inspector) understood that a number of persons had since received the photographs for which they had paid. He added that he had witnesses to speak to nineteen cases of this character, some of them going as far back as June last year. Evidence was then given in the three cases in connection with which specific charges had been laid, and afterwards other evidence was called to show that the method followed had been practised in a number of other instances. Three cases at Cullingworth, where the photographs were taken in June and August last, were brought forward, and in each instance the parties heard nothing more until Monday of this week, when they were supplied with the photographs for which they had paid previously. In two other cases—one at Bramhope and the other at Lindley, near Huddersfield—no photographs had been supplied at all, although in the first instance the order was given at the beginning of September last, and in the other about the middle of December. Mr. Cass, for Bradley, submitted that although there might have been a breach of contract on Bradley's part, there had been no false pretences. The photographs had actually been taken, and the prisoner was in possession of the negatives, and the fact was that he had simply neglected to produce the photographs and had gone on taking fresh orders instead of completing those previously taken. Since the proceedings were commenced he had, acting upon his advice, got out as many of the old orders as had been possible, and the whole of them would be completed as soon as possible. The accused had been in business in Bradford for about fifteen years, and had never been in trouble before. Boulger urged that he had been simply in the employment of Bradley as canvasser, being paid a commission upon the orders obtained. The Chairman (Mr. J. Roberts) said the bench considered the prisoners guilty, and it had been a question whether they should not send Bradley to prison without the option of a fine. However, they had decided to fine him £7, with the alternative of two months' imprisonment,

on each of the three charges, whilst Boulger would be fined £1, or ten days' imprisonment, in each case.

**EMPLOYERS' LIABILITY.**—At the Islington County Court, before his Honour Judge Edge, Charles Weeks, through his father, James Weeks, 16, Goswell Terrace, Goswell Road, sued Jacob Phillips, photo mount manufacturer, 18, Roscoe Street, Golden Lane, E.C., under the Employers' Liability Act, for £78, as damages in respect of personal injuries sustained. Mr. Lever was counsel for plaintiff, and Mr. Green for defendant. The case came before a jury. Plaintiff, who gave his age as 18, said he was formerly in the employ of defendant, his duty being to work a machine for cutting out cardboard mounts. He worked the machine as instructed by Mr. Mann, the foreman. It was worked by the foot pedal, and the mounts were laid on a piece of cardboard and pushed underneath the knife or cutter by his hands. Occasionally, after the knife had come down, the cardboard would stick, and on the 5th of July last, when the accident happened, he put his hands on the cutter in order to loosen the cardboard. Whilst so doing, the fingers of his right hand slipped, with the result that the two first fingers were badly injured, and subsequently an amputation of one finger had to be performed. His wages at the time of the accident were 10s. per week. Replying to a question, plaintiff admitted that on one occasion the foreman complained about him taking his eyes off the machine whilst working it. Mr. Phillips, for the defence, said he had had the machine in question for twelve years, and had always used it for the purpose of cutting photo mounts. That was the work on which plaintiff was engaged, and the system was to use two cardboards, one as a carrier and the other to cut through. That was the system generally used throughout the trade. Alfred John Mann, the defendant's foreman, who instructed plaintiff in the working of the machine, said he also had distinctly told him never to put his hand on the cutter. Plaintiff had a habit of looking round when working the machine, and witness had spoken to him about it. The carrier-board (a specimen of which was produced in court) was sufficient for plaintiff to do the work with safety. Plaintiff admitted to him that the accident resulted from his own fault. James Lee, an engineer, said machines of that sort were not guarded. He had seen a number of them at work, and for that class of work he had always seen the cardboard used. When doing labels a metal plate would be used, but not for photo mounts. The jury, who went to defendant's premises and inspected the machine during the luncheon interval, gave a verdict in favour of plaintiff, damages £10.

**PLEASURES of the Canvassing Business.**—David Clarey, 44, labourer, Bargoed, and Elizabeth Clarey, 43, married, Bargoed, were summoned at Caerphilly Police Court on Tuesday for assaulting Clement Stone, a Cardiff photographer, and David Clarey was also summoned for damaging two photographs, value 16s. Mr. Herbert Samuel, Cardiff, prosecuted. It appears that in the course of his business Mr. Stone called at defendants' house and arranged a deal with the male defendant. Suddenly, however, defendant picked up the picture and ran to the other end of the table, saying, "Now, you can do as you like. You will have to summon me in the County Court ere you can get anything from me." Complainant, after remonstrating, said he would have to inform the police. Clarey then became enraged, struck him, and said, "If you don't clear out I will murder you." Clarey was alleged to have rushed at Stone with a poker, and then, as he raised another frame to protect his head, defendant struck at him with it, and the iron crashed through the glass and wounded him on the head. Mrs. Clarey also rushed up and dealt him a blow with an ash-pan, after which complainant sent Miss Elizabeth Davies, one of his assistants, for the police. Whilst he was outside his two frames were thrown out on the road, and the door of the house then closed. Mrs. Esther Evans said that she was present when complainant brought the picture, and demanded 16s. 6d. for it. Complainant "gave a lot of impudence," and was then ordered out. She saw Stone strike Clarey on the head with the frame held in both hands, and although the row lasted ten minutes she remained in the back room. The Bench said there had been an assault committed, and fined the male defendant 10s. and costs, or seven days, and the wife was fined 5s. and costs. For the damage the male defendant had to pay 15s., and deliver up the enlargement when called for.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### COLOUR-PHOTOGRAPHY.

To the Editors.

Gentlemen,—In Mr. Otto Pfenninger's reply to my letter of last week he has taken a wide survey of the cameras of the type under discussion. I may say at once that his history of patents for reflector cameras is approximately accurate, but does not affect the statement of Mr. Pfenninger, which I challenged. That statement was "that all cameras of the reflector type have failed to produce triple negatives of equal size." Because of this failure, Mr. Pfenninger informs us, patents have been allowed to lapse. I have not allowed my patents to lapse, because, among other reasons, my cameras have not failed in this respect; nor do I purchase identity of size, as Mr. Pfenninger suggests by reducing the angle of view to 5–10 degs.

Mr. Pfenninger amends his statement, in view of this last consideration. He now says: "If glass of 2mm. thickness is used for the reflectors, and if an angle of view of not less than 25 degs. is permitted, not one of the above now known reflector systems will give negatives for accurate superposition for printing methods."

I again challenge the statement most emphatically, and say that with an angle of view of over 35 degs., and with screens and reflectors exceeding 2mm. in thickness, and not optically worked, my camera "will give negatives for accurate superposition for printing methods."

It is true I do not ask Mr. Pfenninger for the optical solution of this—according to Mr. Pfenninger—optical impossibility, I am content with the accomplished fact. It is said that when George Stevenson made a steam engine capable of running forty miles an hour, a certain mathematical professor at one of our universities demonstrated to a mathematical certainty that such a speed was impossible for any locomotive.

I am quite content for optical theorists to prove the impossibility of my results to their own satisfaction, but I will submit, gentlemen, to such a practical test of the accuracy of my statements as is asked for by Mr. Pfenninger, namely, the production of actual negatives, even not smaller than half-plate size."

I forward for your inspection such a set of half-plate negatives taken in my Camera Patent, No. 4,290, 1905.

I am willing, gentlemen, to abide by your judgment as to their identity of size, and it is demonstrable that they were taken in a camera with an angle of view equal to 30 degs. This should be a sufficient proof to convict Mr. Pfenninger's statement of inaccuracy. An inaccuracy presumably arising from false theory, and perhaps a pardonable ignorance of crucial facts.—Yours faithfully,

36, Craven Park, Willesden, N.W.

EDWIN T. BUTLER.

March 5, 1906.

[Mr. Butler's negatives reach us as we go to press. We have only time to confirm his claims, and must postpone further reference until next week.—Eps. B.J.P.]

To the Editors.

Gentlemen,—With reference to Mr. Otto Pfenninger's letter in your last on p. 178, it would be as well to point out that in "La Triplique Photographique des Couleurs et l'Imprimerie," by Alcide Ducos du Hauron, Gauthiers-Villars, 1897, p. 217, he says:—

"20. Appareil à trois miroirs minuscules.—Le 17 décembre, 1885, je pris à la préfecture d'Alger un brevet d'invention (No. 173,101), aujourd'hui périmé, pour cet appareil, etc."

This your correspondent could not find.

Again, on p. 231 of the same work Du Hauron describes the diatropic method, with one objective and superimposed films.

At the close of the above book the author gives a list of his patents, communications, and work, and this includes the following:—"I have not had time or opportunity to turn these patents up,

but in all probability they will be found in the Patent Office Library."

"Decembre 15, 1874.—Brevet français de 15 ans, sous le No. 105,881: chambre noire héliochromique ou appareil photographique destiné à produire simultanément trois ou plusieurs épreuves d'un même sujet.

"Septembre 17, 1895.—Brevet français de 15 ans, sous le No. 250,802: Polyfolium chromodialytique: Livre à feuillets transparents constitué par une alternance d'écrans colorés et de plaques ou pellicules sensibles, au moyen duquel s'obtiennent simultanément, dans toute chambre noire, les trois phototypes destinés aux tirages photographiques en trois couleurs."—Yours faithfully,

E. J. WALL.

Sidcup, Kent, March 5, 1906.

### CONSTANT DEVELOPMENT FACTOR UNDER VARYING TEMPERATURES.

To the Editors.

Gentlemen,—It may interest your correspondent, "Q. S.," and others, to know that there will shortly be communicated to the Royal Photographic Society a further paper on this subject in continuation of the former one, by Mr. Howard and myself, which will, I hope, give him the information he requires on this subject. It is much to be wished that plate manufacturers could be induced to mark on their boxes the sensitometric constants, including the temperature co-efficient of each batch of emulsion for the particular developer recommended by them.—Yours faithfully,

W. B. FERGUSON.

Hotel Bristol, Arosa, Suisse.

March 3, 1906.

### THE INTERNATIONAL PHOTOGRAPHIC EXHIBITION IN PARIS.

To the Editors.

Gentlemen,—My first answer to your unfavourable note in "Ex Cathedra," referring to the Second Paris International Exhibition of Photography, 1906, you inserted in that part of your paper reserved for correspondence.

Under the same title, "Ex Cathedra," you again refer in your No. 2390, 23rd February, to the same subject, publishing reports from your correspondent that are still more unfavourable than the first ones. This persistent hostility compels me to ask you to publish my reply in the same place that you have used for your fresh attack, namely, "Ex Cathedra."

The Second Paris International Exhibition of Photography, 1906, has the support of all the State Establishments, depending on the following Ministers:—Ministers of Commerce and Industry, de l'Instruction Publique, des Beaux Arts, des Travaux Publics, des Colonies, de la Justice; also the following National Establishments:—L'Imprimerie Nationale, l'Observatoire National, Conservatoire National des Arts et Metiers; and the following Museums of State:—The Louvre, Cluny, Trocadero, Versailles, etc.; Les Museums de la Ville de Paris (Cernuci, Carnavalet, etc.), Le Museum, le College de France, etc.

Under these circumstances it is very evident that the abstention of those societies and syndicates you have named is of no importance whatever, all the more as they do not prevent anyone from participating on his own account.

These groups have no power to keep their members from joining the exhibition. They refuse to join the exhibition *as bodies*, nothing more, and the best proof I can give you that they cannot compel their members not to join is that those houses which you yourself pointed out as keeping back (and which I do not want to name) have actually entered into negotiations with me at the present time. Your informant is certainly deceiving you. I flatly deny his statements, and in the interests of your own countrymen I would strongly advise you to hear both sides of the question before running down such a large undertaking, which it is my right and duty to uphold by all means in my power.—Yours faithfully,

L. GASTINE.

12, Place de Vaugirard, Paris.

Commissionnaire Général.

P.S.—I add to this letter a translation, which will help you to understand it, but it must be clearly understood that I hold myself responsible only for the French terms and their meaning.

[M. Gastine must surely know that the action of the "Chambres



Syndicales" was officially announced, and was commented on in the French photographic Press. Our paragraph of February 23 was simply the announcement of the fact, and our own deductions from it. If those deductions are wrong we are alone responsible. We have no desire or reason to be antagonistic to the proposed exhibition, and though we cannot depart from our custom of inserting letters in the usual place, we refer to the above communication from M. Gastine on the first page of this issue.—Eds., B.J.P.).

#### ENCLOSED ARC LAMPS.

To the Editors.

Gentlemen,—With reference to the article on "Enclosed Lamps and Photography," we would point out that the Janus Company, for whom we act as sole agents, have supplied such lamps for some time past, with highly satisfactory results.—We are, dear sirs, yours faithfully,

DRAKE AND GORHAM, LTD.

66, Victoria Street, Westminster, London, S.W.

March 5, 1906.

#### HALF-DAY CLOSING.

To the Editors.

Gentlemen,—Photographers have many troubles, but to use an Irishism the most of them are pleasures.

Now a mixture of both is the trouble in the question of why we do not fall in with the system adopted in many districts of a general half-day holiday. I am more concerned now with the middle-class establishment, in which I group my own business, and am inclined to think we ought to consider our young people and let them off at the same time and day that assistants in other businesses in the neighbourhood are free, because there are many arrangements made on this particular day by rail, boat, and other companies for this class of customer.

Many of us are granting our assistants time off upon various days in the week, such as many young people are having, viz., beginning on Wednesday and only finishing on Saturday. This plan at times is very inconvenient and not satisfactory to the young people concerned.

There is a fear existing that we shall lose something by it, but I think that is a fallacy. Some believe that assistants from other houses reserve themselves for a Wednesday or Thursday (whichever the closing afternoon is) sitting, and that if they are not open, the probable sitter will visit a neighbouring studio. I have come to the conclusion that assistants do not choose their half-days for any such purpose, and I know that this class of sitter in my district has no difficulty, and gets out in the early morning or in the dinner hour. Now, of course, the closing of one's business and leaving four or five other studios open close by, is out of the question, but if all the photographers in the neighbourhood agreed to close upon the usual half-holiday, then there is no question of losing business, and it is very soon understood by your customers that you are closing for the sake of your assistants. In my young days I never knew what it was to have a half-holiday. From the age of 17 to 30 I never took part in any outdoor sport, and was kept going from nine in the morning until all hours in the evening.

The place of business can be closed easier than in years gone by. Some will say the printer cannot possibly get off. I see no reason at present why he should not. "Where's there's a will there's a way."

Then why not fall into line and see what can be done in your own neighbourhood?  
Brixton, S.W.

R. LANG SIMS,

Member of P.P.A. Committee.

#### THE EXHIBITION OF COLOUR-PHOTOGRAPHY.

To the Editors.

Gentlemen,—I gather from last week's BRITISH JOURNAL OF PHOTOGRAPHY that you propose disbanding your very valuable collection of photographs in colour, but it appears to me that it will be a public calamity to do so. Twenty years hence the collection will be of immense value historically, and to every teacher or lecturer the loan of them would be of the greatest value in illustrating the

development of colour processes. Personally, I think it will be a thousand pities if a strenuous effort is not made to keep the collection intact. Doubtless many of the gentlemen whose kindness enables the exhibition to be held will be willing to present their specimens if a sufficiently important home is provided, and so far as financial aid is required in purchasing where necessary, and preserving them, I have no doubt whatever that it would be immediately forthcoming. If only in justice to those who have spent so much labour in producing the examples they should be kept as records of progress and to show what excellent results have been obtained at the present time in spite of the many technical difficulties with which the subject is surrounded.—I am, dear sirs, yours faithfully,

The Polytechnic Institute,  
309, Regent Street, W.

HOWARD FARMER.

[Mr. Howard Farmer's suggestion that the present collection of examples of colour-photography should be preserved intact is one which, of course, must depend for its execution first upon the exhibitors. Most probably a proportion of the exhibits, large enough to be representative of the whole, could be obtained. We shall be glad to hear the views of exhibitors as regards the establishment of the collection permanently.—Eds., B.J.P.).

## News and Notes.

IMPROPER Postcards.—The police court reports of the past week show that magistrates are determined to deal severely with offenders under the Obscene Publications Act, and though the publishers of the cards have so far escaped unscathed, the list of convictions should deter dealers from touching anything which offends against conventional ideas of decency. The sentences which have come under our notice include:—

Two months' imprisonment in default of payment of a £10 fine.

Three months' hard labour.

£5 5s. fine, and £3 3s. costs.

£2 fine, and £1 19s. costs, or a month.

In these cases large numbers of cards were ordered to be burned, and in another instance where 40,000 cards had been seized, no order was made, as the defendants consented to have the cards destroyed.

THE Free Portrait Swindle.—It is satisfactory to find that photographers of standing in their districts can rely on the co-operation of the local press in making known the fraudulent character of the so-called "free portrait" dodge. Thus we see in the "Hackney and Kingsland Gazette" a letter on the subject from Mr. F. A. Bridge, the well-known secretary of the Photographic Convention, which is worth quoting as a reasonable statement of the case:—"Sir,—As I have lately had several callers to enquire why I have not sent the enlargement as promised, or to ask for the return of the original, it is evident the free portrait swindle is going on in this neighbourhood, and someone is using my name and address in connection with it. I shall therefore feel obliged if you will allow me, in the interest of your readers, to say, that I have nothing to do with anything of the kind, and do not employ canvassers for any purpose whatever. I must candidly confess I have little sympathy for those who are taken in by the free portrait swindle, because they evidently are too thoughtless to ask themselves why someone of whom they know nothing, and who knows nothing of them, should be so anxious to present them with a large photograph. It is apparently the old story, viz.,—promise to make an enlargement for nothing, and charge as much for a rubbishy frame as any respectable photographer would charge for the whole thing. There have been several convictions lately in regard to the free portrait swindle, and if I can get hold of the culprit or culprits who are going about using my name and address, there will be others, or it will not be the fault of yours truly." F. A. BRIDGE."

Mr. A. C. Baldwin, who for some years past has demonstrated products of the Paget Prize Plate Co., Ltd., has joined Messrs. Wellington and Ward in a similar capacity.

## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

Hannam, Windsor Road, Oldham. Photograph (Combination) of Werneth (Six Views).

Javis, 45, Coulston Road, Lancaster. Photograph Group of Generals Mends and Kelly, with Officers and Guests. Photograph of Old Colours of 1st Batt. "King's Own" Royal Lancaster Regiment. Photograph of Lieuts. Conran and Somerville with Old Colours.

Pottle, Eastbrook, Wimborne. Photograph of the Meet at Criche House Wimborne.

H. Franklin, 56, High Street, Slough, Bucks. Photograph (Flashlight) of the Slough Amateur Dramatic and Operatic Society Performing "The Mikado." Ingham, Winton House, Ashton-on-Mersey, Cheshire. Photograph of H. Hardy, Esq.

### DRAWING REGISTERED:—

Locke, 58, Haverstock Road, Knowle, Bristol. Drawing entitled, "The Boy with the Nuts."

**DIAPHRAGM NUMBERS.**—(1) I have a lens (of French make, I believe) marked 0.25, 0.30, 0.50, 1, 2, 4, 8, 16. I am told 1 corresponds to  $f/10$ . Can you give the other equivalent stops? (2) I have seen a notice somewhere of a "sodium flame" lamp. Can you tell me where to get particulars? It allows the rapid printing of P.O.P.—3 JAYS.

1) The lens is marked according to the International Congress of 1889; 1 is  $f/10$ , and the other numbers are proportional to the exposure required. Thus 2 is  $f/14$ , 4 is  $f/20$ , 8 is  $f/28$ , and 16 is  $f/40$ . (2) We have no knowledge of the lamp, and we certainly cannot imagine that a "sodium flame" would be of the slightest use for printing on P.O.P. You must be confusing the lamp with those of the enclosed arc type. See our last issue.

**ND J.**—The form of studio advocated in H. P. Robinson's "Studio and What To Do In It" is as effective to-day as ever it was, and we do not think any other design is considered superior by practical authorities. Of course, adjoining buildings and the direction of the available light frequently necessitate modifications, and a studio is often what is possible rather than what is desired. Of the two sketches you enclose A is preferable, but we should be inclined to increase the slope of the glass by having the ridge nearer to the 4ft. 6in. wall. This greater slope has several advantages—there is more room for a large background, the roller blinds work more easily, snow does not lodge so readily, and the rain water is shot off more rapidly, with correspondingly diminished risk of a leaky roof. We are averse to the much flatter roof which you show in the B sketch, and the separate side and top lights would necessitate two distinct sets of blinds. The roof, having unequal sides, requires to be carefully constructed to ensure sufficient strength; but your architect will no doubt see to this.

**ERENCE BOOKS.**—I require a reference book on photography, and desire to have either in India or from a European bookseller. The book may be such that it may enlighten me on reference the full explanations of all the technical terms and photographic

expressions. I know some of the reference books, but I do not know whether they will serve the purpose. I therefore note them down and request you to let me know whether they will do for my desire. (a) "Cyclopædia Photography," by E. L. Wilson, Ph.D.; (b) "Photographic Reference Book," by W. A. Watts, M.A.; (c) "The Encyclopædia of Photography," by Walter E. Woodbury; (d) "Dictionary of Photography," by E. J. Wall.—F. B. Z.

Certainly (d) (the latest edition) is the best of the volumes you name, and we would also recommend to you "Instruction in Photography," by Sir W. Abney, 7s. 6d.; and "The Science and Practice of Photography," by Chapman Jones, 5s.

**SILVER PAPER.**—I should be glad if you could give me a formula for silver printing paper requiring only washing to finish it.—H. H. URRY.

The only practicable process we can suggest to you is the Kallitype, which is strictly an iron process giving a silver image. You will have to fix in hypo, and we think you will find this operation indispensable to any process. You will find full instructions on Kallitype in "The Photo-Miniature," No. 47 (6d.). Let us hear from you if we can assist you further.

**THE HALF-TONE PROCESS.**—Would you kindly inform me what is the best book to get on the half-tone process, as I am desirous of going into that line of business?—INQUIRER.

"The Half-Tone Process," by Verfasser (Iliffe and Sons, Ltd., 5s.).

**THE RIGHT TO PUBLISH.**—I have taken a few photographs of a church, interior and exterior. Do I need any permission to publish them as postcards? I have made enquiries—some say I can, while others say I cannot.—FRANK E. JACKSON.

Certainly you can, so long as you have not been paid by anyone for taking the photographs. The copyrights are yours, and you should register them. Have you read the article on this question in the current "Almanac"?

**SPORTS.**—A reflex camera is very largely used—in fact, we should say it is almost the invariable rule for press work of subjects other than those in extremely rapid movement. A lens of aperture  $f/4.5$  to  $f/5$ , in conjunction with one of extra rapid plates, is the common practice in making the best of gaslight. For subjects such as bicycle races, etc., at close quarters, a direct camera of the folding focal plane type is probably better. You would do better with metal or pyrocathechin for this class of work.

**JAMES E. ANDERSON.**—The firm is no longer in existence.

**CHAS. MARSHALL.**—1. The stains you obtain are due to the precipitation of the earthy salts in the ordinary tap water you use. If you want to use ammonium picrate, you must not only wash your plates in distilled water, but use distilled water for your solution. We should strongly advise you to use tartrazine, which gives better rendering with less exposure. 2. Yes, you can obtain it from 6, Harp Alley, London, E.C.

**POSTCARD NEGATIVES.**—1. The best way to letter negatives for postcards in P.O.P.? 2. Can you give me the address of firms who supply machines for that purpose? I often see foreign photographs with good letterpress on the bottom, giving name of places, etc. I require something like it, as I find writing on film is not good enough.—P. Y. R. O.

1. The titles are photographed down to the size required—a good many made at one exposure on one plate—and then the negative is cut into strips and each title stripped off and transferred to the postcard negative, a small strip of which underneath the picture is cut out to receive it. This is necessary when adding a title to print in black on a white ground. 2. If much wording is desired, the best plan is to send the cards to a letterpress printer.

**THE SITTER'S RIGHTS.**—If an operator exhibited specimens (that were taken while he was employed in a studio), in his own studio, would he or his late employer (by whose permission he had the specimens) be liable to be proceeded against by any sitter, or could the sitter only object to them being exhibited?—OPERATOR.

The photographer who took the portraits to the sitter's order



would no doubt be liable for allowing the operator to make use of the portraits, and the operator also would be restrained from exhibiting the portraits. The sitter has the sole right to dictate as to the use of the negative. You should look up the law of the question in the article on "Copyright" in the "Almanac" for 1906.

**ADUROL.**—It appears from the "Almanac" that there are two forms of adurol, the monochlor and monobrom of quinol respectively. 1. Can you tell me whether there is any difference in developments with these two, and which is to be preferred? 2. Adurol is advertised by Hauff and by Schering, but they do not say which kind they offer. Can you say?—C. E. F. M.

1. No marked difference in our experience. 2. Hauff's is the chlorine compound; Schering's the bromine.

**H. F. (Lancaster).**—"Photographic Lenses," by Beck and Andrews, 1s.; "The Watkins Manual," 1s. Both from any dealer.

**A. B. C.**—Better submit best prints. Choose them to illustrate particular districts. Unless they are of a very special character 7s. 6d. to 10s. 6d. each is all you will get for the negatives.

**YTHOMIT.**—We presume you want to reduce the light further, and for this purpose you had better use a calico or other white blind of heavier substance.

**DAMAGED APPARATUS.**—I should value your opinion on the following. I had just finished photographing group of home football team in front of their goal, and before I could get away (scarcely two minutes had elapsed and the game was not starting) one member of the visiting team was practising, kicking the ball against my tripod, 12 x 10 camera, breaking it. I spoke to the individual and to the secretary, and made a claim of 6s. 6d. for repairs. The secretary wrote yesterday declining to compensate me, saying they were not responsible for action of any of their members. Do you think I have a legal claim against the club or its member?—A CONSTANT READER.

We do not see how you can hold the Club responsible, seeing the damage was done by one of the visiting team. Your claim, we should say, must be made against that individual. You do not, however, say if you were employed by the Club to take the photograph, or whether you were permitted by it to take the picture on your own account. If the former, it might be ruled that the Club should give you proper protection while doing the work.

**N. M., Glasgow.**—We can trace no such lecture. Tannin for what? And are you right in quoting "Ratten"? Your query is too vague for us to answer.

**E. ORELING.**—We have no recollection of the formula as you describe it. You will find hydroquinone formula on page 1054 of the "Almanac" (as given for black tones), as good as any you can use.

**GREEN TONES.**—Some time ago I saw some very nice specimens in a pretty green shade. Can you please tell me what paper they would be done on, and where I could get it? They were matt surface prints, very much like a bromide, but of a pretty light-green colour; but perhaps this was obtained by some special bath. 2. I have two portrait lamps, with four incandescent burners on each. I have tried one each side of sitter, so that there is no shadow, but find I get the face so dreadfully hard and no detail whatever in the dress. Can you tell me the reason? I have tried lamps at various distances from the sitter, and find result much the same, except at a long way from the sitter I get negative more under-exposed. I give about 12 seconds' exposure. The faces are always well exposed, and come up very chalky, and eyes so staring, that I have not had any good results. I have found lamp useful on a dull day for relieving. I have been able to get good ones, whereas I could not have taken at all.—D. G.

1. No doubt the carbon process was used. You can obtain the tissue from several makers. See our advertisement pages. 2. If lights of equal power be placed on either side of the sitter, it is not at all surprising that there are no shadows, and that the face is hard and flat, and the drapery lacking in detail. Imitate the effect of daylight as much as possible by having, say, six burners on one side and two on the other. Or by having both

lights arranged on one side—one a little more forward than the others—and softening the shadows by reflectors.

**H. FLACK.**—You are at liberty to start as a dealer without qualifications other than such as will satisfy the trade that you are a bona-fide vendor of apparatus and materials.

**TONING BROMIDES.**—I have been trying to bleach some bromides, for the purpose of toning them, with W. Somerville's formula: potass. ferricyanide, 10 grs.; potass. bromide, 10 grs.; water, 1 ounce. I had the formula made up twice by a chemist, once with ferri, and once with ferro. I have since made it up myself with ferri, and cannot get it to bleach either bromide prints or negatives. The bromides were done about two months ago on Kodak platino-matte, developed with amidol, and fixed in acid hypo (Velox formula). The negatives were developed with pyro-soda, and fixed in plain hypo. As I am a professional and flatter myself a clean and careful worker, I cannot understand why the bleaching would not work. I immersed the dry print in the solution and left it overnight without effect. I have seen the process worked, and want to show my employer the effect produced, and should be glad if you can explain any possible reason of non-success. I have varied the proportions of ingredients to Wellington and Ward's formula, but no result. BROMPTON.

We are quite unable to give any explanation of the non-bleaching action. Occasionally, we have noticed that an image will not completely bleach, but remain a light brown, but this seems to have no ill-effect on the final result. If our correspondent will forward us a print, we will try and bleach it for him.

**ENLARGING DIRECT.**—Can you inform me if there is any process to enable an enlargement to be made on bromide paper direct from a photographic print, without in the first place making negative? If so, will you kindly say where I can get the necessary information?—J. H. BOWHILL.

It would be possible by means of an enlarging camera to project an image of the print on to bromide paper, but obviously the result would be a negative. This could be developed and well washed, and the image converted by means of chromic acid into silver chromate; then the previously unaffected bromide of silver could be developed, and a positive would be thus obtained. It would be possible also to develop the enlargement with eikonogen plus thiocarbamide, and obtain a positive direct. Neither process is practical, and it would be better to make a negative.

**RETOUCHING.**—V. M. M.—The quality of your retouching is second-class only, and the time taken over each example is much too long for the finish given. First-class retouchers would be twice as quick—also placing on the very best work. Your method must be defective. You merely smooth up, and little or no attempt is made to improve the modelling—in fact, you remove it, as instance the wrinkles in the old man's brow, and the line from nostril to mouth. Under careful supervision you would soon surmount these difficulties, and get greater variety into your touch—variety suitable to the different ages of the specimens you forward.

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## The British Journal of Photography.

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A PORTRAIT STUDY.

MAJOR C. PUVO.

*Negative made with the synthetic lens of two crown meniscuses working at f7. See articles by MM. Demachy, Puyo and Pulligny, on another page.*





# THE BRITISH JOURNAL OF PHOTOGRAPHY.

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## SUMMARY.

The exhibition of colour photography at these offices finally closes tomorrow, Saturday, at 12.30.

The annual meeting of the P.P.A. took place on Friday last, when Mr. Martin Jacolette was elected President in succession to Mr. T. C. Turner. An addendum to the scheme of assistants' certificates was advanced to provide for the large class of "general" assistants. (P. 209.)

"Free sittings" and "free portrait" swindles were the subjects of long comment by Mr. T. C. Turner in his address as retiring President of the Association. (P. 205.)

Half-day closing of photographic establishments once a week. H. Midwinter reports that leading photographers in West Brisbane have resolved on closing at two on Saturdays. A member of the P.P.A. repudiates the suggestion that the practice will be loss to photographers. (P. 218.)

The formation of a colour photography society is suggested. (P. 219.)

One of the oldest pioneers in photography has died in the person of F. Maxwell Lyte. (P. 206.)

Some suggestions are made on obtaining uniformity in the commercial production of portrait negatives. (P. 203.)

The Professional Photographers' Society of New York has planned exhibition by its members, each of whom is to contribute one print bringing the price at which such work might be produced per dozen. (P. 210.)

A new printing paper of the self-toning class was demonstrated by Ernest Morgan in London last week simultaneously with its appearance on the market. (PP. 207 and 215.)

Hereford is named as the meeting-place of the Photographic Convention next year. (P. 216.)

## EX CATHEDRA.

### The Non-Return of Specimens.

Complaints continuing to reach us of the non-return of specimens to those applying to persons or firms whose names appear under a box No., our publishers desire us to make an announcement which we hope will apply an effectual check to this abuse of our advertisement pages. Advertisements asking for specimens must give the full name and address of the advertiser, and those replying to announcements of either class must take the sole responsibility for the safe return of their specimens. In future we will not insert under a box number advertisements asking for specimens to accompany the statement of an applicant's qualifications; and we reserve the right to delete such request from advertisements to appear under a box number. This rule, we believe, will relieve assistants of any cause for complaint, and will defeat the aim of advertisers who, under a cloak of anonymity, obtain specimens which they have no intention of returning. Non-return of specimens, we believe, is due, in most cases, to gross and inexcusable carelessness. On the other hand, we do not hold the applicant entirely innocent in the matter. By his omission to enclose a stamped and addressed wrapper and to mark distinctly each of his specimens with his name, he is not infrequently the sole cause of the injustice of which he so loudly complains. If assistants generally will observe the above conditions, and if they will co-operate with our publishers in refusing to send specimens to a box number, instances of retention of specimens will be things of the past.

\* \* \*

### A "Single-Picture" Exhibition.

The Professional Photographers' Society of New York, which is an organisation alike in aims and objects to the Professional Photographers' Association in this country, is projecting a novel exhibition, to be opened on the occasion of its annual meeting in April. Each member is to send one picture only, and that one made within the year. He is asked to make, mount, and deliver such a picture as he would wish, and could afford, to offer his customers for five, eight, ten, twenty, or thirty, dollars per dozen. There is to be no competition. The members are to foregather and compare notes on what each regards as a production with a certain amount of individuality in it. We shall be curious to hear how the proposal is taken up by the members. The idea is one which should certainly accord with the American's willingness to talk shop with the brethren of his craft, and the exhibition can hardly fail, it seems to us, in raising the standard of photographers' work and of helping the average small man to move with the times.



### The Art Training of Photographers.

Mr. J. C. Dollman, in his lecture at the Society of Arts last week, which we propose reprinting in our next issue, suggested that a course of art training would be very desirable for photographers who have artistic aspirations, and few will disagree with him. Even a very little knowledge of first principles would save us from much that passes for art in the photographic world, though it would not so pass in the world of true art. It would be a great gain if photographers knew how to respect and make use of the limitations of their craft. At present they far too often treat them as awkward fences that must be rushed and got over at all hazards, and the result is that they are left sitting on these fences, unwilling to climb down the way they got up, and quite unable to descend the other side. It would also be a gain if they learnt the paramount importance in all art crafts of using the capabilities of their materials to the best advantage. Two great capabilities of photography are its unique power of delineation and its extreme delicacy in the representation of detail and gradation. If painters only possessed such powers, they would know how to use them, and would certainly not neglect them. The photographer has both at his command, but too often despises both equally, and the trouble that he will take to eliminate them would greatly astonish a real artist, if he were to be let in behind the scenes. A little true knowledge of art would also enable the photographer to place a right interpretation on various terms that have well defined meanings in the art world, but so often degenerate into cant phrases and catchwords in the mouth of the would-be artist. For instance, he would learn that "the power of creation" (a term much used by Mr. Dollman in his paper) does not imply the power of making something out of nothing. Also that "breadth" does not mean the diminution of definite purposeful detail and the substitution of indefinite meaningless confusion. Breadth is the very opposite of confusion, and it is not even added to by scratching over the surface of the print, though some few photographers seem to think it is. After a few years' study the photographer might also arrive at the important truth that "impressionism," properly so-called, is not within the scope or capabilities of photography. All the photographer can do in this direction is to produce bad imitations of what Mr. Dollman called "beginnings of pictures," executed by those described by Mr. David Murray, R.A., as "impressionists because they could be nothing more."

\* \* \*

### A Life School for Photographers.

Mr. Dollman's suggestion of a course of general art training for photographers would be especially difficult to carry out, in view of the fact that the average photographer so quickly masters his tools, and so quickly begins to turn out "exhibition pictures," and so soon finds an entry into the semi-art world of photographers, that it is difficult to convince him that he is in need of any general art training at all. He is already a maker of pictures, and, therefore, in his own estimation, is better qualified to be a teacher than a student. Mr. Dollman, however, made the very definite suggestion of a life school for photographers, and it appears to us that such a school established for such a purpose would not only be of undoubted value, but might easily be very successful. We agree with Mr. Dollman that "the greatest things that photography is going to do in the future will be associated with the figure,"—in fact, we think that this statement has a past and present application as well as a future one, and it is, at any rate, evident that the great majority of photographers depend for a liveli-

hood upon figure work and that alone. A well supervised and definite course of study in a life school would be of the utmost value to the young professional, whose ideas of the possibilities of figure work in the studio are often so limited that he degenerates into a one-pose man, with no interest in his work excepting so far as it influences his banking account.

\* \* \*

### The Photographic Exhibition in Paris.

On another page of this issue we publish a letter from M. Gastine addressed to the editor of the "Photographic Monthly," by whom it has been handed to us with permission to publish it. We suppose we may assume that M. Gastine, who complains of the hostile attitude of certain of the photographic Press in this country, has no objection to our making use of his communication, although he does not address it to us. His account of the opposition of the "Chambres Syndicate" to the proposed exhibition is that these four bodies are insignificant, and are in fear of British manufacturers making a prominent show at the exhibition. The aim of the "Chambres," we may infer from M. Gastine's remarks, is to throw cold water on the exhibition, and so create the impression that the enterprise cannot be brought to a successful issue. Although this official action has been taken, individual members of these bodies, we are informed, will exhibit, notably the firm of Lumière. Yet it is no disparagement to the great Lyons firm to say that one swallow does not make a summer, and we should wish to know that a like support is forthcoming from the French photographic trade. As for M. Gastine's view that the Photo-Club and its active members, MM. Demachy, Puyo, Bucquet, and others representative of pictorial photography in France are directed by a small section of the syndicates, it may be dismissed as preposterous. We are not so well informed of the Société Française de Photographie, but we are pretty certain that any member of it would repudiate such an allegation in regard to the Société.

\* \* \*

### Requirements in Local View Work.

The remark that the local view business has been killed by the big view publishing houses and the picture postcard craze is often heard nowadays. Yet we think the man on the spot will always find that at least some view work can be done, and that enough to make it worth while. The fact of being on the spot all the year round means that the best views can be selected and taken under the most favourable conditions or under various favourable conditions. Just now the opportunities for view work are very good. During the next few weeks many pictures may be secured in which the trees with the buds or opening leaves will half conceal and half disclose ruins or other buildings in the middle distance. The spring time usually gives a clearer atmosphere for distant views, and where possible these should be taken on orthochromatic plates, using at least a ten times light filter if one of the yellow-green sensitive brands of plate is employed. Those views in which near foliage occurs may need to be left until June possibly, for then the days are frequently stiller, and a windless day is essential if the best results are to be obtained. But even in spring quiet days come occasionally, and should be made the most of. While we thoroughly advocate the production of pretty and artistic views, it should not be forgotten that historic and topographic views find the greater number of purchasers, and a view showing the situation of the principal hotel, or the Constitutional Club, will find purchasers even if it possesses no pictorial quality.

**Lenses for Portraiture.**

The article by M. Leclerc de Pulligny, on "Anachromatic" lenses, which appeared in our issue of March 9, contains some valuable hints on the regulation of the distance between sitter and lens, which hints we specially commend to the notice of those who so frequently ask for information relating to length of studio and focal length of lens. It cannot be too frequently insisted upon that too short a distance between lens and sitter must inevitably produce distorted or apparently wrong perspective, and, therefore, must destroy the fidelity of the "likeness." If a large image is required, lens of long focal length is a necessity, and no other expedient (save enlarging) can be adopted if the photographer has any desire to do justice to his sitter. Mr. C. Dollman, A.R.W.S., in the lecture on "Art in Painting and Photography," which we shall shortly print, emphasises the same point when he states that many photographs that represent natural expression and faithfully record the features fail to be successful likenesses, because the camera has been brought too near the sitter and the perspective is exaggerated. In Messrs. Goerz's recent pamphlet on "The Telephoto Lens" there is an example of the precise effect produced. The effect is intentionally exaggerated for purposes of illustration, as in the one case the distance of the camera is 6 ft. and in the other only 1 in., but the character of the defect is admirably shown.

\* \* \*

**Diffusion Focus.**

A very satisfactory note is struck by Major Puyo and MM. Demachy and Pulligny, when they condemn, "that woolly fuzziness that all real artists detest." The diffusion that they claim to be produced by the anachromatic lenses is of an altogether different nature to the so-called diffusion produced by putting the image out of focus or by resorting to even creditable expedients. It will be noticed from the details given that sharp focus is secured with the anachromatic lenses on the violet image so that the result gives the impression of sharpness. The illustrations show that the impression of sharpness is well preserved in the prominent high-lights and adjacent shadows, while the half-tones and least important shades and shadows are softened by diffusion. The effect is very different from that produced by throwing the important details and the less important all out of focus together. The one gives "breadth," the other destroys it, though too many photographers wrongly imagine that "breadth" is gained by the destruction of focus. It will be seen from Major Puyo's paper that the degree of sharpness attained is largely under control by varying aperture and exposure. It would appear that it must also be affected by the colour sensitiveness of the plate, but this he does not mention. A point of interest is the behaviour of these lenses when used with orthochromatic plates and properly adjusted colour filters. Upon this we have no information, but true values of such importance in artistic work that information is desirable.

\* \* \*

**Substitute for Platinum.**

According to the "English Mechanic," an American claims to have discovered a substitute for platinum, which, it is said, can be manufactured in large quantities in a very short time. The new metal is greyish-white, with a specific gravity and atomic weight about the same as platinum. It melts at about 3,630 deg. F., and is malleable and ductile, and can be rolled into sheets, drawn into wire, and is not attacked by acids. A correspondent to the same journal states that he has discovered something of the same in a deposit in Jersey. If all these statements are true, we may yet have another metal added to those which are at present utilised for photographic printing processes.

**The Exhibition of Colour Photography.**

The suggestion made by Mr. Howard Farmer last week in our columns that the exhibition of colour photography which closes to-morrow should be preserved intact as far as possible has been very favourably received by a number of the exhibitors. At the time of writing, those who signified their willingness for their work to be transferred to a permanent collection are:—Miss S. A. Acland, F.R.P.S., Fuerst Bros., H. O. Klein, E. R. Grills, The Autotype Co., Otto Pfenninger, Leon Vidal, Dr. Albert Norman, Edwin P. Butler, and Captain Lascelles-Davidson. In one or two instances the actual examples in the exhibition are not available, but would be replaced by others. As to the home of the collection, several suggestions have been made, but we will wait until other exhibitors have had time to communicate their views before referring further to the proposal.

\* \* \*

**Methods of Getting Soft Enlargements.**

One of the advantages of enlarging by daylight is that the stronger type of negative, which is largely used for such processes as matt, collodio, chloride, and carbon, will give soft results. Using such illuminants as oil or incandescent gas, the more opaque portions of the negative are not penetrated by the light before the shadows are fully exposed, and hence hard pictures result. Daylight, too, is less apt to emphasise the small defects in film, varnish, or glass, owing to its diffused character. Softness of contrast may be secured with artificial light by the use of a rapid bromide paper and dilute rodinal, say, 1-100, as a developer, development being stopped when the shadows are sufficiently strong by transmitted light. By enlarging on a rough-surfaced paper, softer effects are obtained, the shadows being broken up somewhat, and a cream-tinted paper still further softens the result. When a bromide is toned to a sepia colour by the well-known method of iodine bleaching and subsequent sulphiding, the contrasts are not only softer, but the variation of colour is pleasing. Still further modifications may be obtained by the employment of bolting silk, though this should be done with caution on account of the softened definition which is not always acceptable.

**THE PRINTING QUALITY OF NEGATIVES.**

One of the most important points in professional photography is uniformity of results, and we think most workers of experience will agree with us when we say that if uniform negatives are produced more than half the difficulty is overcome. It may be taken for granted that the commonest variations are variations in printing strength or range of gradation—that is, negatives are made too strong or too weak for the process for which they are intended. That a negative shall have shadow detail, or, in other words, that the gradation shall commence with the recording of the darkest tones of the subject, is practically essential for every process, and is usually attained by any worker with a little experience. Sufficient exposure ensures this quality. The various steps in the scale of gradation must also be recorded, and this is to some extent a matter of correct exposure, but more a matter of excellence in the quality of the emulsion and liberality in the coating of the plate. The range of gradation, or difference between the light stopping power of the shadows and of the high lights, is affected by several factors, but mostly by the duration of development. The "density" is usually estimated by the worker by transmitted light from the dark-room lamp, and it is in this exercise of judgment that the errors arise. If we can eliminate judgment, which is always liable to error, and work more or less mechanically, uniformity of result is more probable. Of all the points in photographic practice there are few more difficult than



the estimation of density during development and the decision as to the correctness of the range or printing quality in the finished negative. If we could but ensure absolutely uniform conditions our plates might be developed for a uniform time, and uniform results would be obtained. Is it, then, easier to allow for the variation in certain factors, which, as we shall see presently, affect the range of gradation in our negatives, or to adhere to the old method of stopping development when, after a visual examination by transmitted light, we judge that sufficient density has been obtained?

We need hardly argue the value of uniformity in professional work. The amateur is often advised to try his negatives in various printing processes until he hits upon the most satisfactory result. This is another way of saying that the amateur is often unable to produce a definite type of negative at will. Obviously the professional who takes his order for carbon or platinotype must produce his prints in carbon or platinotype, and his negatives must be made of a character suited to the selected process. How may this be done with the greatest ease and certainty?

Let us first of all consider what are the causes of variation in the range of gradation or printing quality of negatives, and to avoid complication let me consider the matter solely from the standpoint of portrait work in the studio. Variations in range of gradation may be produced by:—

1. The contrast in the subject.
2. The brand of plate used.
3. The exposure—i.e., so-called over or under exposure.
4. The constitution of the developer.
5. The temperature of the developer.
6. The duration of development.

Taking the six points enumerated and examining each separately and from an every-day practical point of view, we may arrive at certain conclusions.

1. The contrast in a portrait subject is largely under the photographer's control. An exceptionally strong light can be softened in the usual way by means of a diffuser, and the contrast may be still further reduced by means of reflected light. When the light is very weak and poor, however, the contrast in the subject may be too slight, and in such cases steps must be taken to *increase* the range of the negative. Over-exposure must be carefully avoided, and development slightly prolonged. Negatives taken under such conditions are frequently intensified, a process always to be avoided, if possible.

2. The brand of plate used may be always kept to, and its characteristics and density-giving power become known. Any variations under this head would only arise from differences in various batches of emulsion, and would be so slight as to be negligible.

3. If work is being constantly done under ordinary studio conditions exposure should furnish few difficulties, for the latitude of modern plates is such that half or double the normal or "correct" exposure may be given without the range of the negative being practically affected. As a rough guide to exposure it will be found that one second may be given for every minute a Watkins meter takes to darken to the light tint. The meter is placed in the position the sitter will occupy, the stop in the lens being  $f/6$ , and the plate of a speed of 200 H. and D. The subject is assumed to be an inch and a half head and shoulders portrait.

4. The constitution of the developer must be kept constant. Stock solutions should be made up by careful measure, and not by guess-work, and the working solutions must also be measured each time. An important point to be observed is that sufficient sulphite of soda must be included to prevent any stain, even in those cases where unavoidable variations of other factors render it necessary to prolong

development. As Mr. Chapman Jones has frequently pointed out, nothing is so uncertain in its effect upon the printing range as stain, which, it is safe to say, cannot be produced in uniform degree. It must not be forgotten that at summer temperatures a solution of sodium sulphite will deteriorate in as short a time as twenty-four hours, absorbing oxygen from the atmosphere and becoming sodium sulphate, when stain-preventing power is lost.

5. When we come to the question of the temperature of the developer we touch the weakest spot in the system we are advocating. Although the variations of temperature in England are much slighter than in America or on the Continent, it is highly probable that the actual temperature in dark-rooms varies more here than anywhere else. Where both heat and cold are greater, steps must perforce be taken to produce comfortable working conditions, but in England the proportion of really cold or very hot days is small, and so no adequate provision is made for them. Under any method of working, however, a low or a high temperature in the developing room brings its attendant evils. The dark-room should be so situated as to be not unduly exposed to the outside air or to the direct rays of the sun, and by some method or other it should be warmed in winter to a temperature of 60 deg. Fah., and kept cool during the summer by proper ventilation. By hanging up a thermometer in the room the variation from the normal temperature—and 55 deg. or 60 deg. may be regarded as such—can be noted, and, as Mr. Chapman Jones suggested in his Traill-Taylor lecture, allowance may be made accordingly in the length of development. One or two experiments will readily show what percentage of increase must be given when the thermometer falls 5 deg., and what percentage of decrease when it rises an equal amount. Some developers are more affected by variations of temperature than others, hydroquinone being almost inert at low temperatures.

6. The duration of development is well understood to be the principal factor affecting range—the longer the time of development the greater the range. If, however, fog occurs, either through stray light, unsafe illumination in the dark-room, or an unsuitable developer, the fog may develop to such an extent as to cause a diminution of range with prolongation of development. Also, if the plate has been over-exposed, and potassium bromide added to the developer to counteract this over-exposure, the darker tones will only be held back during the early stages of development, and the printing range may be lessened by carrying development beyond a certain point. That point will vary according to the degree of over-exposure.

To summarise, we see that the plate and the constitution of the developer are two factors out of the six which may be kept constant. Where the contrast in the subject was very slight the plates would be placed in a separate box for development for an increased length of time—say 25 per cent. longer. With this occasional exception the contrast in the subject is also a constant. Experience enables a reasonably correct exposure to be given, and by taking ordinary precautions we have seen that the temperature of the developer need not vary to any extent during the greater part of the year. It will thus be seen that exposed plates may be developed for certain lengths of time, and that negatives suitable for the various printing processes can be obtained with more certainty than by the old method of estimating density. The range of gradation for any particular process varies with the make of paper employed or with the strength of the sensitising bath, and the personal equation also comes in, for some workers prefer a rather stronger negative for a process than others. The following rough figures, however, will suffice to indicate what may be done. Four plates, all exposed with approximate correctness, were developed in the same developer

per for six minutes, eight, twelve, and sixteen minutes respectively, and the resultant negatives were suitable for printing in P.O.P. or bromide, platinotype, black carbon, and red chalk carbon respectively.

We have been led to give more detailed consideration to this subject because we have quite recently had several

cases brought to our notice where workers seemed unable in the ordinary way to get negatives which gave them the character of print their clients and they themselves desired. The method we have advocated is practically that in use in the developing machines which have been so successful during the past few years.

## “ INVITATION SITTINGS ” AND “ FREE PORTRAIT ” SWINDLES.

In the course of a brief review of the year's work, the retiring President of the Professional Photographers' Association (Mr. T. C. Turner), at the annual meeting held on Friday last, emphasised the two dangers—one internal and the other external—to which professional photography was exposed. The substance of his address is given below.

It affords me very great pleasure to perform the duty which devolves upon every president, of submitting a few observations with reference to the progress of our Association; but I could not allow myself to proceed without first offering to Mr. Ellis my personal thanks for his kindness in presiding over many of the meetings in London. When, gentlemen, you were good enough to elect me to the honourable position, I was obliged to regard it chiefly as a compliment to my provincial brethren, knowing that my professional duties in Yorkshire could prevent me from being with you as often as I desired. I need, however, hardly say to those of you who have enjoyed the privilege of Mr. Ellis's direction that the Association has lost nothing by these deputed duties.

In glancing over the annual meeting reports of various trade and professional associations, one is often struck by a certain similarity of experience. Members forget to pay their subscriptions, and fall away from the body at whose birth they so enthusiastically rejoiced.

Well, in a measure, perhaps, our Association also suffers from the effects of reaction, and especially when, owing to the difficulties of meeting together, we miss the cheering, supporting influence of large gatherings. But, in spite of this, I have never met a photographer who regards as vain the work which has been done during the past four years by the committee in London and by the branches in the provinces.

It seems to me that, divergent as our view may be as to the method of advancing *individual* professional interests, we are all agreed that the aims of the Association are healthy and altruistic. It is in this spirit we have approached the vital question of the “ invitation sitting.” No one supposes for a moment that any rules of business conduct could be framed, or if framed, would gain the loyal support of all our members, unless they are convinced that wisdom lies that way, that common sense demands mutual protection, and perhaps individual self-sacrifice. Our efforts must therefore remain largely of a missionary character, and be directed towards the formation of a certain professional tone or opinion which is in itself the best protection against unprofessional conduct. I believe that this alone will retrieve that position of public appreciation which has in certain directions become endangered by the conduct of photographers working on ultra-commercial lines.

As “ tradesmen ” we shall never be able to excel in our work, and daily contact with the little meannesses of the invitation system is surely calculated to cramp, if not destroy the power to produce portraiture of high excellence and lasting credit to ourselves. It is only by living, and thinking, and working as a professional class of men we can hope to stem the current of vulgar mediocrity which threatens to swamp all that is best worth striving for in modern photography as a calling.

If this danger arises from within, we have to face another, perhaps even more destructive, from without. The various free portrait swindles that are being worked all over the country are doing an immense amount of harm. The persistency and ‘cuteness’ which is brought to bear upon large sections of the public by wholesale canvassing directed by unscrupulous men is worthier of a better object than the degradation of photographic portraiture and the impoverishment of men who are prepared to give honest value and have an established reputation to consider. Yet we have to face stubborn facts, and our Association is doing its best to assist its members by bringing to them all the information obtainable to enable them to protect themselves against a form of competition as unfair as it is detrimental to the public interests at large. I could instance one firm which had a turnover of £5,000 in six months, and employed some forty or fifty people in canvassing at about £2 or £3 a week. The artist received 4½d. for working up the enlargement, which fetched as much as 40s. or 50s. It was no less than a gigantic swindle.

We are all accustomed to hear that the time has arrived when there is no middle path to success left in photography. A man must either produce portraiture of such high quality that it will appeal to the cultured, discerning few, or he must descend to the level of the mob, and become little better than an automatic photographic machine.

A certain commercial success always attends unskilled work if it is cheap enough, and this appears to have encouraged such an army of penny photographers that instead of the sign of a public-house being the commonest object in our cities, that of the “ sticky back ” man predominates.

But “ photography as a profession ” is a thing impossible on any such lines, and as the chief object of our Association is to raise the status of its members, our best efforts might well be directed to the encouragement of highly trained portraitists. The Professional Photographers' Society of New York, the P.P.A. of America, has conceived the happy idea of forming an exhibition under its auspices of professional work. Members are invited to contribute one portrait each, and the price obtained for it is also stated. Such an exhibition here would assist photographers to form an opinion of the general valuation of good work, and also act as a tonic against the enervating ideas that good professional photography commands comparatively little attention.

The proprietors of THE BRITISH JOURNAL OF PHOTOGRAPHY have rendered an excellent service to the professional by their exhibition of colour effects in photography at Wellington Street, and our friend Mr. Brown, the Editor, has made a suggestion to me for an exhibition of professional photography on somewhat original lines, which our committee are now considering.

T. C. TURNER.



## THE LATE F. MAXWELL LYTE.

ONE of the last links which bind photography of to-day with that of fifty years ago is severed in the death, on March 4th, of Mr. Farnham Maxwell Lyte, at the great age of 78. The name of the deceased gentleman is unknown no doubt to many who are now in middle life, for Mr. Maxwell Lyte's connection with photography was not a lengthy one—it lasted only some sixteen years, and it concluded almost exactly forty years ago. Yet the journals in the fifties and sixties show him to have been an exceedingly active experimenter, and present day photographers have reason to remember him, chiefly perhaps as the originator of the borax and phosphate toning baths. His most notable achievement in photographic progress was, however, the invention of the so-called "honey" process, by which the wet collodion plate could be retained in workable condition for several days. This process he published in "Notes and Queries" for June 17, 1854, his letter appearing a fortnight after George Shadbolt, a former editor of the *BRITISH JOURNAL OF PHOTOGRAPHY*, had independently communicated an identical process to The Photographic Society (now the Royal Photographic Society). Mr. Lyte was a chemist by profession, and applied his chemical knowledge to many diverse photographic problems of his day. Thus he was one of the first to point out the danger to photographs of "antichlor" impurities in mounts. He was an honorary member of the Royal Photographic Society.

Some time ago events brought us into communication with Mr. Lyte, whose interest in photography had not diminished by his long enforced abstinence from practical work. At our request he then penned some notes on his photographic career, some portions of which we may fittingly quote, as throwing a vivid light upon the practice of the art in his early days.

\* \* \* \* \*

As I write these notes, entirely from memory, I greatly fear I may be mistaken as to the correct dates. I first began to take an interest in photography about the year 1844, when I was sixteen years of age, being attracted thereto by a printed leaflet kindly sent me by Mr. Fox Talbot, through a lady, a relation of his, and a cousin of my mother's. It was not, however, till after 1851, when I had finished my university course, that I at all seriously took up the subject. During 1852 and 1853 I had a good deal of correspondence in the pages of "Notes and Queries" on the subject. In the autumn of 1851 Scott Archer's great invention of the collodion process came out, and I soon began to put it in practice. I remember well the interest it then excited, and some Grand Duchesses, members of the Russian Imperial Family, at that time resident at Torquay, whither I had been ordered on account of some delicacy of the chest, took the keenest interest in it. They seemed to look on photography as a mysterious art, almost allied to witchcraft, and they then became patronesses of a lecture I was induced to deliver on the matter. It was in 1854, as far as I can remember, that I sent a few of my productions to an exhibition got up by Delamotte, of Bond Street. These greatly interested H.R.H. the Prince Consort, who desired his secretary to inquire if I would sell them. I replied that I was too much flattered, and hoped he would do me the honour of accepting them.

### The Honey Process.

Photographs taken at this time are now much faded, the alkaline toning, which I invented during the sixties,\* and which I think is published in the *JOURNAL*, not having then been invented. Soon after being sent abroad, I invented the "honey" process, which was, I believe, the first successful attempt that had then been made at preserving the collodion plate in a state of sensibility for some hours. I did many pictures by its means during my residence at Pau, and afterwards on my return to England, when I had the honour of explaining and demonstrating it to H.R.H. the Prince Consort, in his little photographic workshop in the garden at Buckingham Palace. Some of the photographs done at Pau by this process were among those exhibited in the Paris Exhibition of 1855. H.R.H. the Prince Consort had also the Paris collection sent to him by his desire.

\* An alkaline toning bath was in use several years prior to Maxwell Lyte's first advocacy of it.—Eds. B.J.P.

I found later on that the honey process was not to be depended on. Not all samples of honey will bear the addition of nitrate of silver, which seems essential to the great increase of sensitiveness, one of the chief merits of the process, and the tacky nature of the honey causes the adherence of particles of dust, almost unavoidable, producing comets and blotches of all kinds, so that at last I abandoned the process altogether.

When I see on all sides the beautiful instantaneous dry plate work now being produced I feel quite ashamed of obtruding on any one any allusion to my feeble attempts of years ago. It is only as a record of what was done by one of the first pioneers of collodion photography that what I here write can possess any interest. If I have succeeded at that early period better than some others, it is in great part attributable to my having myself prepared or purified most of the chemicals I employed, and the care I took to ensure their purity. My ether and alcohol I always rectified over caustic alkali; my pyroxyline I made for myself generally from cigarette paper, which, being unsized, thin, and made from the purest linen rags, (no filling in) became more thoroughly pyroxylinised throughout, and gave a more homogeneous product than even cotton, which requires frequent agitation. Everyone is in love with his own crotchet, but I thought it gave me a solution in the alcoholised ether, which flowed more easily, gave a tougher film, and left less insoluble matter than all other samples of pyroxyline. I even found it economical to make my own nitrate of silver. I well remember being soundly rated by an old French viscount for my waste and extravagance in dissolving a lot of five franc pieces in nitric acid. However, it was at that time the cheapest means of getting nitrate of silver out there, and by taking care only, as far as possible, to use pieces which had been coined before a certain date, I recovered enough gold to tone all the prints made with the nitrate of silver produced.

### Iodized Collodion.

As soon as Scott Archer's invention of the collodion process was published, I was not long in perceiving the advantage that would accrue, especially to the better delineation of the greens in landscape photography by using an admixture of bromides with the iodides Scott Archer had recommended. My attention had been drawn to the superior sensitiveness of the silver bromide to green rays, as compared with the iodide specified by Scott Archer, by Mr., now Sir, William Crookes. The iodising formula I finally settled on, which, I believe, is given in the *JOURNAL*, was composed of iodide of ammonium with bromide of cadmium, and gave a collodion, which kept well for a long time after mixing, if only prepared with freshly rectified ether and kept in well-filled bottles, was fairly sensitive, and gave good definition in the greens.

In landscape work in the Pyrenees, where all my photographs were done, the direction of nearly all the valleys is north and south, with but few side valleys. The consequence is, that, to avoid having the sun's rays striking direct into the lens, most photographic work, in order to be successful, requires to be done either in the early morning or in the afternoon. It is, however, at these times of the day that the lights and shadows become most clearly marked, and that the different planes of the distance are most clearly defined, so that it can hardly be said to be a disadvantage.

I always use inside my camera, at the back of the lens, a rectangular diaphragm, of the same shape as my dark frame, this diaphragm being adjusted such a distance from the lens as to cut off all the lateral rays that would strike the sides of the camera without interfering with the luminosity of the image. These lateral rays may at times produce fogging. This arrangement I found especially useful in dealing with a strong front light, but probably it is seldom entirely without effect, and to it I attribute the great clearness of some of my photographs. Its usefulness becomes particularly apparent when one takes two photographs, one with the diaphragm, the other without it.

In one of the early numbers of the *JOURNAL* I prescribed the use of formic acid as a substitute for acetic acid in the developer. It was then a very costly product, but lately a process has been brought

for its manufacture at a price which puts it within the reach of photographers. It has some properties which recommend it. Formic acid and some of its salts are almost developing agents in themselves.

F. MAXWELL LYTE.

August 13th, 1903.

Mr. Lyte was a chemical engineer and an Associate of the Institution of Civil Engineers. He was one of the oldest members of the Chemical Society, and an original member of the Society of Chemical Industry. His father, the Rev. Henry Francis Lyte, may be remembered as the author of the well-known hymn, "Abide With Me."

## A NEW SELF-TONING PAPER.

(A lecture delivered by Mr. Ernest Morgan before the Cricklewood Photographic Society, on March 7.)

PRINTING-OUT papers are the mainstay of the photographic printer the world over, and although there are several other excellent methods of printing from the photographic negative, the great majority of prints made by photographers, from the school-boy with his first five-shilling camera to the professional photographer who makes his life in making photographs, are made, upon a printing-out paper either as gelatino-chloride or collodio-chloride. Any modification or improvement therefore in a process of such wide and general use must be of the greatest interest and importance to everyone practising photography.

The qualities which have secured for printing-out papers the popularity they enjoy are firstly the very beautiful quality of print obtainable upon them which combines a very delicate rendering of the details of the photographic negative with extremely rich and transient shadows, the beautiful purple brown colour of the well-toned print, and the great simplicity of the process. With every other method of photographic printing it is necessary to ascertain the length of the exposure the paper requires to fully print the detail of the negative either by trial or by the exercise of trained judgment and experience, but printing-out papers print with a visible image so that the progress of the printing may be observed and the amount of exposure given with the greatest accuracy, and it is no doubt to this quality that the process owes its universal popularity.

Considering the importance of this process of printing to the photographer it seems very remarkable that so little improvement has been made in the manufacture of such papers since the process first came into use. From the time when Fox Talbot, more than fifty years ago, coated paper with chlorided albumen, and sensitized the coated paper on a nitrate of silver bath, there has practically been no improvement made in the quality of the print, and very little in the simplification of the process, although during this period we have had great and continuous improvements in the methods of making the photographic negative. We have seen in this department of photography the wet-plate give way to the dry plate, marking an immense step in the simplification of the process of producing the photographic negative, and there has been steady and continuous improvements in the manufacture of the apparatus used, the camera and lens, and the production of new and improved developing agents. Beyond the substitution of collodion and of gelatine for the albumen vehicle first used, the history of silver printing has little to record. I hope to show you this evening that an important simplification of the process is now possible, and has been achieved by the production of the "Richmond" paper.

Now I claim for the paper that the tone, which is a rich purple-brown, resembling a fully-toned collodio-chloride or gelatino-chloride print, is actually obtained by the toning action of the gold, and by the reduction of the gold contained in the paper only.

### Self-Toning in an Alkaline Bath.

You will see by the instructions issued with the Richmond paper that the only conditions necessary for a completely finished print upon it are that it should be washed for not less than 5 minutes in running water, and should be fixed for from 10 to 20 minutes according to the tone required in a hyposulphite of soda bath of the usual strength, 1 to 3 ozs. of hyposulphite of soda dissolved in 20 ozs. of water. You will also see we recommend, in addition, that this fixing bath should be rendered decidedly alkaline by the addition of a small teaspoonful of bicarbonate of soda, or, more accurately, one drachm by weight. The addition of the soda prevents any possibility of the bath

being decomposed by any little acid which may remain in the coating of the paper after washing, which might decompose the hyposulphite of soda and cause sulphuration of the image. It is very necessary to guard against this danger, as although the decomposed bath would to some extent tone the print even if no gold was contained in the paper, it is a very dangerous and uncertain method of toning, and generally bleaches the print and yellows and degrades its lights. There is always a considerable amount of free acid in printing-out papers, and unless some precaution of this kind is taken, or prints are washed for some considerable time, there is always danger of sulphur-toning occurring, especially when a number of prints have been passed through the fixing bath, and acid from them has accumulated in the bath. You will notice that we advise that the prints should be washed for five minutes. This is the minimum time, and you may wash them for ten minutes or for half-an-hour if you choose; the paper will still give perfect tones, but photographers generally do not like to take longer for their operations than is necessary, and although five minutes' washing would not be sufficient for a gelatino-chloride print, the vehicle used in the "Richmond" paper, which is neither collodion nor gelatine, is of a porous nature, and can be sufficiently freed from its soluble parts with five minutes' washing.

### Properties of Agar-agar Paper.

And now a word concerning the vehicle used in the "Richmond" paper for carrying the sensitive salts which, as I have already told you, is not either collodion or gelatine, but a new product not hitherto used with success in photographic processes. Very early in the series of experiments in which I have been engaged for some years with the object of producing a satisfactory self-toning paper, I found that gelatine as a vehicle was quite unsuitable, and without going into the technicalities of the manufacture, which I am afraid would not be of general interest, I will content myself by saying that as far as my trials carried me I am quite unable to obtain good tones by toning with the use of a hypo. bath only, when gelatine was employed. There are also many objections to collodion, such as the curling and cracking of the print amongst other reasons, and I was at length successful in finding a totally new medium, which has proved to my greatest satisfaction.

This consists of a combination of agar-agar, a Japanese seaweed (the chief use of which in this country has been as a vehicle used by the chemist as a culture for bacteria), and of boiled starch. You will see by the specimens before you that it gives a very beautiful textureless surface quite pure and colourless in the whites of the picture, and resembling very closely the appearance of collodion. Besides being peculiarly adapted for printing papers containing gold, it has another very considerable advantage in being affected very little by temperature. I believe it is practically impossible to make it blister or frill in any natural temperature, and prints made upon it may even be left in warm water of a temperature of 150 Fahr. without injury. This property renders it an ideal product for use in hot climates, and I have no doubt it can be used in the tropics or the arctic regions with the same success and facility as it can in our more temperate climate. Prints can also be dried off rapidly by heat, the only limit being that the prints should not be scorched, and this property has a very great advantage over gelatine, which is liable to blister even at low temperature, and cannot be dried off rapidly.

The "Richmond" paper will also yield very fine black tones by the use of a very simple supplementary platinum bath. For black



tones the prints should be first soaked for five minutes in a bath of 1 oz. of hydrochloric acid to a pint of water, in order to completely convert the free silver of the paper to chloride, and after rinsing in water may be toned by immersing in a bath containing 2 grains of

chloroplatinite of potash to each 10 ozs. of water. Prints so treated will tone to a fine black colour in about 10 to 15 minutes, and may then be washed and afterwards fixed in the ordinary hypo-sulphite of soda bath.

ERNEST MORGAN.

## FOREIGN NOTES AND NEWS.

### Iron Citrates.

By acting upon citric acid with iron, caustic soda and ammonia, many single and double salts may be formed according to the proportions of the reacting substances. Dr. G. Siboni has prepared a considerable number of these in the *Apothetische Zeitung*, 1905, p. 1018, which we briefly describe in the following summary:—In the formulae here given  $H_3Ci$  stands for citric acid  $CH_3COOH.C.OH.COOH.CH_2COOH$ ,  $H_3$  being the three hydrogen atoms of the carboxyl groups. 1. Ferrous citrate:  $H.Ci.Fe^{II}+H_2O$ , by direct action of Fe upon  $H_3Ci$ ; a pale green crystalline salt not readily soluble in water; forms supersaturated solutions. 2. Ferrous ammonium citrate:  $CiFe^{II}/NH_4$  by solution of No. 1 above in ammonium hydrate; unstable, loses  $NH_3$  at  $120^\circ C.$ , readily oxidises to ferric salt. 3. Ferrous sodium citrate:  $CiFe^{II}/Na$ , by addition of  $NaHO$ , or  $Na_2CO_3$  to No. 1 until neutral. 4. Ferric citrate:  $CiFe^{III}+3H_2O$ , by solution of freshly precipitated ferric hydrate in the acid; though nominally a neutral salt, has an acid reaction, and takes up  $NH_3$  with evolution of heat, resulting compounds being named by the author "ammines." 5. Ferric mono-ammine citrate  $Ci_3Fe.NH_3$ . One kilo. of citric acid is digested with the ferric hydrate obtained from 3 kilos. of ferric chloride solution; after filtration, 207 grams ammonia solution, specific gravity 0.925, are added, the mixture being concentrated and dried on glass plates, forms bright red flakes with acid reaction. 6. Ferric diammine citrate  $Ci_3Fe_2.(NH_3)_4$ , prepared as above but with double the amount of ammonia; also formed by oxidation of No 2 salt. Dark brown, acid, deliquescent. 7. Ferric triammine citrate  $Ci_3Fe_2.(NH_3)_6$  by complete neutralisation of No. 4 with ammonia. The official iron and ammonium citrate of the British, Dutch, Italian, Swiss, and U.S. pharmacopoeias. The German, Russian, Norwegian, Roumanian, and Greek pharmacopoeias prescribe an addition of citric acid to the ferric citrate before neutralising with ammonia. In this way combinations may result of the following constitution:—8. Mono-ammonium ferric citrate,  $H_3Ci_3Fe_2.(NH_4)$ , from 593 grams ferric citrate, and 210 citric acid dissolved in a sufficiency of water, and treated with 85 grams 20 per cent. ammonium hydrate. Yellowish-brown flakes, deliquescent, strongly acid. 9. Diammonium ferric citrate,  $HCl_3Fe_2.(NH_4)_4$ , as above, but twice the amount of ammonia. Greenish-yellow flakes, very deliquescent. 10. Triammonium ferric citrate,  $Ci_3Fe.(NH_4)_3$ , as No. 8, but three times the amount of ammonia. Similar in properties to No. 9. 11. Tetra-ammonium ferric citrate,  $Ci_3Fe_2.(NH_4)_4.(NH_3)$  as No. 8, but with fourfold the quantity of ammonia. Must be evaporated at low temperature otherwise  $NH_3$  is evolved. Corresponds with the German official compound.

### Spots on Prints.

The cause of spots on silver prints is ascribed by Namias to the presence of acids either in the cards or mountant. He suggests that prints should therefore be soaked, after washing, in a 4 or 5 per cent. solution of borax, the excess of solution blotted off, and the print mounted without further washing. He also recommends the addition of 3 per cent. of borax to the mountant, and states that many professionals have already proved the value of this addition.

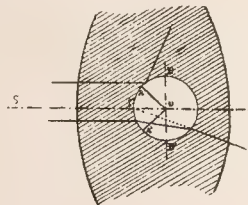
### Phosphore cent Printing Paper.

According to a French patent, No. 350,289, of R. Bau, the process of preparing a sensitive printing paper in which images in phosphorescent sulphides are obtained, has been seriously advanced. An abstract of the specification in the journal of the Society of Chemical Industry, gives the following description:—One cubic decimetre of the paper pulp is mixed with 150 grammes of calcium sulphide, 30 grammes of zinc sulphide, and 20 grammes of strontium sulphide.

The paste is made into paper in the usual manner, and this, when dry, is rendered impervious with a lac varnish. The paper is then coated with a sensitive silver emulsion. It gives phosphorescent prints when exposed beneath a negative and finished as usual, but it can hardly be supposed that a film of lac can preserve a sensitive silver emulsion very long from the effects of any substratum of sulphides lying immediately below it.

### Air Bubbles in Modern Lenses

M. Delamarre, dealing with this subject in the current number of the "Photo Gazette," utilises the following figure and explanation. Let O be the centre of an air bubble, and SI the direction of the luminous pencil. From the point O draw the two lines OA and OA', making, with SI, an angle equal to the angle of total reflection, which is about  $40^\circ$  deg. to  $41^\circ$  deg. for most glasses. All rays of light striking the bubble between AB and A'B' cannot penetrate it, but are totally reflected, and the only rays which can



pass are included between AA'. These will be refracted away from the path SI, and cannot form any part of the image, therefore all air bubbles act as opaque bodies. The loss of light by this, however, is very small, and it has been proved by Schott and Gen. only amounts in the worst cases to 0.02 per cent. of the light entering the lens.

### Acid Developers for Bromide Paper.

M. Balagny strongly recommends the use of the following developer for all bromide and gaslight papers. Its advantages are that it will not give greenish blacks or greys; it works slowly, and gives pure whites; it can be repeatedly used:—

Sodium sulphite anhydrous .....	56 grains.
Amidol .....	28 grains.
Potassium bromide .....	14 grains.
Acid bisulphite (com. liq.) .....	274 minims.
Water .....	10 ounces.

### Uviol Glass for Lenses.

Herr Martin, of Rathenow, writes, in the current number of the "Photographisches Wochenblatt," on this subject, and points out that the aperture already attained in portrait aplanats in which the ordinary glasses are used is  $f/3$ . To make such a lens it is necessary to have two glasses, of which the  $v$  difference—that is, the difference of the reciprocals of the relative dispersions—must amount to about eighteen. The difference, however, between the uviol glass and flint of Schott and Co. is only nine, and it is not possible to construct an aplanat with an aperture of  $f/3$  with these glasses. An uncemented lens could possibly be made then the loss of light by reflection from the numerous surfaces would do away with the advantage of the increased amount of ultra-violet light passed by the lens.

Independently of this it is an open question whether for ordinary photography a greater transmission of ultra-violet light would be an advantage, particularly, as pointed out by Martin, that the use

colour sensitive plates and yellow screens is becoming more general. For astronomical work and photomicrography, where colour-rendering is of less moment, lenses made of this glass might be useful.

### Pinacyanol.

Valenta, in the current number of the "Korrespondenz," supports his method (see p. 147), of using pinachrome, and speaks very highly in its favour. He also advised a similar bath of pinacyanol dry plates. When used with collodion emulsion, 4-5 per cent. of 1,000 alcoholic solution of pinacyanol, it gives very good red sensitiveness. Referring to Newton's statement (B.J., 1905, p. 830), that pinacyanol gave a "much faster" emulsion than ethyl violet. Valenta states that he cannot confirm this. Pinacyanol sensitises further to the red than ethyl violet, but the latter when correctly used gives a more vigorous and brilliant action in the red, and gives finer plates than the former. 'This is of the greatest importance in tint-tone work.

## THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

### ANNUAL MEETING.

The Fifth Annual General Meeting of the Association was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday evening, the 9th inst., Mr. T. C. Turner, President, in the chair. The report for the year was read.

### Report.

The removal of the date of the annual general meeting from October to March, effected by the alteration of the rules passed at the last annual general meeting, makes the period covered by the present report seventeen months instead of, as usual, a year. During this period fifty-three new members have joined the association and nine have been lost by death or resignation. These figures would point to a not unsatisfactory increase in the membership, but unfortunately, a large number of names have to be removed from the list because repeated applications fail to produce payment of the next subscription. About sixty will have to be so removed before the commencement of another year. The committee cannot help feeling that such a state of affairs points to a want of interest in the association which is most regrettable, and almost justifies some of the hard things which have been said about the profession as a whole.

The committee have met regularly, and the list of attendances published for the first time according to the revised rule justifies the members in believing that the committee continue their active interest in the work of the association. It is obvious that members being far away cannot attend meetings, but in other ways they are able to promote our interest in their own districts.

Applications for advice continue to be numerous, but too often arise in such a way as to lead the committee to learn how to get out of a difficulty instead of by the member's judicious handling of his case instead of to what to do to avoid the difficulty. It is evident that many members fail to bear in mind that the Association is established for the purpose of assisting them and that they have a right to assistance.

The instructions in copyright matters provided by the handbooks etc. are evidently being assimilated, and cases of infringement are being brought to the Association to deal with an increasing number. These cases have become a great feature in the Association's work, and it has been almost uniformly successful in obtaining satisfaction from the offending parties without recourse to law proceedings.

The Assistant's Certificate Scheme has not been quite so successful as anticipated, and it has certainly not been helped as it might have been by the members at large. In accordance with the announcement made at the issue of the prospectus, the committee, at the close of a year's trial, reconsidered the whole question, and made such modifications as seemed to be required. They would like to see upon members that the success of the scheme is as much dependent upon their recognition of its usefulness as upon that of the committee themselves.

A new feature in the working of the Association has been the introduction of a quarterly Circular, of which three numbers have been published, affording the means of keeping the members in closer touch with the committee and of informing them of what is taking place in the Association.

The thanks of the Association are due to the Royal Photographic Society for allowing the meetings to take place at their house, and to the Editor of THE BRITISH JOURNAL OF PHOTOGRAPHY for publishing notices, reports, and other information relating to the Association. The committee also wish to express their indebtedness to the hon. solicitor, Mr. Percy E. Marshall, for the valuable assistance he has rendered them.

In the discussion upon the adoption of the report, Mr. C. H. Skillman asked what alterations had been made with regard to Assistants' Certificates. In reply, the Assistant Secretary read the following extract from the circular containing the notice convening that meeting:—

"In accordance with the notifications of the committee at the time the prospectus was published, that the matter would be fully reconsidered in the light of a year's experience, a sub-committee appointed by the committee invited criticism of the existing scheme from those assistants who applied for prospectuses and went no further. The replies were fully considered, and the whole bearings of the scheme carefully discussed. The information derived from assistants themselves was a valuable help towards the realisation of the defects of the scheme from the employees' point of view, and, beyond that, the correspondence disclosed that the prospectus itself was too elaborate and detailed to be easily understood by the majority of the class to whom it was addressed. In several cases it was perfectly clear that it was entirely misunderstood. It was made abundantly evident that a large proportion of the photographic assistants throughout the country are not capable of classification according to any specialised character of their work, but are employed generally as all-round hands, and also that their earnings are not, as a rule, much more than sufficient to meet the cost of living. It has been decided, therefore, to satisfy the requirements of this class by instituting a new grade of certificate, to be entitled 'The General Assistant's Certificate,' and, in order that there may be no excuse for not applying for the certificate on the ground of its being too expensive, it has been resolved that applicants be charged only a registration fee of 2s. 6d."

"The work of the general assistant being necessarily varied in character, the method of determining the candidates' qualifications adopted with regard to classified assistants cannot very well be applied, and a new method will be adopted. The candidate will be required to state his qualifications, and the certificate will be given for those which are upheld by present and previous employers. There are necessarily some details to be worked out. When these are complete a supplementary prospectus will be published, and applications invited through THE BRITISH JOURNAL OF PHOTOGRAPHY."

Considerable discussion followed on the best means of inducing assistants to apply for certificates, but it was eventually pointed out by Mr. Ellis that it was hardly fair to criticise the scheme before it was published. He did not think the majority of the members had given the committee credit for the enormous amount of time and labour, and the number of discussions which had taken place in formulating the scheme. It had been discussed for fifteen months' at intervals of a few weeks, and talked over from every point of view, with a sub-committee also working at it. They had gone into it very thoroughly, and he thought the members might rely that the scheme they would get would be dependable.

The report was then adopted.

The Hon. Sec. and Treasurer, Mr. William Grove, then read the Treasurer's Report and Statement of Accounts from July, 1904, to June, 1905, showing an increase of £22 over last year's balance.

The President then read an address to the members, for which he was heartily thanked.

The announcement of the officers for the ensuing year was then made. As the number of members nominated to fill the various offices was not in excess of the number required no ballot was necessary.

President: Martin Jacollette. Past-President: T. C. Turner. Members of Committee:—London: F. A. Bridge, Alfred Ellis, Ernest C. Elliott, Herbert S. Fry, Wm. Grove, H. Edmonds Hull, Alex. Mackie, H. S. Mendelssohn, Daniel Prodger, Edgar Scamell, Lang Sims, R. Fellows Willson; Country: G. P. Abraham (Keswick), W. H. Bacon (Newcastle), T. Birtles (Warrington), H. A. Chapman, J. P. (Swansea), Wm. Gill (Colchester), P. Lankester (Tunbridge Wells), F. P. Moffat (Edinburgh), A. F. Mowll (Liverpool), R. W. Robinson (Redhill), T. Rowe (Eastbourne), H. C. Spink (Brighton), G. W. Webster (Chester).



Mr. Turner then left the chair, and, on Mr. Jacolette taking it, invested him with the Presidential badge.

Mr. H. A. Chapman, J.P., Swansea, congratulated Mr. Jacolette on the position he had attained, and was sure he would fulfil his duties faithfully and well. He took the opportunity, on behalf of the association, of proposing a very hearty vote of thanks to Mr. Turner who had so ably fulfilled the duties of President during the past year. He personally had not had the opportunity of meeting Mr. Turner many times, but on each occasion that he had seen Mr. Turner in the chair he had presided with skill and ability that merited their very warmest thanks.

Mr. Ellis seconded, and it was carried with acclamation.

Mr. Jacolette then asked Mr. Turner's acceptance from the committee of a replica of the Presidential badge he had worn in his tenure of office. Mr. Turner, in returning thanks, said he considered it a great compliment to the country members, but he could not also forget the very great personal honour which had been bestowed upon him also.

Attention was directed to a letter which appeared in the current number of THE BRITISH JOURNAL OF PHOTOGRAPHY from Mr. Lang Sims on the question of allowing photographers' assistants a half-holiday during the week. It was a letter which every member should read. The views of several members were given on the question, and Mr. Sims was congratulated on his large-minded letter.

Mr. Sims said he thought it was a question which ought to be settled before the summer arrives, as the holiday was wanted chiefly in the summer. The shops in the big centres all close on certain evenings, and it seemed to him that their assistants should be allowed to join other business assistants in their amusements. He was anxious to see what the profession thought of the suggestion, and get some general action taken. It would be a good thing if the association could bring it about.

The meeting closed after passing cordial votes of thanks to the Hon. Secretary and Treasurer and to the Assistant Secretary.

On the evening previous to the annual meeting the committee of the P.P.A. and some friends dined at the Villa-Villa Restaurant, London, W., when an enjoyable evening was spent in an informal manner. Mr. T. C. Turner occupied the chair, and musical contributions to the entertainment were made by a number of members. The guests included Mr. H. Snowden Ward and Mr. George E. Brown (THE BRITISH JOURNAL OF PHOTOGRAPHY).

#### THE PROFESSIONAL PHOTOGRAPHERS' SOCIETY OF NEW YORK.

AN open letter to photographers in the United States has been issued by the President of the Professional Photographers' Society, Mr. Dudley Hoyt, of Rochester. As the activities of the New York Society are almost identical with those of the Professional Photographers' Association in this country, we may quote the major portion of the letter as applying equally to photographers on both sides of the Atlantic.

About a year and a half ago, twenty-five men organised the Professional Photographers' Society of New York. At the meeting held in April, 1904, the membership roll contained the names of about one hundred and twenty-five men. These men, naturally, were the leaders in the profession, men in close touch with affairs, and living in the centres of population. At the first annual meeting, which lasted two days, the members became better acquainted with each other than they ever had before, matters of great business interest were discussed, and the foundations laid for a society which in time will number in its ranks every progressive worker in the state.

Since that time many new names have been added, and the interest in the organisation has been intensified. The coming meeting will be held in New York, April 5 and 6. While it will be held at the Hotel Astor, located in the busiest section of the busiest city on the continent, it will be an "at home" affair. The talks will concern "the business," the pictures will be "business" pictures, and everybody that attends will be just "business folks."

It will be a meeting at which everybody will learn something, and from which the members will take home with them a broadened spirit and a better understanding of what their fellow workers are doing.

For instance, instead of the usual mixture of pictures seen at photographic conventions, the exhibition at the April meeting will be modelled along a distinctly new and definite line. Each member

will send us one print, which it is expected will express his opinion as to just how much work and material can be incorporated in a picture to sell for a certain sum, with due regard to the incidental and general expense connected with the up-keep of the studio. Conditions, of course, vary in every community, and the proper basis of fixing a charge for a given picture is largely a matter of local conditions; yet an assortment of pictures on these lines is certain to produce a concrete knowledge of great interest.

To make my meaning clearer, the Executive Board asks every member to send a mounted, ready-to-deliver-to-your-patron picture, that, in the estimation of the sender, is remunerative and satisfactory, with good value, at either 5 dols., 8 dols., 10 dols., 20 dols., or 30 dols. a dozen. Especial interest attaches to the 5 dols., 8 dols., and 10 dols. styles for the reason that they represent a more general average of sale throughout the state, and the members have been requested to be modest in making up their exhibits, so that the greatest number will be benefited.

This is how the plan will work out:—Suppose Mr. A. is a photographer in a town of 5,000 inhabitants. His patrons demand from him a certain picture at, say 5 dols. a dozen. Yet Mr. A. feels that his people are gradually working up to a point where they will stand 8 dols. a dozen, but Mr. A. is at sea as to just how much more of a picture he ought to give for 8 dols. instead of 5 dols. He makes a picture, which he thinks he can produce at a profit at 8 dols., sends it to the exhibition, and there has an opportunity to compare it with twenty or more pictures produced with the same idea in view. Here we have an approximate foundation upon which to base a rate, something that all photographers know the need of only too well.

Of course this exhibition is only going to be a start in the right direction: the text around which the members will build their own particular sermons. The pictures that apply to Mr. A.'s patrons will not necessarily interest those of Mr. B., yet Mr. A. may answer a question put by Mr. B. that will go a long way toward helping him in his particular troubles. The thirty dollar a dozen pictures of the New York City men may interest only the Metropolitan Section, but rest assured that there will be plenty of pictures in the same style you elect to send, so that you need only look for the solution of your own particular problem. In this respect the exhibition will be a selfish one—each man for himself. Understand, the one single aim of the exhibition is to help you to make the picture that you have in mind, and come prepared to ask questions. There will be plenty of men on hand to answer them.

Readers of the photographic papers know the stand the society has taken on the various important issues of the day; how, in the matter of copyright, it has entered the very thick of the fight, and is producing results; of its Labour Bureau, now a strong and growing factor; of the insurance question, of apprentices, and the other problems that confront the studio proprietor.

All of this has but the one end—to convince you that no matter what position you hold in the ranks, you are not doing your whole duty unless you are a member of the organization. You may not feel the need of good fellowship now; the services of the Labour Bureau may seem of little importance today, the "single picture" exhibition, the business talks, the smoker, and the two days' stay in New York, may appear a waste of valuable time from your present view point, but the great wheel of fortune makes many turns during a single year, and these are hurried times. The friend in need to-day is the society. Its strong young hand is extended to you, not for the 3 dols. a year, but for yourself, your influence in the community, and your moral support.

PRESS Photography.—"Can any reader give me the addresses of any press photographers in New Zealand and Australia?" This request is put to us by a reader, Mr. G. Austin, of 26, Elmhurst Mansions, Clapham, S.W. Perhaps anyone able to do so will reply to him.

Fox, Talbot, and Company, Limited.—Capital, £2,000, in 40 shares. Objects: To acquire and carry on the business of manufacturers of the P.O.P., known as the "Talbot Brand" and other photographic papers, materials, apparatus, and appliances, carried on by J. Whitfield and H. Meyer, at 103, Altenburg Gardens, Clapham Common, S.W. No initial public issue. J. H. Whitfield and H. Meyer are permanent directors. Qualification, £700. Remuneration, £2 10s. each per week for first year, afterwards as fixed by the company. Registered office: 85, Clapham Road, S.W.

## THE INTERNATIONAL EXHIBITION IN PARIS.

The following is the letter from M. Gastine, the Commissaire Generale of the proposed Exhibition in Paris. It is addressed to a monthly contemporary, at whose suggestion we are quite agreeable to give it immediate publicity in our columns. M. Gastine's letter is devoted to an explanation of the status of the "Chambres Syndicales," which have officially announced their abstinence from the forthcoming exhibition, and to the alleged reasons which have actuated them. It runs as follows:—

To begin with, it is necessary to explain exactly what the syndicates and societies that are not joining in the Second International Exhibition of Photography, 1906, are.

The small combination of syndicates includes four. The most hostile of the group is the Syndicate de la Photographie, which numbers about 400 members. This number would be rather important if the figures were correct, but the truth is that it includes:—

1. The names of deceased members, and those who have retired from the trade.

2. Members who for many years have had nothing to do with the syndicate.

3. Members who belong to other syndicates, or who are members of photographic societies, but who are not professionals.

To put it briefly, the truth is that this *Chambre Syndicale de photographes* *Portraitistes Professionnels* does not include one hundred real professional photographers. The Department of Seine holds more than 1,000 professionals, among which a large number of the more important firms are not members of this syndicate, and in the whole of France there are over 5,000 professionals.

It may be interesting to know that the resolution not to join in the International Exhibition which I am now organising was not the outcome of a referendum including all the members, but only the decision of a meeting of from fifty to sixty members, that is the minority, who pretend to dictate to France and the foreign countries general abstinence, even though it were detrimental to the progress of photography in general and the private interests of everyone.

Another group that has decided not to join is the Syndicates of the manufacturers and Dealers in Photographic Goods. This syndicate is not so hostile as the previous ones, and it does not include many more than 300 members for the whole of France. Its list of members includes such people as do not any longer belong to it, or who have ceased business, but these latter are fewer than in the previously-mentioned list, namely, the professionals. It also includes members of photographic societies who are neither manufacturers nor dealers, though taking it as a whole the large majority of this 300 odd are either dealers or manufacturers. This syndicate, however, like the first, is very far from representing the whole of the industry and commerce of French photography, and, like the first-mentioned syndicate, its decision not to join was made at an ordinary meeting only, which, as a rule, does not count more than fifteen to thirty members at most. The decision, therefore, carries less weight even than that of the professional group.

As regards the two last antagonistic groups of syndicates—the syndicate of Photo-Engravers and the Postcard Publishers Syndicate—these are only made up of a very small number of firms, and the largest postcard publishers are not members of the latter. These syndicates are entirely in the hands of their committees, for the greater part of the members never attend any meetings, so that the committees have very easily been able to decide not to join as a group in the exhibition I am interested in. They have, however, no legal or moral power of preventing any of the members joining on their own behalf. The best proof I can give that this decision is only limited to the syndicate as a whole is the fact that I am in possession of written agreements to join the exhibition from some of the most important firms, notwithstanding the decision of the syndicates not to join.

To illustrate my previous statement, I give you hereunder a copy of a very sympathetic and flattering letter that I received from one of the most important firms belonging to one of these syndicates; indeed, it is one of the most prominent in France. This letter is dated March, 1906, long after all the votes had been taken, and the publicity given to them by the *Chambres Syndicales*. It runs:—  
We are in possession of your circular letter, and beg to thank you for kind remembrances. We shall be very pleased to be one of the members of one of your Admission Committees, and will give you all

the assistance we can in this most interesting undertaking of yours. —Auguste Lumière, Lyons, March 1, 1906."

We have secured this firm as one of those taking part in the exhibition.

As regards the photographic societies—*La Société Française de Photographie*, et *Le Photo-Club*—each of these two numbers about 500 members. These numbers include, however:—

1. The majority of the members of the two syndicates.

2. Each society includes most of the members of the other one.

It is easily explained, therefore, how these groups have the same spirit, seeing that they are made up of the same people. Under the names of about half-a-dozen different syndicates or societies one finds the names of the same people. Six committees closely united against all strangers superintend 600-700 members, with the aid of about sixty prominent members, without consulting them, or rather try to do so in theory if not in reality.

To continue, it is necessary to understand the real reasons of this combined decision not to join, which has been so widely published both in France and in other countries.

The reason for this hostility is as follows:—The groups which have been referred to pretend to be the sole controllers of the photographic world, in France, disregarding the fact that they are only interesting to a very small portion of the photographic world. If you will only examine the General Classification of the Second International Exhibition of Photography, 1906,\* you will see that it includes fourteen groups, out of which the above-mentioned syndicates and societies only represent six.

The public bodies and persons taking part in the eight sections include the Conservatoire National des Arts et Metiers, the Observatoire Nationale of the College de France, Museum d'Histoire Naturelle, Institute Pasteur, the Sorbonne, the Ministry of Public Instruction, the Service des Monuments Historiques (a State Department which is part of the Ministry of Beaux Arts), the Imprimerie Nationale, the Service Anthropometrique du Dr. Bertillon, M. Rene Baschet (editor of the journal "L'Illustration,"), and M. Adolph Brisson, editor of the journal "Les Annales Politiques et Littéraires."

I have also the help of such State Service Establishments as are under the control of the Ministries of Colonies, Public Works, Agriculture, War Office (War Geographic Service), Admiralty, Naval Building Service, the Town of Paris Museums, Carnevate, Cernuschi, Calliera, Guimet, etc., etc.

What are the hostile syndicates and societies as compared with all these?

## THE 1905 KODAK COMPETITION.

The award list for this competition, in which money prizes to the total of £400 were offered by the Kodak Company, has now been published. It will be remembered that the competition was divided into "Open" and "Novice" classes, a policy which we learn has been highly appreciated, and has no doubt contributed the enormous number of prints—over 28,000—submitted by competitors in all parts of the world.

The following is the list of successful prize winners:—

CLASS A: OPEN.— $3\frac{1}{4}$  by  $4\frac{1}{4}$ , or larger. First prize, £30: E. Steichen, New York; 2nd prize, £20, Mrs. N. F. Cones, Covington, U.S.A.; 3rd prize, £10, Alfred Stieglitz, New York; 4th prize, £5, J. Dolman, Philadelphia, U.S.A.; £2 each and Honourable Mention, Mrs. M. A. Wiggins, Salem, U.S.A., Miss Nellie Coutant, Crawfordsville, U.S.A., Miss A. W. Brigman, Oakland, U.S.A., Miss E. A. Wheldon, Leanington, Helen P. Gatch, Salem, U.S.A., F. H. Kelly, London, N.W., G. A. Lee, Baltimore, U.S.A., S. C. Durst, Cincinnati, U.S.A., Wm. S. Rice, Stockton, U.S.A., Dan. Dunlop, Motherwell, N.B.

CLASS B: OPEN.— $3\frac{1}{4}$  by  $3\frac{1}{4}$  or smaller. First prize, £20, M. E. Brockbank, Southport; 2nd prize, £10, J. M. Browning, Bridge of Weir, N.B.; 3rd prize, £5, Mrs. G. A. Barton, Birmingham; £2 each and Honourable Mention, H. H. Burns, Edinburgh, E. B. Vignoles, London, W.C., J. Hamilton, London, W., J. S. Neary, Trenton, U.S.A., Mrs. Myra A. Wiggins, Salem, U.S.A.; £1 each and Honourable Mention, Clarence Ponting, Scarborough, Rev. R.

\* Printed in our issue of January 26.—EDS. B.J.P.



E. Vernon Hanson, Dublin, H. B. Conyers, Urbana, U.S.A., E. Horner, Media, U.S.A., Mrs. N. F. Cones, Covington, U.S.A.; No. 1 F.P.K. and Honourable Mention, J. Burns, Edinburgh.

CLASS C: OPEN.—Enlargements. First prize, £30, Dr. A. Miller, Warwick; 2nd prize, £20, E. Steichen, New York City; 3rd prize, £10, Laura A. Armer, Berkeley, U.S.A.; £4 each and Honourable Mention, Alfred Steglitz, New York, Annie W. Brigman, Oakland, U.S.A., Harold Baker, Birmingham, W. Shaw, Chicago, U.S.A., H. B. Conyers, Urbana, U.S.A.

CLASS D: NOVICE.— $\frac{3}{4}$  by  $\frac{4}{4}$  or larger. First prize, £20, Harriet Lynam, Concord, U.S.A.; 2nd prize, £12, W. A. Wilson, Idaho, U.S.A.; 3rd prize, £8, Elizabeth M. Rise, Stockton, U.S.A.; £2 each and Honourable Mention, R. Mathée, a' Soindres, Paris, T. W. Allen, Paris, U.S.A., Dr. A. R. Benedict, Montclair, U.S.A., B. W. Guppy, Woodford, U.S.A., F. A. Tinker, Sheffield; £1 each and Honourable Mention, Miss H. Cumpbell, Abbey Lier, Ireland, Mrs. Henrietta Hasbouch, Davenport, U.S.A., Miss S. Jamieson, Cheltenham, Miss J. Murray, Wolverhampton, J. W. Burmester, Sutton, Surrey.

CLASS E: NOVICE.— $\frac{3}{4}$  by  $\frac{3}{4}$  or smaller. First prize, £15, Miss S. V. Atwell, Worcester, U.S.A.; 2nd prize, £8, Johannes Noack, Berlin; 3rd prize, £5, Arch. McVicar, Greenock; 4th prize, No. 4 Cartridge Kodak, Miss E. Barratt, Kelvedon, Essex; 5th prize, No. 3A Folding Pocket Kodak, Dr. F. W. Robertson, London, S.W.; No. 3 Folding Pocket Kodak and Honourable Mention, E. M. Chapman, Scarborough, W. E. Angear, Roborough, S. Devon, Miss E. H. Southwell, Corsica, Miss Jean Stirling, Chicago, U.S.A., Chabert de Brack, Paris, Jennie Ray, Spokane, U.S.A., Mrs. M. P. Banks, Maida Hill, London, W., Mrs. S. M. Hitchcock, Yonkers, U.S.A.

CLASS F: NOVICE.—Brownie Pictures. First prize, No. 5 Cartridge Kodak, Mrs. A. C. Morgan, Denver, U.S.A.; 2nd prize, No. 4 Cartridge Kodak, Miss G. M. Cooper, Preston; 3rd prize, No. 3A F.P.K., M. J. Walker, Monroe City, U.S.A.; 4th prize, No. 3 F.P.K., Miss J. H. Todd, Tarrytown, U.S.A.; 5th prize, No. 2 F.P.K., Miss Dorothea Seton, Edinburgh; No. 1 F.P.K. and Honourable Mention, F. N. Henry, Philadelphia, U.S.A., Mrs. M. Bayuk, Philadelphia, U.S.A., Miss J. Willard, Oakland, U.S.A., Miss S. Shipley, The Mount, Lincoln; No. 0 F.P.K. and Honourable Mention, O. Goldsmith, Great Bookham, Surrey, A. W. May, Upper Tooting Park, London, S.W., Mrs. W. H. Gardner, Buckport, U.S.A., H. G. Couthbert, Philadelphia, U.S.A., Pierre Lejard, Paris; No. 2 Plico and Honourable Mention, Edward Teas, Deal Island, U.S.A., Mrs. K. Appleyard, West Kensington, Constance Parsons, Haresden, London, N.W., W. C. Huff, Belleville, U.S.A., A. B. Pascoe, Woking, Surrey.

## Exhibitions.

### NOTTINGHAM CAMERA CLUB.

THIS fifth annual exhibition, which opened on Wednesday, the 14th, and remains open until to-morrow, is a decidedly better show than even last year's. While the open classes are very strong, with work from many well-known exhibitors, the most satisfactory feature of the exhibition is the amount of really capital work from members, including many who are scarcely beyond the stage of novices. If the promise can be maintained the Nottingham Camera Club should take its place amongst the most successful of exhibiting societies. Perhaps the most interesting and versatile of these younger men are Mr. Will Darcy, who scores in two classes; Mr. F. N. Radford, who scores in an open, as well as in a members' class; Mr. Arthur Black, who scores twice, and Mr. S. W. Barlow Vines, the secretary, who takes one of the plaques in the exceedingly strong Class G.

The following is the award list in the open classes:—

Landscape, Seascape, and River Scenery: Bronze Plaques: No. 13, "The Farm Road," A. Bayley; No. 103, "Sunshine and Shadow," T. H. Radford; No. 67, "Evening after Rain," W. H. Fowkes; No. 81, "The Last Leaves of Autumn," Dan Dunlop. Hon. Mention.—No. 95, "On Lago Maggiore," Jas. E. Latham; No. 48, "In the Path of the Storm," Thos. Wright; No. 43, "The Vesper Hour," Bertram C. Wickison. Portraiture, Animal, and Figure Studies.—Bronze Plaque.—No. 153, "Onora," Miss Marian Silverston; No. 167, "Head of a Man," Andrew Paterson. Special Bronze Plaque: No. 187,

"Finishing the Plaque," C. B. Howdill, A.R.I.B.A. Hon. Mention: No. 122, "A Portrait," Chas. E. Beale; No. 183, "A Volendam Fisherman," Herbert Bairstow; No. 144, "The Captive" (by courtesy of the "Sketch"), James Clark. Flowers, Fruit, and Still Life.—Bronze Plaque: No. 206, "Iris," E. Seymour. Hon. Mention: No. 197, "Gooseberries," Percy W. Morris; No. 207, "A Bramble Spray," Fred Judge; No. 210, "Japanese Anemones," Dan Dunlop. Architecture, and any Subject, other than Classes A, B, C.—Bronze Plaques: No. 249, "Until the Day Breaks," S. G. Kimber; No. 252, "An Arcaded Street," S. L. Coulthurst; No. 213, "Going to be Shaved," Sidney R. Stevenson. Hon. Mention: No. 231, "St. Leonard's Hospital, York," Rev. H. R. Campion. Special Mention: No. 222, "Group of Diatoms," W. H. Pratt. Lantern Slides: Bronze Plaques: A. Bailey, Fred Judge. Hon. Mention: J. W. Charlesworth, Thos. Wright. Special Mention: Francis Ward, D. G. H. Rodman.

### WOLVERHAMPTON PHOTOGRAPHIC SOCIETY.

THE Wolverhampton Photographic Society held its fifth annual exhibition last week. Among the notable exhibits were a number of Dutch scenes, contributed by James Gale, who also exhibited some artistic impressions of London, principally from the river's aspect. Neither of these pictures was, however, exhibited for competition. Mr. Thomas H. Cox also had some pleasing Dutch views—villages and waterways, interior studies, and a picture entitled "A Stitch in Time Saves Nine." Other creditable work was "Ringing a Wheel," by Charles J. Reade; "Woman's Work," by T. H. Cox; and "Reverie," by E. H. Griffin. Mr. Harold Holcroft contributed a fine study—a foreign street scene—entitled "The Rain it Raineth Every Day." There were some excellent cloud studies, Mr. F. C. Hickman being represented by a view on Conway shore. The work of the society, as a whole, exhibits marked progress.

### FORTHCOMING EXHIBITIONS.

February 24 to March 31, 1906.—Birmingham Photographic Society. Secretary, Lewis Lloyd, Norwich Union Chambers, Congreve Street, Birmingham.

March, 1906.—Larkhall C.C. Hon. Secretary, Robert Rodger, 26, McNeill Street, Larkhall.

March, 1906.—Leicester and Leicestershire Photographic Society. Hon. Secretary, W. B. Woodland, 18, Beckingham Road, Leicester.

March, 1906.—Rugby Photographic Society. Hon. Secretary, R. N. Myers, 13, Bridget Street, Rugby.

March, 1906.—Photographic Society of Ireland. Hon. Secretary, H. V. Yeo, 194, Clonliffe Road, Drumcondra, Dublin.

March 6-20, 1906.—Glasgow Southern P.A. Hon. Secretary, W. A. Frame, 28, Bank Street, Hillhead, Glasgow.

March 14-17, 1906.—Nottingham Camera Club. Hon. Secretary, S. W. Barlow Vines, Market Chambers, South Parade, Nottingham.

March 19-24, 1906.—Sunderland Photographic Association. Hon. Secretary, William E. Kieffer, Stirling Street, Sunderland.

March 24-31, 1906.—Leicester and Leicestershire Photographic Society. Entries close March 10. Sec., R. Warden Harvey, 18, Market Place, Leicester.

March 27, 1906.—Brentford Photographic Society. Entries close March 9. Secretary, Oliver Gluyas, 89, Windmill Road, Brentford, Middlesex.

March 27-28.—Worthing Camera Club. Sec., E. F. H. Crouch, 11, South Street, Worthing.

March 31 to April 10.—Salon of the Photo Club of Nice. Address the Secrétaire-Général, 20, Rue St. Francois de Paule, Nice.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 1, 1906.—Coatbridge Co.-Op C.C. Hon. Secretary, James Robb, 6, Windsor Terrace, Blenheim, Coatbridge.

April 2 to 7.—Photographic Society of Ireland. Secretary, W. F. Cooper, 194, Clonliffe Road, Drumcondra, Dublin.

April 16-21.—Redcar Photographic Society. Entries close April 9. Secretaries, W. H. Tayler, Esplanade, and J. M. B. James, 4, Elton Street, Redcar.

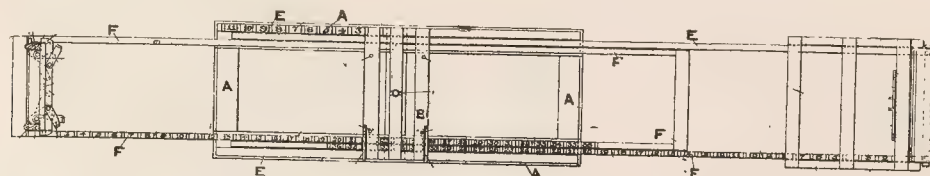
April 18 to 20.—Southend-on-Sea exhibition. Hon. Sec., J. Archer, 24, Ashburnham Road.

# Patent News.

Process patents—applications and specifications—are treated in *Photo Mechanical Notes*.

The following applications for patents were made between February 23 and March 3,—

PRINTING.—No. 4,697. Improvements in paper rolls as used in copy-



ing presses, photographic printing machines, etc. George Bluen, 18, Southampton Buildings, London.

COLOUR-GRAPHY.—No. 4,714. Improvements in colour-photography. Newton H. Hyde, 40, Chancery Lane, London.

PRINTING FRAMES.—No. 4,730. Improved photographic printing frame. John Batty, 124½, Wills Street, Lozells, Birmingham.

PRINTING RACKS.—No. 4,735. An improved folding photographic plate draining rack. John Batty, 124½, Wills Street, Lozells, Birmingham.

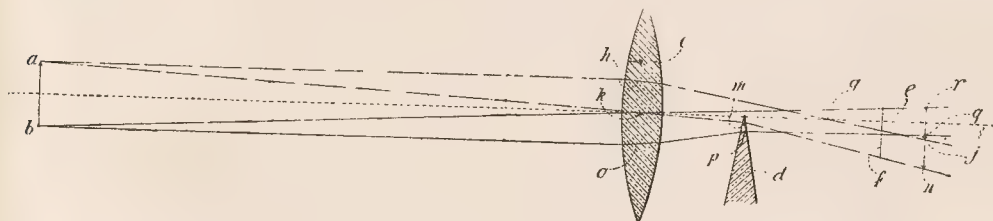
EXPOSING PLATES AND FILMS.—No. 4,992. Improvements in and means of carrying and exposing sensitive photographic plates or films in the camera. Joseph William Kay, 6, William Street, Colne, Lancs.

COLOURED PHOTOGRAPHS.—No. 5,109. An improved means of pro-

base frame are mounted two quadrangular telescopic frames E and F, for supporting the printing frames or other accessories necessary in the operations. Each telescopic frame is provided at one end with a folding support against which rests the printing frame, easel, or other apparatus as required. Each telescopic frame is free to move either together or in a direction opposite to each other. Also, one of the sides of each of these telescopic frames is notched and graduated in inches, so that the printing distance, or the distance between the printing frame and the

source of light, giving the best results may be noted and registered so that no matter what number of repeats may be required at a subsequent period, they can, on reference to the register, be quickly and accurately reproduced. Arthur James Lambert, 250, Barkerend Road, and Chas. Henry Land, 15, Alma Place, Thornbury, Bradford.

CINEMATOGRAPHY IN COLOURS.—No. 9,465, 1905. The object of the invention is to provide a self-contained apparatus of compact arrangement and small bulk for exhibiting animated pictures in their natural colours, and which requires only a small amount of light such as an ordinary oil lamp, and can be constructed in a portable form adapted for home use, and forms an improvement on the invention described in Letters Patent No. 3,729, dated



ducing coloured photographs. Albert Beaumont, 23, Bridge Street, Hawick, N.B.

PRINTING ACCESSORIES.—A photographic appliance to be used in conjunction with a camera for the purpose of copying, enlarging, or reducing. George Smorthwaite, 2, North Croft Villas, Englefield Green, Surrey.

PRINTING FRAMES.—No. 5,182. Improved photographic printing frame. William Graham Brown, Cordiner Manse, Lesmahagow, Lanarkshire.

SLIDES AND PLATE CARRIERS.—No. 5,212. Improvements in slides and plate carriers for photographic cameras. Frederick McKenzie and George Wishart, 65, Chancery Lane, London.

PRINTING PLATES.—No. 5,241. An improved method of packing photographic plates and films. Cecil William Cunningham, c/o the Imperial Dry Plate Co., Ltd., Cricklewood, London.

STEREOSCOPIC PHOTOGRAPHY.—No. 5,267. Improvements in method of and apparatus for taking stereoscopic photographs. Bug Ges n.b. H. zur Verwertung von Erfindungen und Gustav Barnack, 40, Chancery Lane, London.

## COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PRINTING AND COPYING STAND.—No. 14,052, 1905. The invention consists of a suitable outer base frame, or slide, A. Upon this

February 17, 1903, and granted to Benjamin Jumeaux and William Norman Lascelles-Davidson. A single prism is disposed behind the lens so as to intercept some of the rays from the image, which being refracted, form a second image. *a b* is the object, *c* the lens of the camera, *d* a prism, *e* a yellow orange colour screen, *f* a blue red screen, and *g* the focus of the lens *c*. The ray *a h* is refracted by the lens *c* and passes through the focus *g*, and through the screen *e*, the focussed image of *a* appearing at *j*. The ray *a k* passes through the centre of the lens *c* is not refracted thereby, and strikes the prism *d* and is refracted. The ray *a k m* passes through the screen *f*, and the image appears at *n*. All rays from *a* which are not intercepted by the prism *d* pass through the point *j* and form the image of *a*; similarly all rays from *a* which are intercepted by the prism *d* are refracted and a second image of *a* is formed at *n*. In the same manner the ray *b o* is refracted by the lens *c*, the ray *o p* passing out of the lens in the direction of the focus *g*, but it is intercepted by the prism *d*, passes through the screen *f*, and the image of *b* appears at *q*. The ray *b k* passes unrefracted through the centre of the lens *c*, through the screen *e*, and an image of *b* appears at *r*. All rays from *b* which are intercepted by the prism *d* pass through the point *q* and form an image of *b*; similarly, all rays from *b*, which are not intercepted by the prism *d*, pass through the point *r*, and form a second image of *b*. Rays from points intermediate between *a* and *b* are refracted by the lens *c*, or the lens *c* and the prism *d*, so as to



pass through the screen *e* or the screen *f*, and produce images intermediate between *r* and *n*. The screens *e* and *f* are arranged so that all rays which are not intercepted by the prism *d* pass through the screen *e*, and all intercepted rays pass through the screen *f*. As shewn, the prism is disposed between the lens and its focus, and it is placed half-way across the lens with its apex on the centre line of the lens. The apparatus used may be that described in the previous Patents No. 22,954 of 1893, No. 22,928 of 1896, No. 21,649 of 1898, or No. 13,883 of 1900, and the prism used is preferably a prism of 20 degrees. The two images *j*, *r*, *n*, *g*, of the object *a*, *b*, are similar to all appearances, and may overlap slightly according to the position of the prism *d*. In use the orthochromatic film is passed through the plane *r*, *n* so as to receive the images side by side on the film; that is to say, assuming the diagrammatic drawing to be a plan the film would pass vertically, or if the film is to pass horizontally the drawing must be taken to be in elevation. In projecting the pictures the relative coloured screens with which the pictures were taken, are used, only of lighter degree, taking into consideration the colour and density of the transparencies and the light to be used. In projecting, the prism used is of greater angle, so as to produce greater deviation, and consequently a magnified projected image. For more accuracy in obtaining the varied colour tones, shades, and distance, the above described arrangement may be multiplied, the screens being of different colours; for instance, blue and yellow screens may be used for one pair of pictures, red and green for another pair, and violet and orange for a third, the same screens being used for projection. William Friese Green, 20, Arundel Street, Kemp Town, Brighton.

**ISO ROLL SCREENS.**—No. 11,765, 1905. The invention consists in the method of forming an iso screen in long strip form and tinting the gelatine or like screen of strip formation with various coloured stains: mounting such screen on rollers so that it can be adapted with regard to the lens so that the greater non-actinic density can be given to the ultra-violet parts of the subject being photographed. Such screens are to be employed singly or in combination according to the subject being photographed. The screens are mounted on rollers or frames, and in some cases an adjustable frame may be constructed to carry in the whole or a portion of their space a sheet or sheets of gelatine or similar material tinted in various densities and contours. For portraits, for example, a portion of the screen is tinted in graduation or not, from a clear or light tinted centre to the edge of the section of the screen, so that after exposure and development on printing of negative, the background in the positive may be very dark or gradually graduated off to a dark colour. This principle may be applied to subjects when photographed for the purpose of conversion into lantern slide transparencies, as this screen will keep back the action of the light on the sensitized plate, and thus produce clear glass in the negative which, in its turn, will produce an opaque mask on the lantern transparency. The same principle may be applied for vignetting landscape pictures, tit-bits of architecture, and the like. When photographing interiors, it has been found that little or no halation occurs when a yellow light filter has been used. This is objectionable, however, where a dark interior is being photographed, as a prolonged exposure is necessary, thus taking up, it may be, several hours, but by adjusting a section of the roll screen, whereon is placed a yellow spot, to the position of the highest light, less of the ultra rays penetrate the lens and a better printable density and less halation is thus secured, the ultra rays being absorbed. Harry Ernest Staddon, 143, Blythwood Road, Goodmayes, Essex.

**CINEMATOGRAPHS.**—No. 10,602, 1905. The claim is for the combination with the feed dog of an adjustable roller over which the film passes after leaving the feed dog. Any suitable means can be provided for effecting the adjustment of the roller, such, for example, as a rack and pinion. It will be understood that the position of the film in the gate, that is to say, with respect to the lens, can be adjusted by altering the position of the adjusting roller, since the position of this roller determines the length of film loop between the gate and the said adjusting roller, that is to say, controls the length of film which is fed through the gate by the dog as it revolves. Alfred Wrench, 50, Gray's Inn Road, London.

## New Books.

"Les Objectifs d'Artiste," by L. de Pulligny and C. Puyo. Published by the Photo-Club de Paris, 44, Rue des Mathurins, Paris. Dawbarn and Ward, 6, Farringdon Avenue, London, E.C. Price, 5s.

This work, to which reference was made last week, is divided into two sections; the first we may call the practical exposition of the aims and use of anachromats, the second being devoted to the mathematical calculation involved in the use and construction of the anachromatic lenses.

The details given in the first section are such that anyone would be able to mount up these lenses either in home-made arrangements or in existing mounts which he might have, and in particular to make the semi-anachromat, in which the front lens of a Petzval portrait lens is used. The working data as to the correction of the lens by racking-in, etc., are very complete.

The second part will probably not be of so much interest to the general reader or user of these lenses, but even in this part, at the end of every chapter, is a practical resumé of the conclusions mathematically arrived at which will be extremely useful.

The work may be briefly stated to be a full and detailed amplification of the views and statements put forward in our last issue by M. de Pulligny and Major Puyo, and it is illustrated with some half-tone illustrations which certainly bear eloquent testimony as to the use of these lenses, and numerous diagrams are scattered throughout the text.

"Colloidon Emulsion." By Henry Oscar Klein. London: Penrose and Co. 5s.

The growth of colloidon emulsion in favour with process workers has emphasised the need of a text book on its use for some time past. In responding to the demand for such a volume, Mr. Klein has taken a mid course between an elaborate theoretical and historical treatise and a manual which dealt only with rule of thumb formulae and methods. He tells his readers enough of the theory and chemistry of the process for them to understand the practice; but after all, the practical part of the volume is the one which invites consultation and criticism. In it the author gives directions for the use of colloidon emulsion for ferrotype work, for lantern-slide making, and for the wood engraver. The most important application, however, of emulsion are in colour-photography, and Mr. Klein fully states his experiences in the use of emulsions, orthochromatised with dyes for the various direct and indirect colour processes. It seems a little unfortunate that the book was written in August 1905, just before the introduction of the new isocyanine, pincyanine, and so, though not published until now (nearly six months after), there is no mention of this dye, which appears to be superior to all other red sensitisers, and rapidly superseding them. In regard to these isocyanines, Mr. Klein states that the speed of emulsion treated with them may be increased by bathing with a neutral solution of silver nitrate, but this has not proved so in our trials and the practice has other disadvantages.

In the chapter on "Defects" the author, in speaking of Mr. Farmer's experiments, as detailed in his R.P.S. paper on "Irradiation," takes it for granted that this effect is halation, commencing the paragraph, in fact: "Halation, or irradiation, is a defect." We wonder what Mr. Farmer will think of this, since he was most particular to claim that the phenomenon he described is quite distinct from halation, and surely he is very far from regarding it as any defect.

The volume contains nine plates showing properties or defects of emulsion negatives, and devotes one chapter to the preparation of ordinary and orthochromatic emulsions, which section, we would say, might very well have been more than a compilation of other people's formulae.

"A Guide to the New House of Commons," published as a supplement to "Hazell's Annual," reaches us from Messrs. Hodder and Stoughton, by whom it is issued at sixpence. The "Guide" contains particulars of the past and present state of political parties, biographies, and addresses of M.P.'s, and other Parliamentary information.

The "Agenda Lumière" for 1906 reaches us from Messrs.

authier Villars, by whom it is published for the Lumière Company, of Lyons. It contains a large number of tables and formulæ, and a list, with references, of the numerous papers on photographic and chemical subjects emanating from the Lumière laboratories since 1887.

## New Materials.

Richmond" Self-Toning P.O.P. Made and Sold by Morgan and Kidd, Kew Foot Road, Richmond, Surrey.

On another page in this issue we report a lecture delivered before the London society by Mr. Ernest Morgan, in which are explained the properties of a new paper now being placed on the market by the established firm of Morgan and Kidd, the original makers, it will be remembered, of bromide paper. The paper is of the self-toning description, and much as papers of this kind have been used and abused, the new introduction is one with certain very strong and, in our opinion, very important claims to notice. In the first place a colloid or combination of colloids is used as the vehicle of the sensitive salts: in the second the toning action is regulated in a very precise manner chemically.

The carrier of the sensitive silver salts is not gelatine or collodion, but a mixture of boiled starch and agar-agar. The film on the paper thus made is extremely porous or equally non-porous by adding the proportion of these two substances. As manufactured, the film is considerably more porous than gelatine is aimed at, and the need for washing before and after the tone-fixing operation is thus considerably reduced. From our experience the paper appears to be about the usual rapidity of P.O.P., and it requires about the same amount of over-printing. The subsequent operations are three in number:—

1. Preliminary washing—5 minutes.
2. Fixing (with toning)—10 to 15 minutes.
3. Washing—30 minutes.

Simple as this manipulation is, it is nevertheless designed to carry out the special aims of the makers, viz., to remove free acid before the paper enters the hypo. bath, and to safeguard the hypo. bath against any traces of acid which may escape removal by washing. The first minutes' wash in several changes, or in running water, will bring the paper to the first condition, and the second is ensured by adding a solution of bicarbonate of soda to every pint of the fixing bath. These operations which require no extraordinary care on the part of the user, are made to bring the print into the condition favourable to permanent gold toning. The makers very properly lay stress on the importance of removing the opportunity for sulphur toning to place from the action of acid in a paper on the hypo. bath, they regard the power of a self-toning paper to tone readily as well washing as a proof of the legitimate nature of the toning operation. Our own experience is that the "Richmond" paper gives the best satisfactory results. After complete washing it tones evenly on the surface in the hypo-bicarbonate bath, and in the case of ten minutes—longer, if the bath is chilled—tones to a warm black in the finished print. The operation is so extremely simple, and the method, in our judgment, so entirely in accordance with our knowledge of the chemistry of toning and fixing, that we do not hesitate to describe the paper as a great and noteworthy advance in printing processes. Like other self-toning papers the "Richmond" paper lends itself to the production of cold blacks as well as of a range of warm colours by platinum toning. The method, however, is something of a departure. The prints are developed, without washing, in—Hydrochloric acid, 1 oz.; water, 1 pint, for five minutes, and, after a rinse, toned in a plain solution of chloroplatinite of potassium (1 grain in 5 ozs. of water). After a high washing they are fixed and washed as usual. The purpose of the strong acid bath is to convert all the free silver into chloride thus prevent the yellowing of the high-lights after the ammonia bath. The acid, no doubt, accomplishes this purpose by preventing the formation of insoluble chloroplatinite of silver. The gelatine film of the paper is able to stand the application of the strong acid solution.

As regards the mechanical properties of the prints, they may be developed in warm water without fear of softening, and in like manner

can be blotted off and dried by heat. They can be given a high gloss by rolling, or glazed by the collodion process. In appearance the prints resemble "fine albumen or collodion surface—the glossy is not very glossy, and the matt not at all rough, but both surfaces are well suited to the average run of negatives. The paper is sold at 1s. 11d. per two sheets, 24½ x 17, or in twelve quarter-plate pieces for 6d.

A NEW plate, the "Amauto," or self-developing, has been introduced by the Ilford Company. The developer is carried on the plate, and the only operation needed for development is the immersion of the plate in a 10 per cent. solution of washing soda. The price of the "Amauto"—on which we shall report in due course—is 2s. per dozen, in quarter-plate size.

MESSRS. Elliott and Sons, Limited, have added to the "Barnet Ortho" plate, another to be known as the "Medium Ortho." The new plate, which is stated to be of medium speed, will be reviewed in these columns in due course.

## CATALOGUES AND TRADE NOTICES.

PLATINUM recovery from waste papers and the residues from developing solutions is a department of their business of which Messrs. J. Blundell and Sons, 199, Wardour Street, W., are making a specialty. The charges are based on a scale which should prove remunerative to photographers working the platinotype process.

A CIRCULAR of new Busch cameras for 1906 is newly issued by the Emil Busch Optical Co., 35, Charles Street, Hatton Garden, London, E.C.

## News and Notes.

BLenheim Club.—Next Thursday the lecture at the Blenheim Club, St. James's Square, is on "English Royal Heraldry," by Mr. Cyril Davenport. The lecture is the last but one of the present series, arranged for February and March.

A FIRE broke out last week in a bedroom of the premises of Mr. W. Harrison, photographer, 115, Main Street, Bray, Ireland. It originated through a fire screen igniting a cabinet.

DEATH in a Leeds Studio.—Mr. S. H. Stenson, aged sixty, of Burley, Leeds, was visiting the studio of Mr. Allen Nield, photographer, Queen's Arcade, one day last week, when he was suddenly seized with illness, and died from heart failure before medical assistance could be obtained.

A NEW studio has been opened by Mr. Walter Smith at Station Street, Spalding, to replace the older one in Priory Road.

THE entire business of Messrs. H. and W. Green, Crown Photo-Manufactory, Rotherham, including the premises, machinery, trade names, designs, etc., has been purchased by the senior partner, Mr. H. W. Green, who for some years past has entirely managed the business.

How to Make a Developer.—A choice example of finesse in formula making is that of a daylight developer patented in Holland:—

Potassium metasulphite .....	120 parts.
Sodium sulphite .....	240 parts.
Potassium ferrocyanide .....	5 parts.
Citric acid .....	7.3 parts.
Potassium carbonate .....	120 parts.
Sodium carbonate .....	60 parts.
Potassium hydrate .....	30 parts.
Potassium bromide .....	5 parts.
Quinol .....	90 parts.
Metol .....	10 parts.
Resorcin .....	10 parts.
Sulphurous acid .....	20 parts.
Phenolphthalein .....	24 parts.
Water .....	3,000 parts.

It would be interesting to calculate the chemical composition of the bath after the various acids and alkalis have reacted.



**A PHOTOGRAPHER Poet.**—The "Standard's" Paris correspondent reports the death of Etienne Carjat. The news means little to the new generation. But for those whose memory goes back to the Second Empire it means the passing away of a curious profession, or rather of a curious combination of professions, the poet-photographer. Carjat was not a great poet, indeed he might very well have drawn from the funds of the poets' newly-formed society if he had lived a little longer. But with two irons in the fire he was able to make his hat shine, although poor. A top hat was part of his stock-in-trade, for without one he could not attend funerals at Père Lachaise. He followed the example of the brothers Lionnet, using both photography and poetry to record the last journey of great men—and sometimes of small ones, too—and thus he earned his living. He gave up this occupation some years ago, and received a State pension.

**THE Photographic Convention.**—As will be seen from the report under "Societies' Meetings," the Herefordshire Photographic Society are in hopes of the Photographic Convention visiting Hereford in 1907. A formal invitation has been extended by the Mayor (Mr. Edwyn C. Gurney), and the proposition will be laid before the annual meeting of the Convention at Southampton in July, when it is hoped that members of the Herefordshire Photographic Society will be present to support the Mayoral invitation.

**YORKSHIRE Photographic Union.**—The following are the newly-elected officers for 1906: President, F. Atkinson (Hull); Vice-Presidents, Messrs. John Cook (Huddersfield), Thos. Heaps (Keighley), C. B. Howdill (Leeds), Percy Lund (Bradford), and Percy Sheard (Leeds); Hon. Treasurer, Alex. Keighley; Hon. Sec., Lantern-Slide Section, W. H. Houghton; Hon. Sec., Print Portfolio Section, Lionel Dickinson; Hon. Business Sec., Ezra Clough. The following gentlemen were elected as the Official Judges of the Union: Messrs. Godfrey Bingley, Gilbert Foster, R.B.A., Alex. Keighley, Percy Lund, and Harry Wanless.

**THE late J. J. Vezy.**—It is with great regret we learn of the sudden decease last week of Mr. J. J. Vezy. His death took place as he was leaving the Radiographic Hospital at Blackheath, with which he had been actively connected. Mr. Vezy was a member of the Royal Photographic Society, and served on its council from 1899 to 1901. He was a valuable member of the House Committee, and on his initiative the lantern evenings at the society were inaugurated. The deceased gentleman was a man of wide artistic and scientific tastes, and devoted a large share of his leisure to philanthropic works. His demise will be regretted by a large circle of friends and associates.

**SINCE** the publication of last week's articles on "Artistic Lenses," a photographic objective of French manufacture, constructed for pictorial purposes, has been brought to our notice by the sole British agent, Mr. F. C. Clarkson, Colchester. The "Eidoscope," as it is called, is stated to own its "softening" effect to spherical aberration and is thus put forward as suited for pictorial effects at its full aperture of  $f/5$ , and for sharp definition when stopped down to  $f/10$  or  $f/20$ . It is issued in four sizes of foci from  $7\frac{1}{2}$  to 19 inches.

**PHOTOGRAPHY** for the L.C.C.—The London County Council recently invited offers for the general photographic work of the Council from four London firms, and although we are not able to state the amount of work represented by the taking of negatives, it may be interesting to quote the tenders submitted by the four invited firms. The lowest tender—Messrs. Avery's—was accepted by the Council.

Name.	One Negative and two Silver Prints.	One Negative and two Bromide Prints.	One Negative and two Platinotype Prints.
Avery and Co.	s. d. 10 4	s. d. 10 8	s. d. 12 4
Bolas and Co.	10 6	11 6	12 6
The London Stereoscopic Company	12 6	13 6	13 6
Clemson and Hutchinson	13 6	13 6	15 0

**THE United States** alone, according to a daily paper, made 300,000 cameras last year, and the photographic business reaches the respectable commercial total of £4,000,000.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
16	Watford Photographic Society	"Marine Photography." Mr. E. J. Mortimer, F.R.P.S.
16	Aberdeen Amat. Photo. Assn.	"Intensification and Reduction." Mr. Anderson.
16	Colne Camera Club	"Time Development." Demonstrated. Mr. H. Woods.
17	Aberdeen Photo Art Club	Blue Hill, Bridge of Dee.
19	Wildnes Photographic Society	"Methods of Intensification." Mr. G. I. J. Warner.
19	Wallasey Amat. Photo. Soc.	"Development." Mr. R. Tunnicliffe.
19	Heaton & Dis. Camera Club	"Lantern Slide Making by Retraction and Contact." Demonstrated. Mr. A. Stratton.
19	Hastings and St. Leonards P.S.	"A Short Holiday in North Wales." Mr. A. M. Apel.
19	Scarborough and Dis. Ph. Soc.	"Telephotography." Mr. C. P. Goss.
19	Southampton Camera Club	Focus Prize Slides.
19	Leek and District Photo. Soc.	"Worcester and District." Mr. V. Prince.
19	Bowes Pk. and Dis. Ph. Soc.	"Abroad with a Camera." Mr. E. Tappenden.
19	Dewsbury Photo. Society	"The Afterwork of Picture, Stretching, Mounting, and Framing." Mr. Perrin, A.B.I.C.
19	Catford & Forest Hill Ph. Soc.	Amateur Lantern Slides 1905. Photographic Prize Slides.
19	Wandsworth Camera Club	"Combination Printing by Glycerine Method." Demonstrated. Mr. B. H. Baskett.
20	Royal Photographic Soc.	"The Victoria Falls." Mr. J. F. Bass.
20	Sunderland Camera Club	Exhibition of Works by Mr. G. T. Coohay. And Chat on Home Portraiture.
20	Gloucestershire Photo. Society	"Bromide Printing." Demonstrated. Rotary Co., Ltd.
20	Jersey Photographic Society	"Portraiture." Mr. Harold Baker.
20	Newcastle-on-Tyne Photo. Assn.	"The Toning of Bromide Prints and Lantern Slides. The Intensification and Reduction of Negative and Tabloid." Brand of Photographic Chemicals." Mr. Walter P. Wilmough.
20	Colne Camera Club	"Collection of Slides Illustrative of Winter." Messrs. Ogden and Ormerod.
20	Bristol Photographic Club	"The Possibilities of Portraiture in Colour." Mr. S. E. Neame.
20	Darlington Camera Club	"Lantern Lectures." Mr. E. Little.
20	Birmingham Photo. Society	Sale of Apparatus, &c.
20	Manchester Amat. Photo. Soc.	"Copying Prints with a Camera." Mr. F. W. Farrold.
20	St. Helens Camera Club	"With Camera and Notebook." Mr. E. E. Burgess.
20	Otley & Dis. Cam. & Art Soc.	"Enlarging and Finishing." Dr. H. Paterson and Dr. W. H. Helm.
20	Sheffield Photographic Society	Conversational Evening with Demonstrations. "Copying for Postcards, &c." Mr. J. J. Leary.
20	Halifax Camera Club	"Self-toning Paper." Mr. G. Ryley. "Picture Planes." Mr. Perrin.
20	Nelson Photo. Society	"In Search of the Picturesque." Mr. W. H. Houghton.
20	Cardiff Windsor Amat. Ph. Soc.	Velox Papers.
21	Redhill and District Cam. Club	"Carbon Printing." Mr. T. Harrison.
21	Tunbridge Wells Ama. Ph. Assn.	"Nature as Viewed by the Panoramic Camera." Miss Turner.
21	G.E.R. Mechanics' Institution	"Still Life, Flowers, Copying, &c." Demonstrated. Mr. H. W. Bennett.
21	Rotherham Photo. Society	F.R.P.S.
21	Coventry Photo. Club	"Lantern Slide Making." Mr. J. Stamp.
21	Cricklewood Photo. Society	"Practical Lessons." Messrs. Ponsford and Woolacott.
21	North Middlesex Photo. Soc.	"Elementary Pictorial Composition." Mr. H. Barnard.
21	Leeds Camera Club	"In Briland with a Camera." Mr. Oliver G. Pike.
21	Redcar and Coatham Ph. Soc.	"Printing and Toning and Bromide Printing." Mr. A. E. Graham.
21	Coventry Photo. Club	Nominations of Officers. Rules.
21	Photographic Club	"After Treatment of the Negative." Annual Exhibition of Members' Work.
21	Rugby Photographic Society	"The Afterwork of the Picture (Stretching, Mounting, &c.)" Mr. Perrins.
22	Rodley, Farsley, & Calverley Dis.	"Insect Photography." Mr. H. Main, B.Sc.
22	Woolwich Photographic Soc.	"English Royal Heraldry." Mr. G. Davenport, F.S.A.
22	Blenheim Club	Annual Meeting.
22	Harrogate Camera Club	"A Constant Friend: My Camera." Illustrated. Mr. W. A. Taylor.
22	Liverpool Amateur Ph. Assn.	

MEETINGS OF SOCIETIES FOR NEXT WEEK (*Continued*):

March.	Name of Society.	Subject.
12.....	Pudsey and District Photo. Soc.	"Alteration and Improvement of Bromide Enlargements and Prints," Mr. John Way.
12.....	Richmond Camera Club .....	"The Platinotype Process." The Platinotype Company.
12.....	Cardiff Windsor Amat. Ph. Soc.	"In the Llyn Valley," Mr. Woodward.
12.....	Hull Photographic Society .....	Photographic News Prize Slides.

**ROYAL PHOTOGRAPHIC SOCIETY.**—Meeting held March 14, Major-General Waterhouse, President, in the Chair. The Chairman alluded to the loss which the Society had sustained in the death of two of its members, J. J. Vezy and F. Maxwell Lyte. A lecture was then given by Mr. C. P. Butler on the measurement of the composition of celestial bodies, in the course of which the methods of spectro-photometry as applied to the investigation of the sun and the fixed stars were explained and illustrated with a number of lantern-slides. The lecturer dealt at some length with the spectro-photometry of the surface of the sun, and with the investigation of the variations of the sun spots.

**GLOUCESTERSHIRE PHOTOGRAPHIC SOCIETY.**—Mr. S. G. Kimber gave his lecture on "Winchester Cathedral" on the 6th inst., and at the conclusion said that he had made up his mind never to write another such lecture, but, after having seen Gloucester Cathedral that day for the first time, he was greatly tempted to break his word. Cathedral photography was most interesting, and he recommended the members to turn their attention to their own cathedral, where they would find a great deal of good work.

**CROYDON CAMERA CLUB.**—The annual "rummage sale" took place on the 7th inst., Mr. Albright kindly officiating. The occasion always forms a grand opportunity of obtaining a quantity of photographic apparatus at an exceedingly cheap rate, frequently of not the faintest use to the purchaser. On the preceding Wednesday, a demonstration distinctly out of the ordinary, was afforded by Mr. A. J. Newton. In a full consideration of the methods of production of line and process blocks, each step being worked practically, from coating the collodion plate, to the production of the finished block, by one who was obviously a master of a difficult craft. The acrograph celluloid relief system was also shown, and aroused much interest. Some of the points dealt with by Mr. Newton in the course of his lecture, and arising out of the discussion which followed, were of direct utility to photographers, especially to those who at any time might wish to submit photographs for reproduction in the press or magazines. The ideal print for this purpose, said Mr. Newton, was one possessing a black opaque deposit on a pure white background. A glossy bromide print fulfilled these conditions admirably. A matt surfaced paper had a tendency to scatter the light too much. If a silver print was employed for the purpose, then it was of importance that it should not contain a suspicion of double-toning. Half-tone blocks were incapable of reproducing great contrasts, and as the wet plate was to all intents and purposes insensitive to red, a print of that hue would not reproduce well. On the other hand, it was always possible for the block maker to heighten the contrasts of a soft print, if so requested. If a body-colour white were employed for local work, care should be taken not to use Chinese white for the purpose. This absorbs ultra-violet, and therefore does not reproduce faithfully. Blanc D'Argent is cheap and good, but if exposed to light and air, gradually darkens. Winsor and Newton's "Albanine" photographs its true value, and is best for retaining its whiteness. Some of the process whites sold appeared to be Chinese white, merely under another name. The President drew attention to the collodion process for lantern-slides, an old worker in this direction himself. He was aware there were difficulties, but they could be surmounted. Mr. E. A. Salt suggested that amateurs should give the process a trial, if only to meet old wet-plate workers a little on their own ground. The latter frequently adopted an unconscious air of supreme superiority, which was most aggravating. He enquired how the relative cost of dry and wet-plates compared. Mr. J. M. Sellors said he used to assist a friend who worked wet-plates years ago, his share being chiefly confined to cleaning plates and dishes. Judging by the language which used to float round the dark room, the process did not appear to be conducive to moral rectitude. Mr. S. H. Wratten observed that coating a plate evenly and without streaks or ridges, was no easy

matter until the knack was acquired; certainly a quantity of collodion down one's sleeve was trying to the temper. Mr. Newton, in reply, said he agreed with Mr. Wratten that it was a matter of knack, easily acquired by some, but to others difficult. As to the question of cost, even in small sizes the collodion process worked out at about half the cost of the dry plate including labour. Larger sizes would be proportionally cheaper, but against this, unless one could work with wet-plates under ideal conditions, a crop of difficulties in the shape of spots, comets, or fog, might at any time unexpectedly arise. Wet-plates could be finished off, with far greater rapidity than was the case with dry plates, but if both were worked in large batches, then there was not much difference between them in this respect. It was more difficult to obtain good half-tone blocks with the latter, but several large firms used them successfully. Mr. C. E. Kenneth Mees, in proposing a vote of thanks to Mr. Newton, expressed the debt of gratitude the members of the club were under to him for such a pleasant and instructive evening, and in persuasive manner, successfully inveigled the lecturer into promising an exposition on tri-colour process work, in the immediate future.

**BRISTOL PHOTOGRAPHIC CLUB.**—Last week, Mr. F. Little gave a practical demonstration of the making of lantern-slides by contact and by reduction, and showed the method of using masks in combination printing. Mr. Little specially recommended the following developer for obtaining rich black tones with the "Ilford Special" and the "Paget Rapid" lantern plates, viz., amidol, 50 grains; sodium sulphite, 650 grains; potassium bromide, 10 grains; water to 20 ozs.

**SOUTHAMPTON Camera Club.**—The members competed on Monday last in three classes of lantern-slides, portraiture architecture, and other subjects. While the counting was in progress Mr. S. G. Kimber gave an illuminating criticism upon the slides sent in, a departure from ordinary procedure which was much appreciated.

**HEREFORDSHIRE Photographic Society.**—A special meeting was held last week. Mr. Cecil Gethen (the hon. sec.) announced that there was a good prospect of the Photographic Convention of the United Kingdom being held in 1907 in Hereford, and he understood that a formal invitation would be forwarded to the proper quarters by the Mayor and Corporation within the next day or so. On the motion of Mr. Gus. Edwards, seconded by Mr. Ernest Davies, the society resolved to give the visitors, should they select Hereford, a very cordial welcome, and to do all they could to make the gathering a success. Subsequently Mr. Wilfrid Green gave a practical demonstration of enlarging photographs, which was much appreciated by all present. In the Blake Challenge Cup competition, for the best photograph taken during the year, Mr. Harold Baker, F.R.P.S. (the judge), has awarded the cup to Mr. Frank Pritchard, Hereford, for a very pretty sheep study.

**PHOTOGRAPHIC Survey of Surrey.**—The annual meeting of the Photographic Survey and Record of Surrey was held at the Public Library, Kingston-on-Thames, on Saturday, Viscount Mitleton presiding. The report stated that during the year 1905 697 photographs had been received and recorded, against 660 in 1904. The ecclesiastical subjects included a series of wood carvings of the Fifteenth Century from the stalls in the choir at Lingfield Church. Valuable additions had been made to the Archaeological collection, a new feature of which was the application of direct photography to memorial brasses in their normal position. By this means photographs, obtainable previously only through the medium of rubbings, had been added from Stoke d'Abernon and Addington Churches. These had been secured by arranging the camera vertically over the brasses; and it would be possible to use the same method to obtain prints of all Surrey brasses. The Art and Literature section reported that photographs of various interesting documents in the Losley Collection had now been placed in the Town Hall, Croydon. The additions to the Anthropological section included pictures of finds on the site of the old Bermondsey Abbey as well as of important records and objects excavated at the British Camp recently discovered at Carshalton-on-the-Hill. There was also a good series of prints of the pit dwellings on Worm's Heath and one of a scold's bridle, date 1632, kept in the vestry of the church at Walton-on-Thames. To the Natural History section there had been 88 additions, the prints including a charming series of mollusca and insects, and an interesting set of the conifera growing in Kew Gardens.



## Commercial & Legal Intelligence.

**THEFTS** from the Stereoscopic Company.—At the Marlborough Street Police Court, on Saturday, William Stone, shoemaker, with no home, and Frederick Tyler, waiter, with no home, were charged with breaking into the premises of the London Stereoscopic Company, Limited, Regent Street, W., and stealing eight gold lockets and a pendant, of the value of £26. The police constables said that at 5.30 that morning they saw Tyler break the window of the shop with a stone. Both men, it appeared, had served terms of imprisonment, and were committed for trial. The value of the window was about £8.

**THE** Official Receiver for Wandsworth has now issued particulars under the failure of Francis Edwin Ellis, Streatham, London, S.W., from which it appears that the debtor has filed a statement of affairs showing gross liabilities amounting to £1,196 16s. 1d., of which £341 14s. 7d. is due to unsecured creditors. To fully secured creditors £725, the value of the securities being returned at £1,293, thus showing an estimated surplus of £568, which is carried out as an asset. To partly secured creditors £126 14s. 9d., the value of the securities being returned at £80, thus showing a balance of £46 14s. 9d., to rank against the estate for dividend, making the total liabilities amount to £388 9s. 4d. The assets are returned at £618, and include the estimated surplus of £568 from securities in the hands of the fully secured creditors. After deducting the claims of preferential creditors, payable in full, the net assets are returned at £614 13s. 3d., and a surplus of £226 3s. 11d. He accounts for this deficiency by part household expenses of himself, wife, and child since June, 1904, £125. Law costs £336. The Official Receiver states that the creditors treated as fully secured are three, and one of them, the debtor's own solicitors, hold a first charge on the sum of £1,218, due to debtor from the estate of W. Hayward, which debt is secured by a second charge on certain properties belonging to Hayward. The negatives, plant, and stock, which belonged to the late partnership between the debtor and Hayward, are held by the debtor as further security, for the payment of this debt. With regard to the second fully secured creditor, who is the debtor's wife, she holds a second charge on the debt due from Hayward's estate, and the third fully secured creditor, holds as security certain negatives and prints. The partly secured creditors are three in number, and hold respectively a charge on a policy on the debtor's life for £150, a bill of sale over the furniture and effects at "Ivycroft," and certain pawntickets.

**BRITISH** Automatic Photographic Company, Ltd. (London).—A 5 per cent. debenture, dated February 23rd, 1906, to secure £100, charged on the company's property, present and future, including uncalled capital, has been registered. Holders: Burn and Berridge, 11, Old Broad Street, E.C.

### COMPANIES REGISTERED.

**LOCKWOODS** (Chemists), Limited.—Capital, £2,000, in £1 shares. Objects: To acquire the business carried on at 80, Conran Street, and 91, Rochdale Road, Manchester, and at 112, Rochdale Road, 98, Moston Lane, and 233, Conran Street, Harpurhey; and to carry on the business of chemists, druggists, drysalers, dealers in photographic, and scientific appliances and materials, etc. No initial public issue. Registered without articles of association. H. S. Lockwood is the first director. Registered office, 112, Rochdale Road, Harpurhey, Manchester.

**M. W. DUNSCOMBE**, Limited.—Capital, £8,000, in £1 shares. Objects: To acquire the business carried on at 5 and 7, St. Augustine's Parade, Bristol, by M. W. Dunscombe, and to carry on the business of wholesale and retail opticians, photographic, mathematical and scientific instrument manufacturers, etc. No initial public issue. Registered office, 7, St. Augustine's Parade, Bristol.

**COMMERCIAL** Photo Company, Limited.—Capital, £6,000, in £1 shares. To carry on the business of manufacturers of, and dealers in, photographic papers, plates, films, postcards, and mounts, etc. No initial public issue. The number of directors is not to be less than three nor more than five; the first are G. R. Minnikin (managing director, with £200 per annum), R. H. Barker, and G. O. Nicol. Registered office:—Staveley, Westmoreland.

## Correspondence.

*\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\* \* We do not undertake responsibility for the opinions expressed by our correspondents.*

### HALF-DAY CLOSING.

To the Editors.

Gentlemen,—Mr. Lang Sims' advocacy of a half-holiday, to be granted on the same day as the local shop assistants' holiday, is a broad-minded and practical proposal, which is becoming increasingly characteristic of the better class of employers. The smaller and cheaper shops are, I fear, not always inspired with such broad feelings. Long and debilitating hours of service, and an innate dread of granting a fellow-being a few hours of daylight and sunshine for the recreation of muscles and nerves, are largely typical of our second-class establishments.

Is not this short-sighted and wasteful? Does it not defeat its own aim? Does it extract as much labour from the exhausted machine, as would be obtained from an animated and refreshed assistant?

One argues with the poorer class of employer in this strain, and he simply replies: "I cannot afford to work short hours." This can be proved to be wrong, for the chief competitive commercial countries are the short-hour countries (America, England, etc.), not the long-hour ones (Russia, China, Spain, etc.). Long hours, systematically worked, are a proof of bad organisation, nothing more.

And the longer the hours, or smaller the wages, the less productive the workpeople become,—less intelligent,—devoid of initiative and resource, because robbed of hope and ambition, and of their home and open-air amusements, which so build up a man's dignity, and also his physique and nervous tone.

One customary objection to a photographic half-holiday is that the local half-holiday forms the only free time for shop assistants to visit the studio for a sitting. This is not true. Having a close connection with a shop assistants' benevolent society and social club for many years, I found that shop assistants never use their half-holiday for any purposes that curtail amusement or sport. In my business experience of one town, we counted only thirteen shop assistants among our customers on the half-holiday, in the first three years. Then we adopted the half-holiday, and caused those who desired to be photographed on that afternoon to make an appointment. We had only four appointments in the next year, and eventually none at all. It was quite easy to deal with those who were specially placed, and the bulk of people in shop-life find no difficulty in obtaining leave for a sitting, or sitting early.

If photographers in any locality find that any one establishment is an obstacle to the carrying-out of a half-holiday, it may be pointed out that the new Early Closing Act gives the power to two-thirds of a calling in any town to carry the reform and compel the minority to close. There should be no necessity for this, however.

It is necessary to say a few words about general hours, and close my long screed. An advertiser advertises for a really good assistant, say, in these terms:—"Operator and retoucher, thoroughly experienced in posing, lighting, developing, retouching, and with a practical knowledge of turning-out smart work; also beginners, improvers, or amateurs wanted." The first-class applicant finds that in return for this knowledge and smartness he is to be worked from 8.30 a.m. to 7 p.m. daily. Will such a system keep up the level, physically and mentally, of our assistants? Why should the old studio hours of 9 to 6, or 9.30 to 6.30 (with a short interval for tea, and one hour for lunch), be so recklessly broken by numbers of second and third-rate houses, posing as "up-to-date" employers? It is just possible that to produce their type of photographs no great skill or intelligence is required; but in any case it cannot be expected that intelligence will be developed, or ability increased, under such a system. First, the assistants have no time for learning or reading; next, they lose any desire to learn or read, or even to exercise common interest in their daily round. This reflects itself in the produc-

of the studio; it injures the employers' trade, and reduces his profits.—I am, sir, yours respectfully, A MEMBER OF THE P.P.A.  
London, March 12, 1906.

To the Editors.

Gentlemen,—I was very pleased to see Mr. R. Lang Sims' letter in this week's issue of the BRITISH JOURNAL OF PHOTOGRAPHY on the above subject, and trust that other principals will take the matter up and endeavour to make the movement universal. I know many photographers allow their assistants a half day on separate days during the week. This plan, as Mr. Sims says, is at times very inconvenient, and not satisfactory to the young people concerned; it would be more appreciated if all had holiday on the same day. I have been agitating the matter here for some time, with the result that nearly all the leading photographers of Bristol (West) have agreed to close on Saturday afternoons at two o'clock.—Trusting to the aid of many others following this example, I am, dear Sirs, yours faithfully,  
W. H. MIDWINTER.

3, Park Street, Bristol.

March 12, 1906.

Several other letters on this subject which reach us as we go to press must stand over until next week.—Eds., B.J.P.]

#### A COLOUR-PHOTOGRAPHY SOCIETY.

To the Editors.

Gentlemen,—The suggestion made by Mr. Howard Farmer, in his letter, published in the current issue of the B.J.P., is one which does not necessarily appeal to those whose work in colour-photography has made the present exhibition so representative of the stage to which it has advanced. The present exhibitors must feel that their efforts to-day are but a phase in an art growing so rapidly that these efforts mark a great advance on the achievements of but a few years

ago. The stages of growth of an art are with difficulty traced when it reaches its full development, and it is because the exhibition of B.J.P. marks a stage in the early promise of colour-photography that the suggestion of Mr. Howard Farmer strikes me as valuable. As an exhibitor, I may say that should any or all of my efforts be considered of sufficient interest I should be most happy to present them with a view to the preservation intact of the present collection.

It has been further suggested that this first Exhibition of Triumphant Photography might well be the precursor of periodic exhibitions of a similar character, and that the occasional meeting of workers in this branch of the art could not fail to advance our knowledge of the ways of overcoming the many difficulties with which it is still beset.

The Editors of the B.J.P. have succeeded so well in bringing before the public the samples of the work that it occurs to me that they might further their efforts by convening a meeting of the workers themselves with a view to the formation of a Society of Workers in Colour-Photography. I will, at least, so far trespass on your courtesy, Gentlemen, as to throw out the suggestion.—Yours faithfully,  
EDWIN T. BUTLER.

Craven Park, Willesden, N.W., March 10, 1906.

We shall be prepared to further Mr. Butler's timely suggestion by using our columns to the views of those interested as to the form which such a society should take. It seems to us that the progress of individual workers would be aided by a circulating portfolio of specimens, and by the establishment of a register of the names and addresses of members in a position to correspond with others on technical difficulties. Perhaps those in favour of the formation of a body will communicate with us when we will consider what may be taken.—Eds. B.J.P.]

#### THE PHOTOTYPE COMPANY, LIMITED.

To the Editors.

Gentlemen,—To prevent any misunderstanding reflecting on the policy of the above company by the report of my private affairs, I wish to inform you that such proceedings do not concern the Phototype Company in any way, and that we have always made it a policy in our business to pay cash for everything where possible, and to benefit by the fullest cash discounts offered by the trade,

thereby enabling us to give our customers the best value for money. I can say that at no time (after the 15th of each month), have our liabilities ever exceeded £20. This principle will be carried out to the letter as long as I have anything to do with the company. Our share capital is £2,000, of which only £706 15s. is called up.—Yours faithfully,  
F. CRICHTON-TEMPLE, Secretary.

London Office, 221, Temple Chambers, E.C.,

March, 9, 1906.

#### SULPHIDE TONING.

To the Editors.

Gentlemen,—Your interesting notes on the subject of sulphide toning, under the heading of "Ex Cathedra," in your recent issue, are suggestive of some comment.

It is stated that the facts detailed in these notes "do not in any way disprove the existence of silver monosulphide in the brown toned image." In other words, the results obtained are only not inconsistent with the toned deposit being silver monosulphide. But are there any strong grounds for believing the toned deposit to consist of pure silver monosulphide? May it not more probably be a complex sulphur, containing compound of silver? If colour be regarded as any clue to identity, appearances are certainly against the view that the deposit is ordinary silver sulphide, for the red-brown colour of toned prints contrasts strongly with the rich black of ordinarily prepared  $Ag_2S$ .

Of course, such a difference in colour in the two cases might be ascribed to a dichroism, analogous to that shown by such substances as blood or  $CuSO_4$  solution, when layers of varying thicknesses of these substances are examined.

But a fact mentioned in the notes suggests more forcibly another view of the matter. It is stated that cyanogen compounds, removable by treatment with dilute acids, remain in the prints after they have undergone a considerable amount of washing. It is inferred that these cyanogen compounds are soluble, else the recommendation to wash longer than is usually the custom is meaningless. But may not the cyanogen compound be in the deposit in insoluble combination, and not, as implied, in the paper in a soluble condition? It is a fact well known to analysts that the presence of complex cyanogen containing acid radicles (such as  $Fe_3(CN)_6$ ), so greatly interferes with the usual course of analysis (based mainly on sulphide separations) that it is customary to make a preliminary test for such radicles, and if found to destroy them before proceeding to the systematic analysis. The capacity which sulphides have of forming what, for lack of more precise knowledge, we call "molecular compounds," is well known. The "magpie precipitate" thrown down from mercuric salts by  $H_2S$  may be instanced, as also the brilliant red compound sometimes precipitated by the same reagent from bismuth solutions in place of the pure brown sulphide.

From the point of view of these comments the question suggests itself: Is the potassium bromide prescribed in the bleaching solution for sulphide toning absolutely essential to the process? If so, what exactly is its function, other than perhaps an accelerative one? I ask this question with some trepidation. Unfortunately, I am not at present in the position to answer it for myself by direct appeal to the tribunal of experiment.—Yours faithfully,

DOUGLAS CARNEGIE.

Newton Abbot.

[An alkaline solution of ferricyanide without bromide, as our correspondent doubtless knows, will serve as a bleaching solution, and even a neutral ferricyanide solution, if it is given plenty of time to act, will bleach, though not to a complete stage. The bromide is thus not essential to the operation, though we have not any quantitative data to tell us what part it takes in the reaction. Our notes were written to show that there are chemical reasons for distrusting a ferricyanide bleacher as regards future immunity from stains. In practice we believe ferricyanide plus bromide is the most popular, and is the basis of several commercial preparations. Yet, as our experiments have shown, and, as Mr. Carnegie states, the formation of complex cyanogen compounds may be an unfavourable characteristic of it. Chemically, a solution of bromine is a bleaching solution, which cannot be improved upon, and is altogether excellent in the colour and depth of the results. Its one defect is the irritating vapour.—Eds. B.J.P.]



## Answers to Correspondents.

- \*<sup>a</sup> All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \*<sup>a</sup> Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \*<sup>a</sup> Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \*<sup>a</sup> For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- W. Harrison, 68, Meadow Road, Leeds. *Photograph of the Hunslet Cricket Club, 1905.*
- W. Brown, 9, Gilmour Street, Paisley, Scotland. *Photograph of the Rev. James Marr, B.D.*
- W. Harrison, Holly Bank, Onchan, Isle-of-Man. *Photograph of the Steamship "Viking," leaving Douglas.*
- H. A. Aylward, 17, Wote Street, Basingstoke. *Photograph of the late James Neillie, Esq. Photograph of Mr. Clavell Suter, K.C.*
- L. F. J. Hawsels, 27, Topsheld Parade, Crouch End, London, N. *Photograph of the Rev. J. B. McHarry.*
- J. E. Miller, 40, Seorton Street, Liverpool, Lancashire. *Photograph of a Group of Boulders with Prizes.*
- Art. Printers, Ltd., Counterslip, Bristol. *Photograph (Combination) entitled, Free Trade v. Fair Trade.*

TONING, ETC.—Will you please give through your correspondence column in the JOURNAL:—1. A formula for toning matt collodion paper to sepia or red tones? I believe it is done with chalk, but do not know exact proportion. 2. Also a developer suitable for intensified negatives, previously bleached with mercury.—D.

1. The formula required is probably that suggested by Kessler (see B.J. Almanac, p. 811). Chalk, 125 grains; water, 10 ozs.; chloride of gold,  $\frac{1}{2}$  grain. Allow to stand for two hours and use the clear solution. The thiocarbamide bath also given on the same page may be used with excellent results. 2. Almost any developer may be used for the development of negatives bleached with mercury. If but slight intensification is required then ferrous oxalate should be used; but an alkaline developer, such as metol-hydroquinone, or adurol, containing sulphite, will give greater increase of density.

D. MACBETH.—Prints on your paper would be as permanent as those on any other printing-out paper.

Brompton.—We presume it is a telephoto lens, and the separation of negative and positive would also be altered. That is so in the case of the "adjustable landscape lens." The same principle could be applied to an R.R., placing a negative lens behind, but the exposures would, of course, be lengthened in proportion to the magnification.

STUDIO QUERY.—I am thinking of building a studio 26 ft. x 12 ft. inside. To get the width I shall have to come close to a 4 ft. 6 in. wall, therefore I thought it would be more convenient for repairing, etc., if I had a single slope roof at an angle of 60 degs. My sitters abhor a dark shadow side of face. With this type of studio can I avoid that without using a reflector, which is rather unsatisfactory when taking groups, as it has little effect on those in the centre of same, and a nuisance when you have a rush of sitters? I thought of 8 ft. eaves, and 5 ft. respectively; glass, 16 ft. square; angle, 60 degs. Does this type of studio do well for wedding and other groups, or is the 5 ft. side liable to unduly interfere? If you will kindly let me know your opinion I shall esteem it a favour, as I do not want to spend money in vain.—UP-TO-DATE.

Of the two designs we should give preference to that shown in No. 2, with the glass as marked by the dotted line. There will

be no difficulty about unduly dark shadows if the blank side is papered, or painted, in a light tint. The studio will answer well for groups, as also for single figures. In such a studio you should get excellent pictures.

BENEFIT SOCIETY.—Could you kindly inform me whether there is any benefit society existing for photographers' assistants?—BYRON.

None, we believe.

A. K.—We would advise you to use the formula directed by the makers of the paper, or, in the event of there being none, the following: 1. Hypo, 12 ozs., dissolved in water, and made up to two pints. 2. Ammonium sulphocyanide,  $\frac{1}{2}$  oz.; water, 5 ozs. 3. Lead acetate,  $\frac{1}{2}$  oz.; water, 5 ozs. 4. Gold chloride, 15 grains; water, 5 ozs. Take of No. 1, 7 ozs.; of No. 2, 1 oz.; of No. 3, 1 oz.; and of No. 4,  $\frac{1}{2}$  oz.

E. N. (Wigan).—Probably the negatives are not vigorous enough. Try developing them longer and printing on a bromide or gaslight paper. Why do you not send us prints, showing the defect complained of.

ARTISTIC LENSES.—Would you object to stating if the lenses (including the single one) discussed in last week's B.J., could easily be used for both landscape and portraiture work? Which is the best "all-round" lens? What would be the effect of using the landscape lens for portraiture, and vice versa?—IGNORANT.

The "adjustable landscape lens" is described by Major Pyndar as suitable also for portraiture, but the special portrait series of anachromatic lenses work at larger apertures. Probably the "adjustable landscape" is the best all-round lens of the anachromatic.

SUSSEX.—We know of no obstacle. Many reputable photographers do so.

COPYING.—Is there any simple contrivance by which an object about half-inch in length could be photographed twice natural size?—X. Y. Z.

Certainly; photograph it in the ordinary way, placing it at distance from the lens equal to one and half times the focal length of lens. The camera extension will be three times the focal length.

MOGGLETONE.—You have no remedy for infringement before registration. We should advise you, however, to draw the facts of the copy having appeared on the paper to the attention of the proprietors, and ask them what they propose doing.

HOLIDAY.—Under the circumstances, absence of any written understanding, we do not see how you can claim the holiday. Certainly you cannot claim the salary in lieu of it.

ENLARGEMENTS.—Could you kindly give me particulars of the process and apparatus required to produce solar pictures and enlargements?—SOLAR.

We have answered this question several times lately, and given full formulæ in our issue of May 19 last year. The paper is saturated with a mixture of iodides, bromides and chlorides, and sensitized by floating on silver nitrate solution. A developer of gallic acid is then applied.

\*<sup>a</sup> NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## SUMMARY.

Impressionism, which is the modern fashion in Art, stops short at where difficulty begins. . . . Its facility of execution is necessarily effective, decoratively, and a certain number of imitators, captivated by its facility and novelty, are following the lead given. . . . mistaking a part for the whole." This view of modern Art expressed by Mr. J. C. Dollman in a paper on "Art in Painting and Photography." (P. 225.)

A Bill is being brought before Parliament to make the adoption of the metric system compulsory. (P. 222.)

The precaution of a full trial is recommended to purchasers of new apparatus. (P. 223.)

For local and general intensification of negatives the "powder" process might be more generally used for its inability to damage the negative and its power of localising effects. (P. 223.)

For retouching negatives of interior subjects, Mr. Arthur Whiting, a combination of rubbing down and knifing the film, and cutting the glass side. (P. 225.)

Several correspondents support the recent suggestion of a half-day closing for photographers. (P. 225.)

A second case has come up in which a photographer has successfully resisted a summons from a local surveyor classing a wooden box-case as a "building." (P. 235.)

## EX CATHEDRA.

### The Exhibition of Colour Photography.

Several other exhibitors of colour-photographs having signified their approval of Mr. Howard Farmer's suggestion of a permanent collection, we have approached the Royal Photographic Society, as the body best able to find proper accommodation for such a collection, and we are in a position to report that in a letter from the Secretary, authorised by the Council, the Society accepts our proposal that it should provide wall space for prints and means of displaying the transparencies which have formed the recent exhibition. Our intention, therefore, so far as authorisation from our exhibitors empowers us, is to hand over the exhibits to the Royal Photographic Society, by whom their receipt will be acknowledged to each individual donor.

\* \* \*

### Another Photographic Exhibition in Paris.

We learn from a circular of the "Photo-Touring de France" that it is arranging its first annual international exhibition of photography for June 6 to 17, in the Serres de la Ville de Paris, near the Champs Elysées. The "Photo-Touring," we understand, is a young body, scarcely a year old, and its officers appear to be drawn in a number of cases from the staff of a journal called "Photo Pêle-Mêle," of 106, Rue de Richelieu, from which address the affairs of the proposed exhibition are to be administered. The charge for each picture exhibited is 2 francs, or for societies exhibiting *en bloc*, 10 francs. The aim of the "Photo-Touring," it is stated, is purely artistic, but the exhibition is being given a somewhat wider character, and exhibits of apparatus and accessories—in short, the trade—will be admitted. We confess we should like to know more of the "Photo-Touring," which, presumably, has nothing to do with the "Association des Amateurs Photographes du Touring-Club," of which M. F. Lagrange is the secretary, and of which M. Lippmann is an honorary president. Yet the scheme of the proposed exhibition appears to be one which it should be easy to carry out successfully.

\* \* \*

### Lenses Old and New.

Those who have only recently taken up photography have little idea of the advantages they possess over the much less fortunate individuals who began their experience some few years back. A short time ago we had the opportunity of looking over a stock of old lenses, and of borrowing some of them for experimental purposes. Among them was one of the "rapid rectilinear" hand camera lenses that were on the market something like twelve years ago to meet the demand for very rapid lenses suitable for snapshot work. This lens was of 6 inches focal length, and was supposed to cover a quarter-plate at *f*/5.6. We tried it carefully, and found that it would not cover that size plate with decent definition at *f*/8, while at *f*/11 its performance left



much to be desired. Out of curiosity we looked up the price of this lens in an old "Almanac," and found it was listed at £5! Only a few weeks previously we had been testing some modern cheap five-inch rectilinears working at  $f/8$  and costing about 30s. We found that their quality was variable, but they were all better than the old six-inch lens, and at least one of them was a distinctly good specimen that covered a quarter-plate sharply to the corners at  $f/8$ . This lens was well worth its cost, while the old one would be a bad bargain at half-a-crown, though it would certainly fetch much more than that at a sale, by virtue of the name of its maker. The modern photographer can obtain an anastigmat of the very highest quality for the original price of that old R.R. lens, while he can get a lens that is probably as good as he needs for less than a third the price. High-priced R.R. lenses of very moderate efficiency were by no means uncommon some few years ago, and it now seems curious that they should have even commanded a sale, considering that the same lists that mention them also include very good anastigmats at about the same price.

\* \* \*

#### **Collodion v. Gelatine Plates for Lantern Slides.**

At a recent meeting of the Croydon Camera Club there was an interesting discussion on the wet collodion process—one of the members suggesting that amateurs should give it a trial for lantern slides. During the discussion one of the chief difficulties in working the process seemed to be looked upon as the coating of the plate evenly with the collodion. Most workers of the process—and those who have taught it to others—would look upon the cleaning of the glass before it is coated as a far greater difficulty to the beginner than coating the plate after it is cleaned. Those who are only familiar with the working of gelatine plates have no conception of the extreme chemical cleanliness necessary at the initial as at every later stage of the wet collodion process. Compared with these the coating of the plate is a mere bagatelle, especially when only small plates are in question. In the old days amateurs used to work the collodion process successfully, and the favourite sizes with them then were the seven and half by five and the ten by eight inches, and after a very little practice they were able to coat the plates evenly, even when working away from home in small and ill-ventilated tents. If this were the case then, and under trying conditions, we see no reason why amateurs of the present day should be debarred from trying the collodion process for such small sizes as lantern slides by reason of the alleged difficulties in coating the plates. Large commercial carbon enlargements are printed from collodion negatives, and these are sometimes four feet by three, and larger, yet the plates are evenly coated, and in precisely the same way as smaller ones. That the collodion process is an admirable one for the production of lantern slides is evidenced by the fact that so large a proportion of the commercial slides are by that process. But, seeing the excellence of the gelatine lantern plates now on the market, and the ease with which good results may be obtained with them, we imagine that few will take up the collodion process solely for lantern-slide work.

\* \* \*

#### **The Metric System.**

It is announced that, at the instance of the Decimal Association, Mr. Henry Norman is about to introduce a Bill in the House of Commons for the compulsory adoption of the metric system of weights and measures in Great Britain. Writing to the daily press, one day last week, the secretary of that Association said that he has received fifty-three promises of support from newly-elected M.P.'s. It appears that in the last

Parliament there were 330 members pledged to support the adoption of the metric weights and measures in this country, that at the present time 253 votes can be relied upon in the House of Commons, and that additional assents are being received day by day. It is probable that when the canvass now proceeding is completed that there will be many supporters in the present Parliament as there were in the last. We must wait to see the fate the bill will meet with, if time is found for its discussion. Whatever that may be there is no question that the universal adoption of the metric system would be a great convenience to photographers. Great Britain is about the only European country in which the metric system is not the one in universal use, and it has more than once been suggested in these columns that, without waiting for the compulsory adoption of the metric system in this country, it should be universally adopted amongst photographers. Some years ago the "Photographic Club" made strenuous efforts to get photographers to take it up, but nothing practically came of it. Most of our plates and paper makers now give the formulae for their developers both under the English and the metric systems, but few, we imagine, in this country make them up according to the latter. Perhaps one reason why the metric system has not been more generally taken up by photographers may be that metric weights and measures are not stocked by photographic dealers. We have before us the full catalogues of two of the largest London houses, and in neither of them are metric weights and measures mentioned.

\* \* \*

#### **Inducements to Purchase.**

We have commented in these columns before on the wisdom of putting quality before cheapness as a means of drawing customers to a studio. Photographic portraits being a luxury, the inducement of a low price is not the essential factor it is in the sale of necessities of life. We were reminded of the weakness of the "price" inducement recently on visiting a photographic exhibition where a professional photographer was occupying space for which, we suppose, he had paid like any other exhibitor outside the regular classes. And the only use he was able to make of the occasion was to advertise the meaningless offer that on all orders received at the exhibition he would allow a discount of 25 per cent. We cannot imagine that the difference between 12s. and 9s., unaccompanied by any plausible reason for it, would lead persons to place their orders. We should have thought that more was to be gained by a careful display of a little of the photographer's best work, presented in a way which should appeal to people who, by their presence at such an exhibition, might be credited with a certain degree of taste in photographic matters.

\* \* \*

#### **Enlargements as a Means of Pushing Business.**

We have frequently pointed out in these pages the necessity for seeking business rather than sitting down and waiting for it. It is an undoubted fact that there are many people with money to spend who merely need the direction to be indicated. The shop window displays are far more likely to catch the eye of those who do not know what they want than to guide the buyer who starts out with a definite intention. This, of course, applies particularly to businesses supplying luxuries, such as photographs undoubtedly are, in the majority of cases. The late H. P. Robinson pointed out years ago that more might have been done with ceramic enamels had photographers supplying them devoted some ingenuity to applying them in other directions than to brooches and special morocco cases. We do not think as much business is got out of enlargements as might be. The expense of a number of specula-

enlargements is perhaps a consideration, though such  
ires, enlarged and finished in very effective styles, are  
e had at remarkably low prices. We may suggest,  
ever, that a simple form of day or artificial light en-  
ber be fitted in the premises, and then at a cost of about  
once an enlargement can be made, rough mounted, and  
ed in a stock frame so that it may be shown to the  
omer under favourable conditions. Artificial light  
d have the advantage of allowing such work to be done  
e evening when studio sittings or daylight printing  
over for the day.

# **Chasing aratus.**

The time of the year being at hand when  
many of our readers will be purchasing  
new apparatus for use during the forth-  
ing season, a hint on one point may be permitted. It  
at first sight, appear superfluous if the apparatus be  
ht from a high-class house, yet slight errors may, at  
s, occur in the best regulated workshops, and not be  
ted even when the apparatus is carefully examined  
e it is sold. It is only when the purchaser uses it  
ne field that its shortcomings, if any, are discovered,  
not then until, perhaps, the whole of a holiday's work  
und worthless. We may instance two or three cases  
h have come before us. A camera of the twin-lens  
was ordered from one of the most noted makers. A  
of lenses were also ordered for it from a well-known  
on house by the customer. The camera-maker in due  
e fitted them to the apparatus, and it was then, with-  
rrial, taken on a tour abroad, and many dozen plates  
sed. These, when developed, proved to be all more  
s out of focus; some, those exposed with the full  
ing of the lens, hopelessly so. The maker of the  
ra was blamed for his work, but he protested that the  
r and the plate were in accurate register, and so they  
The lenses were then put on to a bi-lens camera, and  
as at once seen that there was a difference in their  
although they were supposed to be accurately paired.  
a few plates been exposed in the apparatus before it  
taken abroad the error would have been detected,  
disappointment and annoyance avoided.

# **Rehearsed periences.**

Another case:—An experienced amateur  
photographer, passing through London  
ute to a far off country, purchased a hand camera of  
eflex type of a well-known house, and took it away  
him direct, without trial. Several dozen plates and  
were exposed on the tour, and when they were  
oped it was found that they were all more or less  
d, the longest exposure the most so. The apparatus  
hen put into the hands of an expert, who found that  
of light gained access to the plate by the side of the  
r when it was in a certain position during the ex-  
e. The defect was easily remedied, but the photo-  
ic results of a far away holiday tour were more or less  
. Had the apparatus, before being taken away, been  
a few times out of doors, the defect would have been  
ced and quickly set right. Not long ago, in a con-  
ary, a photographer detailed some of his grievances  
st apparatus manufacturers, and mentioned that he  
ought a new camera, and took it out to do some work,  
hen found that he could not draw any of the shutters  
slides, and had to go home without making an ex-  
e. It is a little difficult to imagine that any photo-  
er, particularly a professional, should go with a new  
atus into a field without taking the precaution to see if  
utters of the slides could be drawn, but such appears  
been the case. However, as the above cases serve to

illustrate that errors sometimes occur even in the work-  
shops of the best houses, although they are not frequent,  
yet when they do occur, they usually cause very considerable  
annoyance. Seeing the possibilities of such things happen-  
ing, we strongly advise all purchasers of new apparatus  
not to go away on a tour with it without previously having  
a full dress rehearsal in the field under the most trying  
conditions.

## **Local Intensification of Negatives.**

It is sometimes desirable to intensify  
certain portions of a negative while other  
parts are retained in their original state.  
Various methods of local intensification have, at different  
times, been published, and most answer well in the hands  
of those familiar with the working of them. But in the  
hands of novices they have sometimes led to the ruin of a  
valued negative. The powder, or, as it is sometimes called,  
the dusting-on, process lends itself well to the local intensi-  
fication of negatives, and, though it has more than once  
been advocated for the purpose, it is but little used. It is  
simple to work, and with it there is no risk whatever of  
injury to the negative. Again, if the result first produced  
is not altogether satisfactory, the work can be cleaned off  
and commenced afresh without the slightest fear of  
damage to the negative, as the intensification is done on  
the back of it. There are various formulae for the dusting-  
on process, and that given on page 986 of the "Almanac"  
is as good as any. It stands thus:—

Gum arabic .....	80 grains.
White sugar .....	60 grains.
Ammonium bichromate .....	60 grains.
Water .....	7 ounces.
Methylated spirit .....	1 ounce.

A thin coating of this is spread upon a glass plate and  
dried before the fire, or over a spirit lamp, in a darkened  
room, and then allowed to rest for a while after it is cold.  
If a dry powder is dusted over the plate in this state the  
powder will adhere evenly all over. But if the plate be  
exposed to light, under a negative, the powder will only  
adhere where it has been more or less protected from the  
action of light. In intensifying a negative the powder  
process is used as follows:—Some of the above mixture is  
flowed over the glass side of the negative and drained off.  
The plate is then held before the fire until it is dry, and,  
while still warm, is laid, picture side upward, on a piece  
of black velvet, or cloth, and exposed to diffused light for  
a few minutes. It is then taken into the room, and some  
finely-powdered plumbago is applied with a soft camel-hair  
brush. It will be found to adhere in proportion as the  
film has been protected by the image of the negative, and,  
where the light has fully acted, it will not adhere at all.  
This being the case, it is obvious that if the powder be  
applied locally, only those portions will be strengthened,  
while the others will be left intact. In this way we have  
ample scope for individual treatment. Should the work  
not prove satisfactory the film can be cleaned off with a  
damp cloth and a fresh coating applied as before. If the  
powder takes too freely it is a sign that there is too much  
moisture in the film, and the plate should be slightly  
warmed again. If, on the other hand, it does not take  
freely enough the plate may be lightly breathed upon.  
The simplest way of fixing the powder image is to expose  
it, film side, to light for half an hour or so to harden the  
film. The slight tint of the bichromate will but very  
slightly retard the printing, and, therefore, need not be  
removed. It may be mentioned that but very little of the  
plumbago is necessary on the film, as it has great intensify-  
ing power.



## THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATIONS OF ENGLAND AND AMERICA.

IN our last week's issue we gave the annual report of the Professional Photographers' Association, and, following it, some account of the doings of the Professional Photographers' Society of New York, and the two, taken together, are interesting as well as instructive, since both institutions have the same common object in view—namely, the mutual benefit of their members. From what we gather from the reports of the meetings of the American Society, several of which have from time to time been published in our pages, there would seem to be a greater *entente cordiale* existing amongst professional photographers in the States than is the case in this country. Americans seem willing and anxious to assist their brethren in their business methods, and so raise the status of the profession generally. Early next month there is to be a two days' meeting and exhibition in New York. As described by the President of the Society, "it will be an 'at home' affair. The talks will concern 'the business,' the pictures will be 'business pictures,' and everybody that attends will be just 'business folks.'" This reads as a very business-like circular, and we have little doubt, from what we know of American professional photographers, that the meeting will prove beneficial to all the members. It will doubtless occur to some that a similar exhibition in this country, under the auspices of the P.P.A., would be desirable, if run on purely business lines—more especially as technical

photography is not at all well represented at the different exhibitions. There is no question that the P.P.A. is necessary, that it is doing good work, and that it would do more if it received better support from the profession generally. The annual report shows that between fifty and sixty new members have joined, while some twenty members have been lost by death or resignation. But the most unsatisfactory intimation is that the names of about sixty members will have to be removed because repeated applications have failed to produce payment of the subscription. This is not at all to the credit of these persons, seeing that the subscription to the P.P.A. is only 5s. We are frequently appealed to, as shown by the "Answers" column for advice on business matters, trade disputes, quality of goods supplied, disputed accounts, non-executed orders, copyright, etc. Yet it frequently happens that it is impossible or inadvisable to reply fully to such questions in print, and we have often had occasion to refer querists or disputants to the P.P.A.

Surely no one is in a better position to arbitrate in trade disputes than a body of professional photographers of standing, and for its services in this direction alone the P.P.A. deserves the widest support from the photographic profession. Over and over again it has been the means of avoiding more or less costly law proceedings to the mutual satisfaction of all parties concerned, and we would omit no opportunity of impressing upon photographers the intimate relations which should exist between themselves and the Association which in many ways has justified its claims to advance the status of photography as a calling.

## RETOUCHING NEGATIVES OF INTERIORS.

It is a pity that negatives of interiors so rarely pass through the hands of the retoucher, for it is a fact that, however perfect a negative may be, it rarely happens that it cannot be improved technically by judicious hand-work. And if, on the other hand (as is sometimes the case), it is of such poor quality as to be considered a failure, then skilful manipulation with the pencil and its allies may atone for its faults and make it more or less presentable. I once knew a gigantic order for photographs of a Royal function (interior) to be lost because the negatives were too bad to use, and although the firm was one of good standing, it was ignorant of the fact that they could be made presentable. I afterwards retouched these negatives, and gained thereby the acknowledgment that the order could have been retained had the work been done at the time.

Speaking generally, faulty negatives of interiors give either a harsh black and white chalky appearance, with plenty of halation, or else a flat hazy effect from over-exposure. Doubtless the difficulty of correctly judging the exposure, together with the use of unbacked plates, is answerable for the majority of failures, but, thanks to the craft of the negative-artist, these unpleasantnesses may be practically annihilated.

### Removing Halation.

First let us consider how to make that white patch of halo occupying the place of a window represent the beautiful stained glass pictures which should be there. No doubt all are acquainted with the process known as "rubbing down," and some also will remember the patch-like effects they have occasionally produced by its aid. To tell the truth, rubbing down halation from the top of a few trees requires much less skill than removing halos from stained glass windows, for

you have not only to take away those "sun-dogs" and blot the printing density of the window down to that of the rest of the negative, but also to preserve the delicate detail of pictures and lattices, as well as the representation of architecture at each side. And the work must be done with strict sense of delimitation.

The materials used are cotton wool, the finest tripoli powder and alcohol. Methylated spirit is generally employed, and have tried many others, such as benzine, benzole, chloroform, ether, etc.; and also "Globe" polish, tripoli with indiarubber, methylated spirit alone, flour of emery, and other mechanical reducers, but must give the palm to tripoli and absolute (or methylated) alcohol. The latter is difficult to obtain, and expensive, but by far preferable.

Apply the mixture evenly, gently, and confine the friction strictly to the part to be reduced. When of a proper density wipe off with methylated spirit, and if the appearance is then satisfactory (excepting a few shadow lines), attention must be paid to reducing masses of masonry, reflection from glass of picture-frame, or aught else that will print out too white. Such parts can be likewise reduced if they consist of large patches, but if small, or of narrow proportions, the retouching knife will be a more convenient instrument to use. Occasionally the tripoli-and-alcohol method is useful in such places, if applied on a piece of cotton wool or surgeon's pad previously bound over the end of a flat wedge-pointed stick.

### Knifing in Local Reduction.

For clearing away the clogging in the fine shadow lines and detail in windows, sculpture, and masonry, a knife different from the usual scalpel pattern is of service. It is made from a drill (No. 12 to 15) or a carpet needle. If the

latter, break off the eye, soften the steel in a fire or t-flame, and then file off to a chisel-shaped edge, one side of thus being bevelled and the other flat. The edge will not be square (horizontal) to the length of the needle, the left-hand end (viewed from the flat side) should lie a little obliquely. After it has been shaped, make hot, and plunge immediately into cold water to harden steel. When the pointed end has been placed in a handle, the shaped edge can be sharpened on an oil-stone. A fine argument of this description enables the artist to locate work more easily than a scalpel will do, and thus to act ditiously.

#### Matting the Negative for Retouching.

When all the dark detail and shadows have been efficiently t with, cover the negative with medium all over, and t up the light detail of the parts rubbed down. Next tish the negative with "matting" varnish and rub down rule 1, 2 or 5, page 960-1, in this year's "B.J. Almanac," answer for a recipe). If the negative is valuable, or a number of prints are to be made, it will be safer to ionize the negative previously, to prevent staining, as varnishes like the above do not protect as well as the l hard negative varieties. In any case, when the varnish

is matted, work over the little inequalities of depth (caused by rubbing down the film) with a stump and plumbago; also lighten all broad shadows likely to print too heavily by the same means, or, if the surface is very great, use a tint stump instead. After they have received correction, work up the lighter detail and higher half-tones, and lights, including the work on friezes, screens, statuary, etc., with lead pencil, until they seem to stand out somewhat stereoscopically, for, generally speaking—of course, there are exceptions—brilliancy with softness of tone and excellency of definition are aimed at in making photographs of interiors. When the pencilling is completed, you will probably have drawn a perfect picture of the interior on the surface of the varnish, which may be seen by holding the negative horizontally. It may be as well to mention that the pencil will not need such a fine point as is necessary for portrait retouching; an ordinary point as used for drawing purposes is better.

During the dull days, whilst the retouchers are slack, they might well fill up their time by working up stock negatives of interiors of churches, chapels, and other buildings, for which there is a ready sale; and assuredly, if the work is well done, after copies will appear to have been made from a better and brighter batch of negatives altogether.

ARTHUR WHITING.

## ART IN PAINTING AND PHOTOGRAPHY.

(A paper read before the Society of Arts on March 7.)

short time ago I received a newspaper cutting from a friend of , who knew I was to have the pleasure of addressing you this ng on the subjects of painting and photography. The paragraph tained was evidently part of a correspondence being conducted a paper on what were considered to be the rival claims of paint- and photography as the exponents of art. The discussion appar- had taken the turn of weighing the claims of the two exponents, figured in the letter under the title of "The Man with a Con- on" and "The Camera Man." As the argument progressed, and oros and cons were given, one read of the ultimate triumph of e Camera Man" and of the eventual downfall to ignominy of e Man with a Conception" who would, no doubt, it was politely ated, "finally disappear."

ference to a matter of comparatively such small importance as etter, may appear to be slight foundation for a paper concerning ument, but there is, unfortunately, a good deal being said and ed of a like nature in connection with it; which is only of a eef-breeding, character, that can be for no good, and frequently s men of repute into an idle argument which they presently t having embarked upon. Now I submit that all such discussions e relevant, and are but a waste of time, for it is foolish to spend y in disputing who is going to do a thing best while the time so yed might be given to the subject itself. The study of art is the t of both fraternities, and whether the man devoted to that t elects to work with the palette, or the camera, he must remem- that he is engaged upon the study of a serious and beautiful sub- and realise the fact that its followers have far more to gain by ng in unity than they could ever achieve by disputing on the

If the art of futurity is to be produced by the camera, well and t let us be thankful to know that the future will contain art, t if such be the case, that the camera be the instrument of it, it t still require to be handled by a man with conception, for, as we t, art is found only in the personality of the individual and does t depend upon any special apparatus. In the meantime let all tvers of art assist each other, for it is a profession which enjoys t dignity of standing by itself, in this kingdom, without assistance, t with not too much of encouragement, for the spirit of the age is a tercial one, and the public moneys are utilised by the State for t construction of huge engines of war for the protection and develop-

ment of this spirit, leaving the gentler arts of peace to shift for themselves.

#### Schools in Art.

Art itself at the present day, or, perhaps, rather pictorial art, is in a somewhat eruptive condition, and it might be advantageous for us to give a short time to its consideration. Periodically, for all time, the art of painting has been subject to the vigorous action taken by groups of strong men who have felt called upon to assert their independent views, and to act in concert in supporting them. These groups of men have always been so vital in their work, and have so tenaciously adhered to their aims, that in course of time they attain to the dignity of being entitled "schools." The particular individuality of each of these schools is always associated with the emphatic insistence upon one or other of the canons of art at the expense of the remainder. Either forcible dwelling upon the quality of detail alone, or tone, colour, light and shade, or general effect. There are those among us who can remember the appearance of schools affecting all these features, back to the "Pre-Raphaelite" body, whose passion was excessive detail. These movements are generally well timed, and indeed may be considered to be the natural outcome of their age, the calling attention to some weak point in the art of the period; and, even if, in the enthusiasm of the quest, its votaries outstrip the bounds of moderation, the gain to the common cause is great.

#### Form is the Essence of Art.

The movement of the present day we are all familiar with, under the title of "Impressionism." Impressionism differs from the schools that have preceded it in the fact that it makes no effort in the direction of adding to the existing practice of painting. On the contrary, it subtracts a good deal from it. It contents itself with a memorandum of the effect, and avoids the risk of contending with other qualities. The principal notes are struck, and left, without any gradation or attempt at delicacy or detail, the resulting effort, regarded as a picture, stops short just where difficulty begins—that of showing knowledge and management in the more subtle passages of the painter's art. The canvases are really beginnings of pictures, left in the state which has been known from all time among painters as the "laying in" stage. The facility of execution which this class of work offers the painter is necessarily effective, decoratively; and a certain number of imitators, captivated by its facility and novelty,



are following the lead given, as other men have followed other leads—mistaking a part for the whole, and they will have the misfortune of leaving no art legacy behind them. But the sobering influence of time in all these cases is the healer, and though, in the course of nature, the dying out of the school of the day makes room for that of the next, the good which is found in them is duly gathered by, and incorporated into, the beautiful things we know as art. So those of us who aspire to know of art, in its larger sense, must put ourselves outside the influences of these factions, as sole teachers, and turn to the truly great achievements of the past. As form is undoubtedly the greatest and strongest element in art so is the sculpture of ancient Greece the finest art the world has ever seen, or may see. What has been lost to us in the destruction of the paintings of this period we shall never know, but we have the masterpieces of the Italian, Spanish and Dutch schools for our guides. The great elements of the work of these masters appeal alike to the painter and photographer; the same lessons in strenuous constructive lines, masses of light and shade, and harmony of colour.

Apart from these giants in art of the past, we have more modern painters, men of our own time and country, whose work is worthy of ranking with the highest. It is not the fashion just now to dilate upon the work of those three great painters of our English school, George Mason, Frederick Walker, and Sir John Millais, but their position is an undying one, and to them mainly the modern art of this country owes its glorious heritage of colour, which not long since made English art respected throughout the world. This legacy has been neglected of late years, and has suffered from the imitations of foreign methods, which have unfortunately tainted the inspirations of many men whose pride it should have been to uphold the reputation of what can almost be considered a trust left in their charge. Let us strive at all events to be original, not alone in a national sense, but as applied to the individual. No man yet obtained the respect of his fellows by founding himself upon another. It is so easy a thing, and so poor a thing, to be an echo.

### Figure Study May Inspire Creative Photography.

Modern photography has every reason to be warmly congratulated upon the great strides it has made, not only in matters pertaining to its scientific side, but also in the more important one of artistic quality. In the pictures of landscape we have a simple rendering of nature without any desire to dress it up, or prettify it, which is most healthful. The coming to the front of this appreciation of simple dignified subject matter is a striking feature in the advance of late years. Landscape photography of this order is the outcome of the most careful study, for the inexorable lines of nature cannot be moved, and any incongruity can only be circumvented by discriminating choice of the point of sight. Sometimes this has not been overcome, because, apparently, it could not be overcome, while retaining some important feature necessary to the picture. The difficulty of control of the subject is, doubtless, the stumbling block in the way of landscape photography; but when we remember that these very many fine things have been produced, under hampering restriction, the prospect of what might be possible in directions, where the artist had greater facilities, is of the utmost interest. The representations we have of studies of the sea are very impressive, particularly those which are not too sharp in their definition, and where the sense of movement has not been checked by a metallic crispness. In these we can estimate the beauty of the drawing seen in tumbling water, and the character and form of the masses of flying spray. Some of these breaking seas are splendid things. Many of the scenes showing the effect of evening are pleasing enough, though the prevailing tendency is to indulge somewhat too freely in indistinctness of focus, for some granular process is employed in the making of the prints, which invests the entire picture with the same quality. Nature always has a decisive note somewhere, of more or less emphasis. The work done in the direction of interiors is, with the facilities offered by the use of modern apparatus, most perfect as a record of the image before it. The figure subjects that one sees are fewer in number than the landscapes, but are perhaps the more attractive in one sense, for the photographer has greater responsibility here in his personal conception and arrangement of them, and his capacity as an artist is more directly brought before us. Many of these subjects are excellent, and some contain aims of a high order which would

seem to forecast the future of photography. For this is the direction to which the art ought to be strong enough to assert itself, where it can dominate its subject, and invest it with the creative.

### The Recording Camera.

In the commercial world photography is playing a strong part, and the publishers, and in the direction of illustrated journalism there is no doubt that it is doing a useful thing. I think that we must admit that the *bond fide* character of a photographic picture, which illustrates a topical subject, is one of far greater interest than the one of idealised treatment which we were familiar with in the past. We are bound to respect such pictures as fact, as true representation of the incidents depicted, which is exactly what is wanted for the purpose. We want in such cases to know what the incident was like, not what another man thought it was like. These matters, however, do not pertain to art, though there is one phase of such photographic work which has done an immense service to the world, and that is, it has enabled those who live thousands of miles away to have a complete image of people and countries they may never hope to see personally. Photography has practically brought to every country a true picture of all others. To science, as well as art, this is a great gift, not to mention the unspeakable interest to many thousands of families who are scattered widely apart. This is the great feat in the cap of photography.

### Education in Art.

One of the reasons of the greatness of art in the past is found in the fact that people lived in times when they were surrounded by the beautiful to a far greater extent than at the present day, and they became so familiar with it that a high standard of appreciation was reached, not only by the exponents of art, but by the public itself. In Greece the human figure was, of course, the dominant influence, in Italy the fine personality and grandeur of costume, in Holland and Spain the characteristic and the picturesque. Modern life cannot permit these surroundings, but the representations of such things hanging upon the wall, as painted by the great men of those times, produced an instructive influence which should be found in all establishments devoted to art. I am, unfortunately, rather ignorant of the methods of education which prevail among photographic societies, and my knowledge of photography of to-day is founded to a great extent upon the exhibitions of pictures that are seen annually on view in London. The scientific side of the subject evidently is well provided for, but one often wonders whether there is a course of training in art pursued in the societies, independently of the use of the camera itself. The student in painting is for some years occupied in schools of art, or the studios of painters, learning not only his craftsmanship, but educating his taste and forming his standard of beauty, in the study of the fine examples of art he finds placed before him. The importance of this can be hardly over-estimated. A man's cultured taste is not born with him. He, of course, may be born with a gift for art, but that gift is profitless unless it is educated and developed. Art is a most serious as well as a most beautiful study, and the student not only has to master the executive of his profession, whether with the palette or the camera, but he has to learn to compare, and mature his judgment to be able to select, for selection is the very principle of art. A landscape painter who has been drilled in the schools can apply the principles he has mastered there to the real work of his life—landscape painting—equally well with the man who intends to paint the figure. This would appear to be a vital element in the education of a student who is aspiring to produce works of art with the camera, for he, unlike the painter, has not the power of alteration or elimination when once the photographic plate is exposed. He therefore has to use the keenest judgment and taste in the preparation of his subject beforehand, which must necessarily be a most difficult thing to do, and will test his knowledge of art in a high degree. I am, of course, here alluding to the treatment of the figure subject, for with landscape the power of creation does not lend itself freely to photography, and beyond the choice of point of sight, and the waiting for the appearance of a satisfactory effect upon the scene, the scope afforded to the photographer for the exercise of the creative is limited by the intractability of his subject.

### Study the Living Model.

I do not know whether there exists such an institution as a photographic school for students to study from the living model, but such

school must undoubtedly prove of much value; and in the study of works of masters, by grouping human figures with an exact ability to resemblance, pose, lighting, and detail to the original nature, under the tuition of a photographer who was a master of the side of the matter, an opportunity of a most instructive nature would be found. If this idea should be new it may possibly not produce a favourable impression, for few innovations do. Personally, I believe that the greatest things that photography is going to do in the future will be associated with the figure; for, in connection with that, the photographer will have the best opportunity of developing and showing his creative power in art, and it is this very quality of the creative which is the charm. When we remember the exquisite modelling of flesh and the tenderness of tone which a good photograph can give, it seems a great loss that these qualities are not made available to the full extent. A student trained in art, working with fastidious care in selecting his model, and in conducting his whole operations, would, I am persuaded, if he was a man with imagination, produce some photographic pictures which would give a sensation. The actor's is an art—how much greater to make a figure so perfectly play a part that the resulting study should be received as a great picture. Beautiful as quantities of the landscapes which are seen in photographic exhibitions, they are the artistic comparative results which are possible in this direction, at the hands of the right man. If the day should come when a man, with the conception and insight of our painter, G. F. Watts, who combines that power with a photographic executive of the exactness of Mrs. Margaret Cameron's, the world will see for the first time what it is possible for photography to achieve.

### The Tragedy of Art.

But the pursuit of pure art is a thorny path to tread, and, if a poor man essays to venture his fate in this direction he must do so prepared to lead a life of stern self-denial and extreme patience. Even if he may have to contend not only with vicissitude, but with actual want; for recognition even of a truly distinguished man comes sometimes so late in life as to be valueless to him. A sadder case of this kind it is difficult to quote than the Frenchman, J. F. Millet, painter of "The Angelus." As there may be some present who are not acquainted with the struggle this eminent man had, perhaps a few facts from his life may be enlightening. The extracts are from the life of his friend Sensier, which is to be found in Vol. XX. of *Cribrer's Monthly*. Sensier relates how Millet, though leading a simple life of a peasant, could barely obtain the necessities of life for his family, and this was mainly done by his painting signboards for a few francs each, struggling to pay off his debts to the local tradesmen for their daily food. "Amidst these miseries," says Sensier, "his head always ill, and disquiet and fear always following him, Millet painted his most beautiful works—"The Gleaners," "The Angelus," and "Waiting."

"The Angelus" was painted in 1859, and sent to Paris, where it remained two months without an offer being made for it. This year he writes to Sensier:—

"It is frightful to be stripped naked before such people, not so much for one's pride, which of course suffers, as because it is impossible to get what we need. We have wood for only one or two days, and I do not know how to get it, as they will not give it to us without money. I am suffering and sad. Forgive me for telling you these things. I do not pretend to be more unfortunate than a lot of other people, but each feels his own pain. . . . I am working on the drawings of Alfred Feydeau, whose money I beg you to send as soon as you get it, for the children cannot be without a penny. Try, my dear Sensier, to coin some money with my pictures; I will them at any price, but send me one hundred francs, fifty, even thirty."

"Thirty francs!—twenty-five shillings! This was the year he painted "The Angelus." He died, as Sensier says, "killed before his time by the endless battles in which his strength could not but be exhausted." This is, I am afraid, very gloomy reading, but it is far from being the solitary instance of the world's greatest treasures being wrung from suffering humanity. It is an account which does apparently encourage a novice to try his fortune in the same direction. But to such a man as this work was more important than to him, and the world reaps the benefit, however much it may commiserate the sufferings of his family and himself.

### Instantaneous Photography.

I should like to make a few remarks upon one or two subjects, as a painter, though the subject-matter is more or less photographic. The first of these is what is called "Instantaneous Photography." Some time ago we had a visit paid to this country by a lecturer whose wonderful photographs of moving animals immediately arrested the attention of artists of all kinds. If the lecturer had contented himself with his own department, the photographic analysis of the movement of animals, all would have been well, but he demonstrated by single records of action, that is to say the action that is found in the 1-500th part of a second that the movement shown in the pictures of animals by Landseer, by Rosa Bonheur, and others, was incorrect. This is another example of mistaking a part for the whole. It is the object of art, in representing movement, to communicate to the senses of the spectator the sensation of movement as it appears to the human eye, and not as it appears to a photographic lens worked by a shutter at 1-500th part of a second. For instance, if a cart wheel, revolving quickly, is photographed by such a quick apparatus the resulting picture conveys the idea of a wheel at rest, for every spoke and detail is sharply defined. But contrast with this the conventional way of drawing a wheel revolving, a circle with a few irregular radiating lines proceeding from its centre, and you at once get the sentiment of motion. This is art. The other is mechanics. When the series of pictures was shown, one at a time, the quaint and extraordinary action of the horses provoked the audiences to amusement; yet when they were shown in quick rotation in the biograph and gave, in their combination, the suggestion of action which the human eye can appreciate, the applause of the spectators testified their pleasure. This is to be said of all representation of movement by Art—that they shall convey only to the eye what the eye is limited to seeing. Analytical demonstration beyond this steps out of the domain of art into that of science. It is the duty of art to represent the typical and not the exceptional. Please do not gather from this that I am not alive to the intense interest which subjects taken with the hand camera always possess. The photographs so taken must certainly appeal to every lover of Nature—if they have had enough exposure.

### Perspective in Portraits.

Another subject I should like to dwell upon is the photographic portrait, taken direct, on a fairly large scale. These portraits sometimes have a certain quality about them which prevents them being accepted as successful likenesses, although the expression is admitted to be natural, and the features individually faithful in identity. Now I would submit the opinion that this is the result of the camera being brought too close to the subject, and therefore exaggerating the perspective view of the face. While the human vision consists, as it does, of the combined images of the two eyes, the vision of the camera depends upon its single lens; and though a perfectly satisfactory image can be obtained, at a certain distance, by the two human eyes, because, from their different positions, they are able to look more or less round the sides of an object, the camera lens has but one point of sight, and, from the same distance, would yield a very different image, because it does not see round the sides of the object. This leads to undue prominence being given to the nose and front planes of the face. As an illustration of what is meant, let us suppose a view taken, of the front face of a human head as a model, so close to it that the ears would not be seen by the photographic lens, as they would lie behind the projecting cheeks of the face. The two human eyes, at the same distance from the face of the model, would see a portion of the ears, because from their two points of sight they would see round the cheeks of the model to some extent. The point of sight therefore for the photographic lens to be placed, to obtain the same view as that of human vision, is at the apex of the cone of rays which includes the visual angles of the two human eyes. The stereoscopic camera, with its twin lenses placed apart, as human eyes are, would obtain the same view of the model as the human vision—that is to say the combination of its two pictures would give the same view. This illustration is, of course, a much exaggerated one, but portraiture is such a subtle thing that the slightest variation in the proportion of the features is to be guarded against as a disturbing influence, and this difference between the human vision and what we may call that of the camera, should be remembered at all points of sight.



### Possible Virtues of Halation.

The other subject I will touch upon before concluding is that of diffused light seen in the interiors of buildings. Photographers have a wholesome dread of the quality which is called "halation," and, while it certainly is an eye-sore to see the tracery of a window obliterated by a flood of bright light, I really think it is quite as uncomfortable to have the detail of a window sharply picked out like the working drawing of an architect. The effect of diffused light about the interior of a cathedral is a most poetic element, and is one which some of our great interior painters have seized upon to construct their pictures with. Perhaps a medium course between the two extremes would be the safest one to adopt. At all events, if the photographer wants to make a picture, and not a portrait, of an interior, let him avail himself of this opportunity of obtaining such beautiful gradation of tone as the occasion offers.

It is this very quality of luminous haze that was so largely employed by Turner in the beautiful sunset scenes of his, in which he deliberately introduced the sun itself, and made magnificent use of the play of light upon the atmosphere, in managing the effect of his picture. It is well to speak of this great man Turner as an "Impressionist," for that he most certainly was, in the fullest sense, for he conveyed not only a most gorgeous impression of the effect of the scene represented, but also the detailed impression of the most infinite number of subtle gradations in the beautiful tones of distances, from the delicate film of the extreme horizon to the strong and full-blooded modelling of the foreground of his picture.

I have tried to discuss our subject by a high standard, which is the only one possible to take with the question of art, and it is the standard that all serious aspirants have to abide by in our profession.

It is a beautiful profession, and is, to a great extent, like virtue, its own reward. All that we, the members of it, can do, in its furtherance, is to strive to hold the mirror up to Nature; to tell the truth, the whole truth, and nothing but the truth. J. C. DOLLMAN.

The Chairman (Mr. David Murray) paid a high tribute to the excellent paper which had been read, and said he would take the opportunity, which he had never previously enjoyed, of expressing his views on the subject. He wished to ventilate his own delight in that most interesting pursuit, photography. When science sprang upon art, that wonderful invention, there was great alarm felt everywhere, and nowhere more than among portrait painters. There existed a letter from Sir William Beechey imploring the Lunar Society, one of the earliest of the photographic societies, to suppress their discovery, as otherwise the portrait-painter's profession would be ruined. Now quietly, gently, and absolutely, that alarm had subsided, and photography had proved to be a good friend to the portrait painter. But it had been a foe to him in some respects. The portrait painters had been in the habit of abandoning themselves fearlessly to portraiture as the expression of lines and quantities of grace, but they were compelled by the mirror which photography presented to them to give details which hampered them in much that was valuable and essential in art. He knew some portrait painters who had gone so far as to adopt photography as a basis of their work. Some had had a photograph of the sitter enlarged on to the canvas; they were almost compelled to do that because of the poverty of their powers of drawing. Some landscape painters had been addicted to the same habit. But he knew some portrait painters who were as infallible as the camera, almost, in their power to draw, yet who availed themselves of the photograph so that no fact should be omitted. He regretted that because it showed a tendency to cram the picture with details which were not essential factors. Of course, the camera was a great aid to the landscape painter, but he did not feel at home with it. If he could catch the ever changing clouds with it he would utilise that and discard the rest. Photography had been extraordinary serviceable in that it had enabled us to bring together reproductions from the finest collections of art throughout the world, and he had recently seen a huge volume of photographs of master-pieces in continental galleries, and had been amazed at the perfection of the photography when employed by a man who obviously must have been an artist. Every fact of interest worthy of the painter's atten-

tion was given, the quality of the canvas, the impress to the sweep of the brush, and the particular form of a chosen touch, as well as the time records on the surface. No man who had not the artistic instinct in a high degree could have taken such photographs. The only thing which seemed to be wanting was that precious thing—colour. Yet even colour seemed shortly likely to be embraced in the triumph of the man with the camera. He had found great delight in Camera publication, "The Nation's Pictures," which was issued at a cheap rate. He did not say the colours were perfect, but they, any rate, served to recall the actual pictures to those who had seen them. Some of the colour reproductions were extremely beautiful. With regard to the question of art in photography, Mr. Dollman had treated that part of the subject very well. The value of art training had been enlarged upon, and he agreed with it. He spoke highly of the valuable magazine, "The Studio," and he had been amazed at how near some of those reproductions were to the work of first-rate artists. Some of the pictures showed that a photographer might be a great artist. He spoke in terms of great admiration of Turner work, whom he described as that great giant on art, the biggest man in art in any realm of any time. The photographer as well as the artist might despair of ever being able to combine effects so beautiful as he had. He hoped there would always be impressionists, though the great bulk of them were not good, interesting, nor valuable. Many of them were impressionists because they could be nothing more; a half-finished or three-quarter-finished statement or conception in art was the most they could achieve, and they seemed proud of it. A perfunctory fashion of treating the most delicate treatment was not to be recommended, certainly not to the student. When master minds came to treat their work in an impressionist fashion was on the strength of well-based knowledge and a large facility of handling, and they were therefore entitled to it. Inspired by Turner's work, very many impressionists sought a path of their own, and the latest stage in Turner's art attracted them. It began by a number of French impressionists finding Turner's work so interesting that they resolved to work upon the methods which he had adopted, and to introduce the spectral tints all through their work. None had done that more intelligently, honestly, and perseveringly than Claude Monet. But when one gave all credit to his performances, one must admit with regret that Claude Monet had not painted pictures, he had painted wonderfully interesting exercises. Shall the day come when these exercises will result in great pictures? He would like to see that school abandon somewhat the practice of the prism tinting, and see the tinting controlled to one general aspect which would represent atmosphere as Turner represented it. Turner's work, with its wonderful compositions, its great artistic as well as scientific joy in colour, and its lovely surfaces of paint, delighted and convinced and remained with us for all time, ever growing greater as our own knowledge extended. The camera had its triumphs and its future, and he hoped it would ever extend its usefulness and progress. The chemical knowledge in connection with the camera seemed to be acquired by everyone with equal facility, and now there remained careful study of the art side of the question. He concluded by proposing a very hearty vote of thanks to the reader of the paper, which was carried unanimously.

Mr. Dollman, in reply, expressed his thanks for the vote which had been accorded him, and for the lenient way in which his paper had been treated in the discussion. With regard to combination printing in photography, it appeared to be a matter of great responsibility to do such a thing. He did not pretend to be an expert in photography, but he realised the fact that in Nature when one looks at a scene a certain scheme existed of light and shadow and tone, and interfere with which was in some measure to run the risk of marriage in its entirety. With regard to mechanical work on the negative, that would appear to produce a hybrid example of art for which at present there was no want, and it scarcely came under the subject for discussion. His aim in the paper was a conscientious effort to tell the truth from the points of view of the photographer and the painter, as the most serviceable way of bringing them together. He saw much in Nature than the impressionist did, and he could not recommend to anyone that which he did not believe in himself.

PHOTOGRAPHING NEAR FORTS.—A Londoner named Gardner, who was found taking photographs last week at Lido di Malamocco, in close proximity to the fortifications, was arrested on suspicion of

being engaged in espionage. His kodak was taken from him, and he was detained in custody for twenty-four hours, when his photographs were developed and found to be of a harmless nature.

# Photo-Mechanical Notes.

## Reproducing Medals.

PROCESS WORK" in its current issue publishes several replies to a query asking how to reproduce medals to secure the proper effect of relief. Several methods are given, viz., the master cast, spraying the medal with grey colour from airbrush, Hood's method of allowing smoke from burning magnesium ribbon to reach the surface of the medal, which is held face downwards over the burning ribbon, and, finally, the method of lighting with one lamp only. The last method may not be successful unless one other precaution is taken, and that is to keep the light moving to and fro and, if possible, up and down slightly, while the exposure is being made. If reflecting lamps are in use, this is perhaps the simplest and best method.

To fasten the medal on the board, it is advised that pins mounting brads should be used, but a better method has been shown to the writer by Mr. W. J. Smith, at the L.C.C. school. This consists in cutting an aperture out of millboard slightly corresponding to the shape of the medal, but slightly smaller. Cut this in half, lay the medal down on the copying board, and then place one half of the millboard on each side of it. These can be wedged up closely and then pinned down with drawing-pins, so that they hold the medal fast without any danger to it, and there is no fear of shadow from projecting parts nor anything to be engraved away afterwards.

## Contract Prices for Process Blocks.

The London County Council recently invited tenders for process blocks from several firms, and the matter is dealt with in the minutes of the meeting held on February 13, 1906 (to be obtained of P. S. King & Co., Westminster, price 6d.). Quotations are printed from five firms, the lowest being for line blocks 2d. per square inch, with minimum of 2s., all the other firms quoting 2½d. and 2s. 6d., for half-line blocks, minimum 4s. 9d., the rest quoting 5d., with minimum of 6s. The lowest quotation was accepted.

## Embossing.

Messrs. Bourne and Co. have issued an attractive little circular on embossing, in which they explain to the small printer exactly how to do it, and offer to help him in his work by making "proofs," and to sell him composition, with which he can do such work both well and cheaply.

## The Business Side of Photo-Engraving.

How is it that one business last year lost £1,000, while another, doing roughly the same turnover, made a profit of £2,000? That photo-engraving can evidently be made to pay with energetic and capable management appears from the prospectus of Carl Hentschel (1906), which shows that an average profit of over £10,000, or 8 per cent. of the capital, has been made for the past two years. The additional capital asked for by the company, it is reported, was fully subscribed before the time that the lists were to remain open had expired.

A series of four lecture demonstrations on duplicate plate-making, electrotyping and stereotyping commenced last week at the Art Court School, and will be continued on Thursday evenings. The first three are by Mr. J. S. Sunderland, and the last by Mr. Sherard Cowper Coles. Admission is free to students of the school; to others, 2s. for the course. Succeeding these lectures will be a course of seven lectures on three-colour and orthochromatic photography, commencing May 3. Further particulars will be announced in due course.

Platinum Deposits.—Telegrams from Shadrinsk, in the Government of Perm, the chief mining region of Russia, report the discovery of rich platinum deposits in the Ougry and Katchkomury districts.

# Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between March 5 and 10:—

SELF-TONING PAPERS.—No. 5,276. Improvements in the treatment of prints on self-toning paper. Francis John Shepherd and John J. Griffin and Sons, Ltd., 322, High Holborn, London, W.C.

CAMERAS.—No. 5,354. Improvement in photographic cameras. Clarence Claxton, Blagdon Turner, and Stanley Wyndham Jamieson, 321, High Holborn, London.

ISO SCREENS.—No. 5,603. Improvements in isochromatic screens. Thomas Baird, Stewart Baird, 96, Buchanan Street, Glasgow.

CINEMATOGRAPHS.—No. 5,626. Improvements in cinematographs and projecting apparatus. Arthur Samuel Newman, 23, Southampton Buildings, London.

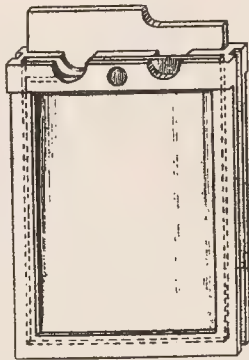
PRINTING MASKS.—No. 5,670. Improvements in masks for photographic printing processes. Leipziger Buchbinderie Akt Gesellschaft vorm Gustav Fritzsche, 111, Hatton Garden, London.

REFLEX CAMERAS.—No. 5,673. Improvements in reflex cameras by the addition hereto of a swing back. Ernest Human, 43, Whitta Road, Manor Park, Essex.

## COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

DARK SLIDES.—No. 19,032, 1905. The invention consists of a dark



slide with notches in the upper part of the case to obviate projecting shutters. Gustav Geiger, 16, Maximilian Platz, Munich.

ELECTRIC STUDIO LIGHTS.—No. 25,392, 1905. The claims is for a system of electric incandescent lights which allows (1) the distribution of the light to be regulated by placing the normally burning lamps without necessitating work with a too glaring light, and (2) the increase of the light by raising the potential merely during the taking of the photograph. Philipp Georg von der Lippe, 4, Bogittener Lande, Vienna, II.

The following Complete Specification is open to public inspection before acceptance under the Patents Act, 1901:—

STEREOSCOPIC PHOTOGRAPHS.—No. 5,267, 1906. Method and apparatus. Bug Ges m.b. H. zur Verwertung von Erfindungen und Barnack.

The second American Photographic Salon will be exhibited in New York by the Metropolitan Camera Club from May 28 to June 9. Officers of the club for 1906 are:—W. T. Knox, president; Dr. W. J. Furness, vice-president; S. C. Bullenkamp, secretary; J. Hunter, treasurer; E. Polasek, librarian; directors, Curtis Bell, B. F. Woodburn, L. A. Malkill, W. H. Zerbe, D. Elmes.



## Exhibitions.

### GREAT EASTERN RAILWAY MECHANICS' INSTITUTE.

THE Thirteenth Annual Exhibition was held on March 13 and 14, when the judges, Messrs. J. T. Ashby and H. W. Bennett made the following awards in the open sections:—

Prints.—Silver medal, No. 216, "In Old York," A. W. Walburn; bronze medal, No. 223, "Now Came Still Evening On," W. L. F. Wastell; certificate, No. 214, "In Blythburgh Church," L. C. F. Robson; certificate, No. 222, "The Edge of the Common," W. L. F. Wastell. Lantern slides.—Silver medal, set by A. Nicholson; bronze medal, set by Graystone Bird; certificate, set by H. Wormleighton. Stereoscopic slides.—Bronze medal, set by H. Wormleighton; certificate, set by A. Woolford.

### WALSALL AMATEUR PHOTOGRAPHIC SOCIETY.

THE Walsall Society held their bi-annual exhibition on Thursday, Friday, and Saturday last in the Assembly Rooms. It was opened by the town clerk, Mr. T. R. Cooper. A capital collection of members' work was shown in landscape, seascape, portraiture, architecture, flowers, novices' and lantern slides, in addition to a small but excellent loan collection. The list of awards, made by Messrs. Hughes, Harold Baker, and F. H. Pilditch is as follows:—

President's special prize awarded to Mr. Geo. W. Richmond for best in the exhibition (irrespective of class) for his picture entitled "This is the forest primeval . . ."

Landscape (Class 1).—1st (11), "Eckington Bridge," Mrs. W. Bullock; 2nd (4), "Among the Heather," W. A. Hubball; 3rd (25), "Walhouse Street," W. Meikle.

Seascape (Class 2).—1st (93), "Sunset," W. T. Comer; 2nd (87), "The Ebbing Tide," F. P. Farrington; 3rd (94), "On the Blyth," W. J. Brown.

Genre, Portraiture, etc. (Class 3).—1st (118), "The Bible," W. Meikle; 2nd (208), "The Parks' Keeper," W. James; 3rd (172), "Who Said Mouse?" Mrs. W. T. Comer.

Architecture (Class 4).—1st (142), "North Aisle, Gloucester Cathedral," Mrs. W. Bullock; 2nd (141), "Vale Crucis Abbey," W. A. Hubball; 3rd (144), "Crypt Ruins, Wingfield Manor," E. Holmes.

Flowers (Class 5).—1st (174), "Clematis, Labata Indiviser," G. T. Thompson; 2nd (168), "Basket of Flowers," Mrs. W. T. Comer.

Novices (Class 6).—1st (224), "Evening, Autumn," A. E. W. Aldridge; 2nd (222), "Dovedale," Alfred Ford; 3rd (197), "Washing Day," F. W. Hale.

Lantern Slides.—1st, J. H. Hubball; 2nd, J. Meikle; 3rd, J. H. Bullock.

They are energetic and businesslike in Walsall, and we are glad to hear that the exhibition has left a balance to be handed over to the Society's funds. The catalogue is quite an example to similar photographic societies in the way it sets forth (in photographs) the advantage of the Walsall Society, and it speaks well for the executive when we mention that it was on sale with the award list in it within two hours of the judging. Apparently the Secretary of the Walsall Society is a man feared of printers.

THE Coburn Exhibition at the Royal Photographic Society, Russell Square, remains open, we would remind our readers, only for a week or ten days longer. We hope that the opportunity of seeing Mr. Coburn's really great successes in portraiture has been or will be seized before it is gone. Admission to the R.P.S. is granted on signing the visitors' book, and we believe the exhibition is open daily (Saturdays included) from 11 to 5.

THE Bishop Auckland Photographic Society have decided to hold their third Triennial Exhibition on the 6th, 7th, and 8th November next. There will be open classes.

THE "Graphic" this week presents a new feature. In addition to the usual artistic illustrations, it contains the first of a series of supplements, entitled "Portrayed by the Camera," which is composed of four pages full of striking scenes from photographs taken at home and abroad.

## New Apparatus, &c.

"Pantar" Anastigmats. Made and sold by C. P. Goerz, 4 and 5, Holborn Circus, London, E.C.

These lenses are of the "convertible" variety, being composed of two anastigmatic "single" combinations, which may be of equal or different focal lengths according to the selection of the purchaser. Sets consisting of these combinations are also listed, and seven different single combinations, varying from 6 to 19 inches focal length, can be selected from. The particular lens submitted to us has two combinations of 11½ and 14 inches focal length respectively, and these form a doublet of 7½ inches focal length. This lens is specially recommended for a half-plate camera, and it will be noticed that the three focal powers available form a very useful series. In many lenses of this convertible type there is considerable difficulty in making allowance for the different values of the stops when the combinations are changed, but this trouble is non-existent with the Pantar. The front part of the mount is fitted with a loose ring, on which are engraved the three aperture scales for the three different focal lengths. By turning the ring the proper scale is brought opposite the datum mark on the iris ring, and is locked in that position by a simple catch, so that there is no fear of its shifting. Another common trouble with convertible lenses is the amount of screwing and unscrewing necessary when changing the combinations. This trouble is disposed of in the Pantar by fitting the combinations and all the flange with interrupted screws, somewhat similar to those employed in breachloading guns. It is only necessary to place the two parts in contact opposite certain datum marks, and then a quarter turn to the right makes all fast. The arrangement works perfectly and is of the greatest possible convenience. Those who have occasion to use these lenses will probably soon regret the fact that all lenses are not similarly fitted. Another very material improvement in the mount is the provision of a fixed milled ring, by means of which the lens can be turned when fixing it in the flange. As a rule the iris ring is the only convenient portion of the mount to grasp, though it is eminently undesirable to put such a strain upon the delicate iris mechanism. The full aperture of the doublet lens is  $f/6.8$ , while that of each single combination is  $f/12.5$ . (Some of the "Pantar" lenses, however, work at  $f/6.3$ ). According to the statements in the list, the doublet covers a whole plate at full aperture, while the 11½ inch combination covers 9 x 7, and the 14 inch covers 10 x 8. From our tests it would appear that these claims are somewhat under the mark. In all cases the lens appears to cover a little more than the size mentioned. The doublet stopped down to  $f/32$  covers a 10 x 8 easily, and with a little more stopping down will very nearly, if not quite, cover a 12 x 10. The 11½ inch combination is said to cover 10 x 8 with  $f/22$ , and 12 x 10 with  $f/16$ , but it appears to cover both sizes very fairly well at larger apertures. The 14 inch, naturally, will cover a somewhat larger plate. It covers 12 x 10 easily at  $f/22$ , and is stated to cover 15 x 12 at  $f/16$ , but the latter statement we could not check, as 12 x 10 was the biggest camera available. If the use of the Pantar lens is confined to the plate for which it is recommended its performance seems to be faultless, and its great covering power permits the rising front to be used to the greatest advantage. With the 14 inch lens in front of the 11½ inch, the field appears to be quite flat for objects at a moderate distance, but with the lenses reversed a barely perceptible curvature is introduced. In regard to this matter of flatness of field, even the single combinations (each consisting of four lenses) seem to be as efficient as the doublet. It is, of course, difficult to test marginal corrections very exactly when the lens is used at a very wide angle and stopped down, but so far as we could observe, no fault could be found with the performance of the 7½ inch doublet on a 10 x 8 plate at  $f/32$ . The doublet, being non-symmetrical, was not expected to give an exactly perfect result when used for copying at full aperture, but we tried it for copying a diagram on a reduced scale of 4 to 7, and found only very slight curvature of the field, and no sign of astigmatism. A test on the tourniquet showed that the nodes of the doublet are separated by about one-fifth of an inch, and the front one nearly coincides with the centre of the iris ring. The second node of the 11½ in. lens is about 2 in. behind the iris ring.

and that of the 14 inch lens about 2.4 inches behind. The fixity of the nodes when the lens is rotated indicates that the lens is practically free from distortion, and no sign of this defect was observed in the image. For copying purposes the non-symmetrical Pantar may not be quite up to the celebrated Series III., or "Daguer," as it is now called, but for more general work the new lens seems to perform as finely as the older one, while its convertibility and the fine correction of its single components are very material advantages. The particular lens submitted to us is as perfect and as convenient an instrument as can be desired for half-plate work, while it forms an eminently useful lens for much larger sizes.

Goerz Telephoto Attachment. Made and sold by C. P. Goerz, 4 and 5, Holborn Circus, London, E.C.

This consists of a tube with tele-negative lens and rack focussing adjustment with scale of magnification. The negative lens appears to be a combination of a very deep plano-concave cemented to a positive meniscus. The complete lens submitted had a 3-inch negative lens and a "Celor" No. 1 front positive of six inches focal length and aperture  $f/4.8$ . It is claimed that this telephoto attachment gives greater covering power than is usual with similar combinations. This is somewhat difficult to test in the absence of other telephoto lenses suitable for comparison, but the new lens certainly covers quite up to the limits given in the list, and apparently beyond them.

With a magnification of 7 it is claimed that it will cover a whole plate sharply, while it will also cover  $11\frac{1}{2} \times 9\frac{1}{2}$ . We find both claims fully borne out, and, in addition, that the whole plate is covered with full illumination at the largest aperture. The lens is compact, and with positive attached the total projection from the flange is only four inches. It is well known that distortion is a defect that cannot well be eliminated in any telephoto lens, and though the distortion is not usually apparent if the lens is kept at right angles to the plate, it is often easily detected if the lens is tilted while the plate is vertical. Applying this test to this lens we found indications of distortion of the "barrel" variety. Other well-known telecompounds frequently give "cushion" distortion under similar conditions. There is a small matter in connection with the flange screw to which we may call attention, as it should not be difficult to avoid it. With the complete telephoto combination both the aperture scale and the magnification scale can be brought into convenient positions for reading by properly adjusting the flange on the camera front. But if the teletube is removed and the positive lens used alone, the aperture scale then comes in a most inconvenient position under the lens. A little readjustment should put this right, and the defect is worth noting, as it is not altogether an uncommon one in such combinations. One other point is that the magnification scale is on the opposite side of the lens to the focussing screw. We found this somewhat inconvenient when using a high tripod and long extension, and it would certainly be better if the scale were placed nearer the screw, so that it could be read at the side from which he screw is operated. We hope that the makers will soon see their way to adopt the interrupted flange screw as used in the "Pantar," for it is by no means easy to induce these heavy objectives to enter a flange that is fixed to the camera front.

## New Materials.

Pluto Matt Collodion Paper. Sold by the Leto Photo-Materials Company, Ltd., Rangoon Street, London, E.C.

An addition to the numerous printing-out papers, gelatine and collodion, on the market, must possess some distinct quality to justify its appearance. In the case of the new "Pluto" paper, a supply of which we have had under trial for some time past, the novel qualities are not such as merit the term "revolutionary," but they imply certain simplifications in the photographer's practice which, we venture to think, will be appreciated in professional establishments. "Pluto" is a collodion paper toning to a rich black in a single platinum bath. The results are of peculiar richness and depth from negatives with a good deal of shadow, whilst on the other hand the pure black of the image is seen to very great advantage in subjects such as vignettéd portraits of ladies in light

costumes consisting almost entirely of the lighter tones. We subjected the paper to a series of trials from negatives of both such classes, and we found the range of gradation stood us in good stead in the case of the first-named class of negative, and, as we have said, the rendering of lace and drapery especially pleased us. "Pluto" being a collodion paper needs the particular precautions which that vehicle of the silver salt demands, but if the very concise instructions for the use of the paper be followed we cannot imagine a much simpler manipulation. The chief point to be noted is to use all solutions lukewarm, 65 deg. to 70 deg., and all as near as can be equal in temperature. After a preliminary wash for 5 mins. place the prints in a platinum bath of: Water 30 oz., citric acid 2 drams, potass. chloroplatinite 5 grains. In this bath the prints tone visibly, and the action, we find, should be allowed to proceed to its limit—in fact, it is difficult to over-tone—i.e., until a uniform grey is observable on looking through the print. A subsequent wash for fifteen minutes and fixation for another fifteen in 1-15 hypo completes the process, save for the final washing of about one hour. With the precaution as to temperature taken, there is very little sign of curling, but in cold solutions there will be quite an inconvenient amount of curl. However, there is no need to disregard the makers' instructions, and, if they are followed, the paper, it is our experience, will be found to give extremely rich and beautiful results by a procedure which leaves very little loophole for waste.

Simplex Self-toning P.O.P. Made by the Paget Prize-Plate Company, Watford.

The Paget collodion self-toning paper having been a standard make of such materials, and the first, we believe, to appear on the market it was to be expected that its makers would at length produce a gelatine paper for the use of those who pin their faith to the latter description of printing medium. The "Simplex" paper is the result. The method of using it consists in (1) fixation (with toning) in hypo, and (2) washing for about one hour. In regard to the hypo bath, the company find a strong bath conducive to the colder purple tones, and a weaker one sufficient for the warmer sepias. They therefore recommend strengths as follows:—

Hypo, 4oz. to 8oz. per pint for 6 or 7 minutes (cold and warm purples).

Hypo, 2oz. to 3oz. per pint for 10 minutes (sepias).

Hypo,  $\frac{1}{2}$ oz. to  $1\frac{1}{2}$ oz. per pint for 15 minutes (browns and reds).

Acting upon this recommendation, we find that the paper gave us a fine range of results particularly of warm brown and purples. The matt "Simplex" prints also fixed in 1:20 hypo for fifteen minutes have a fine warm brown tone very suitable for striking portraiture. The paper is put up in 6d. packets in sizes up to 6 by 4 $\frac{1}{2}$ , and in 1s. packets from half-plate to 10 by 8.

The "Amauto" (Self-Developing) Plate Made by Ilford, Limited, Ilford, London, E.

In the "Amauto" plate, the Ilford Company offer a new manufacture of theirs, which, it is safe to say, will be received with unfeigned interest throughout amateur—and therefore throughout dealer—circles. A plate, with developer included, is not a new proposition on paper, and it has even appeared on the market. Yet it has never been marketed in a large way through such channels as the Ilford Company hold at their disposal, and therefore the experiment of offering the amateur photographer his plate and developer all in one will be watched with interest. The new plate is exposed like any other, and is developed in a 10 per cent. solution of washing soda (carbonate of soda). Reasonable alterations in the strength of this solution, so we find, have no effect on the development, and therefore it is safe to advise a fairly rough and ready method of making up the soda such as those who shun all kinds of weighing and measuring will not consider troublesome. Treated in the developer which is thus formed by the solution of the developing constituents in the plate, the "Amauto," in our experience, behaves like any other plate, and is amenable to the well-known methods of protracted development—in a full strength solution for over-exposure, and in a weak solution for under-exposure. The negatives resulting from some fairly correct exposures were beautifully clean, and obviously the incorporation of the developer had not in any way disposed the emulsion to fog. The manufacture of such a plate is no small technical achievement, and we may congratulate the Ilford Company on adding



yet another to the manufactures by which, throughout its history, it has sought to popularise photography.

In accordance with our custom, we give the sensitometric data obtained by the method of Mr. C. E. K. Mees, B.Sc., which, we believe, are appreciated and used by some scientific workers:—

Inertia .320,  $\gamma_{\infty}$  (i.e., density giving power of the plate) 1.83. The peculiar character of the plate precludes the determination of other data which we are accustomed to give, but the above figures show that the plate is a rapid one—of speed ample for hand-camera work under conditions which may fall considerably short of the most favourable.

A SEPIA toner has been added to the numerous excellent "tabloid" chemicals of Messrs. Burroughs Wellcome, who, in bringing it to our notice, express pardonable pride in the production in "tabloid" form of such an extremely deliquescent body as pure sodium sulphide. The bleaching solution is made by dissolving one "tabloid" of ferricyanide and bromide in 4 oz. of water, and we find it act effectively and quickly, though whether its action is due, as Messrs. Burroughs Wellcome suggest, to the admixture of the two constituents in proportions based on their combining weights, we must decline to say in the absence of knowledge of the exact action of the mixture on the silver image. The purity of the products, however, is obvious from the rich tones obtained, and we can recommend the new cartons of "tabloids" for the convenient toning of bromide and gaslight prints. The "tabloids" of "bleaching compounds" (ferricyanide-bromide) and sodium sulphide are sold separately.

"Tyo," the sulphide sepia toner, which we believe was the first of these preparations to appear on the market has recently been reduced in price by its makers, Messrs. Wells and Co., Southgate. The present sixpenny size is about equal to that previously sold at 1s. Messrs. Wells issue a circular, explaining the use of "Tyo" for reducing, stain removing, and intensifying, in addition to toning.

A sepia-toning set has been placed on the market by Messrs. John J. Griffin and Sons, Ltd. It consists apparently of the two solutions of ferricyanide-bromide, and sodium sulphide, and has proved itself capable in our hands, of excellent sepia-toned prints. One quite novel feature, however, of the set is the provision of a bottle of potassium permanganate solution, which is included, with the object of removing from the process its chief reproach, that of smelliness. As Messrs. Griffin point out, the strong solution of the sulphide or "toning" bath, can be kept without offence. It is in its diluted state, and when poured away down the sink that it leaves the objectionable sulphur odour hanging in the air. The remedy Messrs. Griffin find in the destruction of the sulphide. The "toning" bath is not thrown away until after the addition to it of enough permanganate solution to give it a strong pink colour. It is thus rendered odourless and can be discarded without leaving a sulphuretted souvenir of its presence about the dark room. The chemical device we find works satisfactorily in practise, and Messrs. Griffin certainly deserve the thanks of photographers for their very practical suggestion. In each set of the new toners enough permanganate is provided to destroy all the sulphide.

PANCHROMATIC flashlight candles and powder, made by Dr. Krebs and supplied by Messrs. A. E. Staley and Co., 19, Thavies Inn, London, E.C., are the subject of a circular of instructions which presumably can be obtained from the latter firm, and in which are described the method of using the candles for orthochromatic work such as portraiture, copying without a screen. The flash candles are easy to use, and should be found of service in many cases where orthochromatic copies of paintings or works of art have to be made.

A sample of "Celeritas" retouching medium is sent to us by Mr. J. Taylor-Williams, 40, Wymering Road, Elgin Avenue, Maida Vale, by whom we are informed that, after continual improvements, it is offered by him as a practically perfect medium. It is sold at 6d. per ounce bottle, post free.

MESSRS. MAWSON AND SWAN are moving with the times in popularising the use of orthochromatic plates. Their enterprise takes the form of a free offer to users of the Mawson "Ortho. A" or "Ortho. B" plates. Commencing from April next a label will

be issued with each packet of these plates during the season, which label, if forwarded to the makers, will bring to the user a light-filter, enabling him to test the improvement in colour-rendering obtained by the use of an approximately adjusted yellow screen. The light-filter is supplied as a stained film, 2in. square, and can be mounted in the lens diaphragm or in a card mount placed before or behind the lens. It is not offered for permanent use, but for a user's first personal experiments in orthochromatism. For regular work Messrs. Mawson and Swan have their "ten times" and "twenty times" filters, the former for the "B" and the latter for the "A" plates, and, in regard to these permanent accessories, they also make a free offer: To the first fifty applicants who purchase not less than 10s. worth of ortho plates as issued from April, 1906, they will send one of Mawson's "amateur" light filters free on receipt of the top label from the packets showing the batch number of the plates purchased.

## CATALOGUES AND TRADE NOTICES.

A new catalogue of lens and other apparatus has been issued by Messrs. Voigtlander, and is obtainable, upon receipt of 6d., from 12, Charterhouse Street, Holborn Circus, E.C., or is sent free to the trade. The list is a good deal more than a comprehensive list, as it contains a lengthy series of notes on the selection and use of lenses by Dr. H. Harting, F.R.P.S., a study of which we would recommend to many of our querists on optical matters. In addition to specifying, in full, the various "collinear" and "Helier" lenses, the list describes the Voigtlander studio, folium, and reflex cameras, focal-plane, and other shutters, light filters, and reversing prisms. It is illustrated with a large number of half-tones, and is, in short, a handsome volume worth possessing.

In the current "Elge" list of cinematograph films, Messrs Gaumont commence a series of Bible subjects.

The British Photo Mount Company, of A2, Meart Street, Dean Street, London, W., advise us that they have taken over the business of the late firm of Messrs. Ernest Wesson and Company, of 122, Regent Street.

SOME specimens of adhesive seals for mounts are sent to us by Mr. F. C. Clarkson, Head Street, Colchester. They certainly add to the appearance of a finished and mounted photograph, and are obtainable at a small expense in a variety of styles and colours.

"POPULAR Photography."—Messrs. Butcher and Sons, of Camera House, Farringdon Avenue, E.C., have issued a booklet under this title. It is an elementary introduction to amateur photography and for free distribution by dealers.

THE new season's photographic list of Messrs. James Woolley, Sons, and Co., Manchester, which reaches our table, is specially worthy of commendation for the way in which a very large variety of goods are catalogued in small space. The list is a very full one, but, from its compressed arrangement, of moderate size, and easy of consultation.

A VERY full list of photographic mounts is sent to us by the Leipziger Buchbinderei Actien Gesellschaft vorm Gustav Fritzsche of Leipzig, Germany, who enclose with it a few examples of their manufacture. The latter are of the pastedown and slip-in variety, including, also, some of the latter class, with a supporting strut. The list describes these and a very large number of mounts by aid of half-tone illustration in every case, and should, therefore, be found convenient by British dealers, though, we fear, the company cannot expect buyers here to order from a list in German. The prices are per 100 and 1,000, and for the convenience of their customers the firm puts up specimen packets specially suitable for dealers purchasing in gross, and for these latter to show to their amateur customers.

THE sudden death is reported of Matthew Boak, aged 70 years, retired photographer, formerly of Driffild, at Lyell Street, Scarborough, last week.

EXCURSIONS to Zealand and Belgium.—The programme of the Easter trips arranged by Mr. W. F. Slater, under the auspices of the South London Photographic Society, is now ready, and can be obtained from 84, Longhurst Road, Lee, S.E.

# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
23.....	Aberdeen Amat. Photo. Assn.	Enlarging. Demonstration.
23.....	Aberdeen Photo Art Club .....	"Retouching." Mr. W. Dunn.
23.....	Colne Camera Club .....	Yorkshire Photographic Union Invitation Print Fello.
23.....	Hampstead Scientific Society .....	"Colour Photography." Mrs. Edward Shenton.
23.....	Bromley Camera Club .....	Evening for Discussion.
23.....	Loughton Photographic Society .....	"Rambles Round Loughton." Mr. W. Vincent.
23.....	Sutton Photographic Club .....	Platotype Printing.
26.....	Scarborough and Dis. Ph. Soc.	Members' "Lantern Lectures."
26.....	Dewsbury Photo. Society .....	Exhibition of Members' Prints.
26.....	Southampton Camera Club .....	"Eastern Valais. Visp to Zermatt." Illustrated. Mr. W. R. Kay.
26.....	Derby Photographic Society .....	"Enlarging on Bromide Paper by Daylight." Mr. C. B. Etches.
26.....	Cripplegate Photo. Society .....	"Pictorial Photography from a Practical Standpoint." Mr. A. Borsley Hinton.
26.....	Oxford Camera Club .....	"Side-lights on Portraiture." Miss Hopkins.
27.....	Royal Photographic Soc. ....	Technical Meeting. "The Application of Spectro-Photography to Technical Chemistry." Mr. T. Thorne Baker, F.C.S.
27.....	Otley & Dis. Cam. & Ars Soc.	Members' Print and Lantern Slide Exhibition.
27.....	Gateshead Camera Club .....	"The Toning of Bromide Prints and Lantern Slides, and Intensification and Reduction of Negatives by Tabloid Brand Chemicals." Messrs. Burroughs, Wellcome & Co.
27.....	Manchester Amat. Photo. Soc.	"Portraiture." Mr. Harold Baker.
27.....	Nelson Photo. Society .....	Lecture. Dr. Biru, M.B., C.M.
27.....	Darlington Camera Club .....	"Velox and its New Application." Demonstrated. Messrs. J. J. Griffin & Son.
27.....	Halifax Camera Club .....	"Evening Work with a Daylight Enlarging Camera." Mr. W. Wadsworth.
27.....	Worthing Camera Club .....	"Stories without Words." Prize Slides lent by Focus.
27.....	Birmingham Photo. Society .....	Lantern Evening.
27.....	St. Helens Camera Club .....	"Bromide Papers." Mr. H. R. Lacey.
27.....	Brentford Photo. Society .....	Discussion of Summer Programme, &c. Members' Evening.
27.....	Gloucestershire Photo. Society .....	Yorkshire Photographic Union Lantern Slides and Photography Competition Prize Lantern Slides.
27.....	Sheffield Photographic Society .....	Members' Slides (Lectures).
27.....	Jersey Photographic Society .....	Platotype Printing.
27.....	Cardiff Windsor Amat. Ph. Soc.	"Exposure and Exposure Meters."
27.....	L.C.C. Staff Camera Club .....	"English Ecclesiastical Architecture, from the Conquest to the Reformation." Mr. Chas. B. Howdill.
27.....	Leeds Photographic Society .....	Demonstration. Mr. F. W. Massey.
27.....	Burton-on-Trent Nat. His. Soc.	"Enlarged Negatives." Mr. F. Carter.
27.....	Cricklewood Photo. Society .....	Lantern Slide Demonstration. The Walthamstow Photographic Society.
28.....	G.E.R. Mechanics' Institution...	"Under Canvas: A Chat on Camping." Illustrated. Mr. J. Marston.
28.....	Leeds Camera Club .....	"Gum-Bichromate Printing." Mr. J. C. S. Mummery.
28.....	North Middlesex Photo. Soc. ....	"Our Portfolio."
28.....	Coventry Photo. Club .....	"Zig" and the Carbon Process." Thos. Illingworth & Co. Ltd.
28.....	South Essex Camera Club .....	Cameras and Lenses Described and Discussed." Mr. E. F. Smith.
28.....	Acton Photographic Society .....	A Popular Evening. The Y.P.U. Set of Loan Lantern Slides, Comprising the Selected Work of the Federated Societies. About 130 Slides.
28.....	Huddersfield Nat. and Ph. Soc.	Lecture Competition.
28.....	Croydon Camera Club .....	Annual General Meeting and Election of Officers.
28.....	Tring Camera Club .....	"Development." Demonstrated. Mr. J. Hawkins.
28.....	Everton Camera Club .....	Prize Slides. "Stories Without Words."
29.....	Hastings and St. Leonards P.S.	"Morocco: its Court, People and Customs." Illustrated by Lantern Slides and Motion Pictures. Mr. C. Rider Noble.
29.....	Blenheim Club .....	"The Pilgrim's Way from Winchester to Canterbury." Dr. J. W. Ellis, F.R.S.
29.....	Liverpool Amateur Ph. Assn. ....	Photography 1905 Prize Slides.
29.....	Richmond Camera Club .....	"Carbon Process." Demonstrated.
29.....	Tunbridge Wells Ama. Ph. Assn.	Thos. Illingworth & Co.
29.....	Darwen Photographic Assn. ....	"Through Nature's Eye-paths with a Camera." Mr. J. W. Smith.
29.....	London and Prov. Photo. Assn.	"Photographic Sketching." Mr. W. R. Stretton.

ROYAL PHOTOGRAPHIC SOCIETY.—A lantern meeting was held on Tuesday, March 20, when Mr. J. F. East lectured on the Victoria Falls. Major-General Waterhouse occupied the chair.

SOUTHAMPTON CAMERA CLUB.—At the meeting on Monday evening last, Mr. W. W. Clayton gave an illustrated lecture on "New Zealand." The chief cities of the colony, their industries and buildings, and the wonderful natural beauties of the islands, were all dealt with, while much interest was imported by way of the occupations of the Colonists and of the Maories being vividly depicted.

CROYDON CAMERA CLUB.—A discussion took place on hand cameras on the 14th inst., a large number of members taking part in it. During the evening the president, Mr. W. H. Smith, showed, and explained the action of, various types. These included Marion's focal-plane Reflex, a first-class instrument, obtainable at a moderate price; Beck's extremely ingenious Dai-Cornex, with daylight loading sheaths; the well-known "Sanderson," by Houghtons, Ltd., together with two pocket cameras, one for roll-film, and one for plates, by the same makers; and last, but not least, the Houghtons' recently introduced film envelope and adapter.

CHELSEA PHOTOGRAPHIC SOCIETY.—Lecturing on "Rotograph" bromide papers, on March 13, Mr. Jackson recommended the hypso-alum method of toning for ease of manipulation and permanence of results. He dwelt on the necessity of ripening the bath by letting it stand some time or by heating it with waste strips of silver or bromide paper in it. An unripened bath had a tendency to bleach the prints.

THE PHOTOGRAPHIC CLUB.—At the meeting held on Wednesday, March 14th, Mr. A. W. Green, for Messrs. J. J. Griffin and Sons, showed the firm's new automatic enlarger, the "Autokon," and explained its action. All agreed that it was a very ingenious instrument. The Hon. Secretary then demonstrated the "Pigment Paper" of Mr. J. Page Croft. He explained that the paper could be purchased in the sensitive or insensitive condition. In the former condition it would keep good for about a month under pressure, and the latter indefinitely. The sensitising bath was:—Stock solution—Potass bichromate, 1oz., pure sulphuric acid, 1 drachm; water 10oz. One ounce of this was added to 7oz. of water for use. The paper was immersed in this at as low a temperature as possible for 1½ minutes, then drained and dried. It was about four times as sensitive as P.O.P., but the exposure should preferably err on the side of over rather than under. The paper was then soaked in cold water and removed to the developing bath. The bath recommended by Mr. Page Croft was of warm water, to which was added a small portion of caustic soda. The demonstrator said he has used ordinary washing soda instead, and preferred it as development was more under control. About ten times the quantity of crystals were added as of the caustic recommended in instructions. Some exposed prints were then developed, and the amount of control over the results was shown. As soon as prints started developing in the soda bath they should be transferred to cold water and treated in that with transference back to soda bath as required. For ordinary correct exposure, bath should be comfortably warm, but for over-exposure temperature could be increased proportionately. A large number of prints sent down by Mr. Page Croft were then passed round and admired. They showed the tremendous amount of control over results possible. One set of prints from the same negative, showing the four seasons, moonlight, night, etc.; effects produced by suitable exposure and development.

FAILURE of a Photographic Journalist.—Percy Eland Newstead, journalist and theatrical manager, residing at Grange Cottage, Idle, appeared for his public examination at the Bradford County Court on March 14, before Mr. Registrar Lee. The statement of affairs filed by the debtor disclosed a deficiency of £583. In reply to questions put by the Official Receiver, debtor stated that prior to 1901 he was a journalist and black and white artist, and a sub-editor of the "Practical Photographer." He had offices in Piccadilly, and afterwards in Market Street. He produced several pantomimes at St. George's Hall, and afterwards joined in the production of a weekly journal called the "Jackdaw." They lost about £7 a week from the first issue, and when the journal ceased to exist in April, 1905, the total losses were £400. His theatrical productions visited Salford, Halifax, Middlesbrough, and Scarborough. The cause of his failure was his inability to find money with which to pay salaries. Upon the application of Mr. J. Richardson the examination was closed.



## News and Notes.

MESSRS. Rae, Limited, of Glasgow, notify us that they have secured premises in Dumfries, and will open early in April a branch of their business. Full stock of everything optical, photographic, and electrical, is to be kept, and they will arrange a dark room for customers' use.

PHOTOGRAPHY in Siam.—We learn that a very interesting feature of the Dusit Park Fair this year will be the exhibition of amateur photographs. The judging committee is: H.R.H. Prince Chao Fa Nakon Sawan, H.R.H. Prince Damrong, H.R.H. Prince Mahisa, H.R.H. Prince Rajburi, Mom Rajawongse Suwapan, Mr. Schuyler, Judge Skinner Turner, and M. de la Mahotiere. Each visitor to the exhibition may vote also for any photograph which he thinks deserves a prize by purchasing a ballot. No restriction will be placed upon the number of ballots, which can be bought by any one person. The number of votes will be counted each night. At the conclusion of the fair, prizes will be given for the photographs receiving the highest number of votes. There will also be a lottery on the following system:—Tickets will be sold at four ticals. Each ticket will bear the number of a photograph on exhibition, and the winning numbers will be the numbers on the photographs to which the committee award gold medals.

PHOTOGRAPHIC Society of Ireland.—Entries for the forthcoming exhibition, we may remind our readers, should be in the secretary's hands at latest on Monday next, March 26. They should be addressed to 194, Clonliffe Road, Drumcondra, Dublin.

THE annual meeting of the Yorkshire Photographic Union will be held on Saturday, April 7, in the Town Hall, Bailey. In addition to the business meeting there will be an exhibition of members' work, and a conversazione.

PHOTOGRAPHS to Measure.—We read in an Irish paper that a photographer in a country town was recently visited by a young woman, who, with sweet simplicity, asked: "How long does it take to get your photograph after you have left your measure?"

THE Northumberland and Durham Federation.—At the annual meeting last week, amateur photographers endorsed with applause two proposals of a fairly ambitious character made by the President (Mr. Walter S. Corder, North Shields). Mr. Corder put the question: How could they best help to increase the success of photography in the Northern counties? He suggested that the honorary secretaries of the local photographic societies should induce their members to join forces with the Society of Antiquaries in carrying out a careful and systematic survey of Northumberland and Durham, whereby there might be secured a permanent record of the vanishing objects of historic and antiquarian interest in the two counties. Further, he warmly commended the idea of utilising the Newcastle Art Gallery for an exhibition which would satisfactorily represent the possibilities of photography, with examples of the productions of the best amateur artists in the world.

A FIRE broke out last week in the photographic studio occupied by Mr. John Phillips, at 45, Donegall Place, Dublin, but the brigade extinguished it before any serious damage had been done.

DEATH of Hermann Schnauss.—We regret to learn from "Photographische Chronik" of the sudden death from an accident of Herr Hermann Schnauss, editor of our Dresden contemporary, "Apollo." Herr Schnauss was an old photographic journalist in Germany, and was known to readers of the British Press by his occasional contributions on photographic progress, and by the translations of photographic text-books from his own or others' pens.

THE Photo-Secession.—We learn from Mr. Alfred Stieglitz that the series of house exhibitions held in the small galleries of the Photo-Secession, 291, Fifth Avenue, New York, have been visited in large numbers by art lovers and members of the cultured classes generally interested in the aspects of art photography. During the fourteen weeks the exhibitions have been held between 8,000 and 10,000 persons have visited the gallery, and Mr. Stieglitz, who has taken upon his shoulders the promotion and arrangement of the exhibitions, and has himself superintended the minutest details of the hanging, may be congratulated on having won many new friends for the photography of the highest kind. The exhibitions have been

of fortnightly duration, and have included the work of Mrs. Käsebier and Clarence H. White, of J. Craig Annan, Fredk. H. Evans, and the late D. O. Hill, and of Eduard J. Steichen, including examples of his experiments in colour photography. On Monday next a "Salon des Refusés" is to be held for a fortnight, in the shape of a collection of paintings by American painters which have been refused at the Society of American Artists, National Academy, Carnegie Institute, and Pennsylvania Academy of Fine Arts Exhibition. Then follows a collection of multiple gum prints by German and Austrian photographers—Hugo Henneberg, Heinrich Kühn, T. and O. Hofmeister, and the late Hans Watzek, and the season will close with a general exhibition of work by members of the "Photo-Secession." Mr. Stieglitz's untiring labour in the holding of these exhibitions and in the production of "Camera Work," we see, conquers the opposition which he has had to fight in some of the American photographic journals, and our only regret is that the absorbing duties of administration leave him such scanty leisure to devote to his own photography.

THE Paget Prize Plate Company, Ltd., inform us that Mr. C. Lafosse has joined their staff as demonstrator of their various plates and papers.

It is reported from Vienna that the company formed to work Szczepanik's photographic process of producing patterns for weaving and textile materials in three colours has gone into liquidation. The reasons for the non-success of the company are stated to be that the patterns cost more to make by his method than by the usual hand work, and, further, the large patterns were found to be so fuzzy at the edges as to be quite useless, and thus after six years' experimenting the company wound up. Szczepanik himself ascribes the failure to the fact that he was called up for military service, and therefore could not superintend the manufacture of the machines, etc.

NORTH MIDDLESEX PHOTOGRAPHIC DINNER.—The annual dinner was held at the Holborn Restaurant on Saturday last, Mr. H. Stuart, the newly elected president, in the chair. The menu card and programme, which is an invariable feature of this annual function of the Society, contained reproductions of photographs to which awards were made at the 1905 Exhibition. Mr. E. T. Holding, who, with Mr. B. Gay Wilkinson, acted as judge of the Exhibition, presented the certificates and added some caustic comments on Mr. G. Bernard Shaw's comparisons of the work of Coburn and that of the old masters. Pursuing a vein of satire, he suggested that the successful exhibitors should divide up the old masters between them and show how their work could be challenged by photography. He thought Mr. Child Bayley might tackle Turner, and all he asked was that they would leave him (the speaker) Corot and Millet. A very excellent musical programme, in which the performers were Miss Winifred Clarke, Mr. R. D. Grant, Mr. T. B. Wright, and Mr. F. C. Tilney, interspersed the list of toasts. Mr. J. A. Sinclair proposed the toast of "The Society," in responding to which the Chairman presented, on behalf of the Society, a silver rose-bowl to Mr. Charles Beadle, retiring president, and a number of Autotype reproductions of works of art to Mr. Ainsley, who for six years had been treasurer. Mr. A. H. Lisett proposed "The Press," to which Mr. George E. Brown (THE BRITISH JOURNAL OF PHOTOGRAPHY) responded. Mr. J. McIntosh gave the health of the visitors, to which Mr. W. Thomas replied. The toast of the artistes and producers of the menu were given by Mr. J. C. S. Mummary, and responded to by Mr. F. C. Tilney and Mr. H. Barnard, who spoke for Mr. S. H. Bently, by whom the photographic work of the menus had been done. Among the visitors were Mr. H. Chapman Jones, Mr. George Scammell, and Mr. A. Horsley Hinton. A most enjoyable evening was brought to a conclusion with "Auld Lang Syne."

THE Brin Oxygen Company have brought out an acetylene blow-pipe for working at very high temperatures, and applicable to autogeneous soldering of the more refractory metals. The blow-pipe is advanced as a substitute for brazing in iron and steel work of all kinds, and can be similarly employed in copper working. Although the high temperature of the flame would suggest its use for high-power limelight work, we learn from the company that this application has not yet been worked out by them. A prospectus of the blow-pipe and accessories is obtainable from the Brin Company, at Elverton Street, Westminster, S.W.

## Commercial & Legal Intelligence.

Is a Show Case a Building?—At the Chichester Petty Sessions last week several cases were heard in which infringement of the Corporation's bye-laws was alleged. Five summonses had been taken out, one of which was concerned a show case belonging to Mr. W. P. Marsh, photographer. The City Surveyor said the building in question was in front of a house now occupied by Mr. W. P. Marsh, photographer. It had the appearance of a detached shop front. It was 12ft. 5in. long, 4ft. deep, 6ft. high, with a fascia board at the top 1ft. 10in. deep, making a total height of 7ft. 10in. It was constructed of glass and wood, and had two doors at the rear. It was erected on seven posts. No plans in respect to this erection were received by him. Replying to further questions the Surveyor said he did not know whether the present structure was a box placed on top of posts. The height, 7ft. 10in., was from the ground to the top of the fascia board. He considered this to be a domestic building. Mr. Wannop (for the defence:) You wish to do away with all show cases unless built of brick?—This is not a show case, this is a shop front, it's a building. As a practical man you say this is not a show case?—It may be used as one but it is not one. Mr. Freeland: Do the neighbours object to this?—Yes. Have you had complaints?—My first inspection of this building was by reason of a complaint from a neighbour. Mr. Wannop submitted he had no case to answer. First there was no authority to prosecute because the resolution of the Committee had not been confirmed by the Council. He also submitted there was no proof of how the structure was fixed. It was absurd to say this was not a show case. It was a show case pure and simple, and how it could be construed to be a building he was absolutely at a loss to conceive. Mr. Wannop proceeded to read the report of a similar action taken by the London County Council, in which Mr. Paul Taylor, the magistrate, condemned very strongly the objection to such ornamental structures. Mr. Cooper: But supposing all the other houses were to do the same? A nice government we should have over our streets. Mr. Freeland inquired whether it would meet the case if Mr. Marsh would undertake to remove the structure when called upon. Mr. Bew, who held a watching brief for Mr. Marsh, said he had given his client certain advice, and he had information which would certainly not result in the removal of the show case. Defendant was next called to give evidence. The show case, he said, was made at his shop and taken bodily to Southgate, where it was placed on the platform and screwed into position to prevent it blowing over. It was a tenant's fixture. The whole thing could be shifted in five minutes, and four men could lift it over the fence. By Mr. Cooper: He did not look at the bye-laws when he received the order for the work, but he would certainly have done so if he had been asked to build a house. The Bench having retired in private, Dr. Paxton said they had considered the case very carefully, and had come to the conclusion that this was not a building within the meaning of the bye-laws. The case was accordingly dismissed, and the Town Clerk intimated that he withdrew all the other cases relating to the same property.

Re Benjamin Pearce, Liverpool House, Maengwyn Street, Llanynlleth, watchmaker and photographer.—The above-named debtor appeared for his public examination at the last sitting of the Merystwith County Court, before the Registrar. The statement of affairs filed by the debtor disclosed liabilities amounting to £80, and there was a deficiency of £74 9s. 6d. The causes of failure as alleged by the debtor were loss in consequence of forced sale of freehold land and studio by mortgagees on January 9, slackness of trade at Towyn, inconvenience in carrying on trade, the shop at Llanynlleth where he lived being a considerable distance away, lack of trade, and heavy household expenses. Bankrupt, aged forty-four, commenced business as watchmaker twenty-three years ago without capital, and had carried on business as photographer for the past twenty years. He kept no books of account, his trade was small and practically for ready money. Nearly the whole of the liabilities were for goods supplied. In reply to questions, debtor said the studio at Towyn sold for £200, which was enough to pay mortgage and costs. The business there was beginning to pay. He handed it over to his daughter, but she did not work it as she ought to have done. He had had a great deal to do

with volunteering, but when he went to camp he took his camera and made money. He had won cups for shooting, but had not won them outright. The examination was adjourned.

A COPYRIGHT CASE.—At the Bury County Court, last week, an action was brought by Mr. G. S. Cousins, photographer, of the Butter Market, against the Bury St. Edmund's Printing and Publishing Co., from whom he claimed £100 for infringement of copyright. The alleged infringement consisted of the publication of election buttons bearing a portrait of Captain Hervey, of which plaintiff held the copyright. The plaintiff was represented by Mr. H. O. C. Walpole, and the defendants by Mr. Henle. Mr. Cousins, it appeared, had photographed Captain Hervey at his residence on the request of a stationer named Pawsey, who wished to reproduce the Captain's photograph on an almanac. Mr. Cousins sent complimentary copies to Captain and Mrs. Hervey, and granted Pawsey the free use of it for his almanac. On December 16, 1905, he registered the copyright. Afterwards the photograph was reproduced in the form of photo-buttons and plaintiff also found that the portrait was being reproduced in an almanac of the "Bury Free Press." He obtained 10s. 6d. for permission for it to be there used, but that did not include the right to sell it as buttons, the sale of which still went on. It was finally agreed to accept £5 and £20 costs, the former sum having been paid into court by defendant.

A DEALER'S CASE.—At Liskeard County Court on Monday, William James Govett, photographer, St. Cleer, sued Messrs. Smedley and Co., photographic dealers, Fleming Square, Blackburn, for damage for delay in executing an order. Mr. A. W. Venning for plaintiff. Plaintiff stated that on October 20 he ordered a photographic accessory, for which he forwarded £3 19s. 9d., but up to the present he had not received the article. His Honour (Judge Granger) asked if plaintiff had a receipt for the money, and on plaintiff replying in the affirmative, gave judgment for the plaintiff.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### HALF-DAY CLOSING.

To the Editors.

Gentlemen,—Competition is the one word that answers Mr. Lang Sims' letter re the above. True, he implies if all combined to close their establishments it disposes of competition. Probably for the time being it does. But presume that it is done in some town by every established business. Some newcomer sees the opportunity and seizes it, opens a studio, and does all the work during that close season—of course, presuming his work is up to the town's standard. I, like Mr. Lang Sims, during my early experience, worked from 9 a.m. up to all hours of the night, often until midnight, because all the trimming, toning, and mounting—in fact, the general work—had to be done after tea, when the day's rush was over, such toning being done in six or seven table meat dishes, four or five prints in each dish only, so as they could all be seen. These reminiscences date back to the early sixties, when the full length carte-de-visite and the passe partouts were the rage, when all our female sitters wore crinolines and pork-pie hats, and the male gender peg-top trousers of a very assertive check pattern, when the streets resounded with the air of "Ole Bob Ridley, oh!" But I must check my thoughts and pen and deal with more recent events, say of fifteen or twenty years ago. At that time every studio in this town closed its doors and put up the shutters (shutters are now obsolete) at 6 or 7 o'clock, the owners going home to their suburban residences to enjoy their gardens in the summer and fireside in the winter, and some, to their credit, do it yet; but alien competition settled on the town. Studios were kept open for artificial light work, well-dressed windows were shutterless, and brightly lighted up as late as 10 and 11 o'clock every night of the week, and presents were given to every sitter who paid for a dozen cabinets. Hence the old-established studios, to use Mr. Lang Sims expression, "had to fall into line" and do likewise, and



it is even so up to the present day. Nay, worse, for Sunday work is openly carried on as well as in a covert fashion, but in this I do not "fall into line." I would prefer being maintained by the rate-payers. By the bye, it is common rumour that one of our well-known prominent retired photographers reached that happy (?) position by Sunday work many, many years ago, so it is nothing new. I do not pen these lines in animosity to any feasible scheme that could be devised to better our lot all round. I merely recount facts, but it is no use trying to keep the sea back with a broom. It is probably best to go with the tide, and occasionally drift into some quiet secluded pool for rest and enjoyment, or, in other words, take your holidays when you can after earning them. My employees each have a half-day off per week, half the staff on one day and half another, alternating the days or arranging among themselves to suit their varying requirements. Has any one a better scheme to propose which will not open a way for some one to assert their will in strenuous competition, for where there's a will there is a way, as Mr. Lang Sims quotes?—Yours faithfully,

The Studios,

7 and 8, Park Street, Anlaby Road, Hull.

W. BARRY.

#### To the Editors.

Gentlemen,—As an employee of many years experience, I wish to thank Mr. Lang Sims and others for their praiseworthy efforts to procure for us what every board-minded employer will admit is of vital necessity. Our work is tedious, exacting, and often nerve-destroying, while long confinement in small air-tight dark rooms has its terrible effect on the strongest constitution, and surely a few hours of sunshine and fresh air every week is not much to grant a fellow-being.—Yours faithfully,

FRANCIS B. WILLIAMS.

Sirdar Villa, Ryeland Street, Hereford.

#### To the Editors.

Gentlemen,—Your correspondent who styles himself "A Member of the P.P.A.," has given expression to the opinions of a number of assistants who, like myself, wish to raise the standard of professional photography.

I am not making a plea for lazy assistants, but I certainly think that it would be greatly to the advantage of the majority of employers if they adhered to the usual professional hours of 9 to 6. There are times when perhaps it would be necessary to take a sitter by artificial light, or to devote one evening a week to that kind of work, and no assistant would be so unreasonable as to object to this if his other evenings were free. In these days we get very little time for self-improvement. An assistant closing at 8 p.m. cannot be expected to attend a lecture, demonstration, or meeting of a photographic society beginning at that same hour, and as a general rule an operator is grateful if he can get a few moments to himself when he has been working with perhaps trying sitters from 9 a.m. to 8 p.m. But enough of this; it is sufficiently apparent to those employers whom it concerns, that low wages and little leisure time is not the way to improve the ability of assistants and the production of a studio.

BERTRAM T. HEWSON.

Elham, Canterbury.

March 20, 1906.

#### To the Editors.

Gentlemen,—I am interested in the letter on "Early Closing." I am now an employer, and I believe in consideration for those employed very greatly. I close my premises on Thursday at 1 o'clock, and I feel sure that I do not lose in any way. Indeed, I am assured by all my employees that they are very content, and would not wish to make a change, and I do not think that even the highest photographer in the land is better served than I am. I also find from personal experience that consideration in the matter of fires in the winter makes a lot of difference in the work. I have been in places where I simply could not retouch, because I was too cold, and therefore my employer lost a lot of work, whereas had I had a good fire I should have done three times as much. Probably if more employers had been through the mill as assistants they would show more consideration. I sincerely hope, in con-

clusion, that I shall never treat those working for me as I have sometimes been when in the employ of others.—Yours faithfully,

ALICE O. YARDLEY (an ex-assistant).

High Street, Gorleston, March 19.

#### To the Editors.

Gentlemen,—As one of the large class who would be much benefited by the general adoption of a half-holiday, may I be allowed to point out that those employers who are hesitating to adopt this system are really standing in their own light.

I work now from 9 till 6 nominally, and this practically means 6.30 by the time I have cleaned up generally, including myself. After this I have little inclination to do anything but lounge about in a chair and read light literature, and the only time I really devote to photography after hours is when I read the B.J. on a Friday night. I have no time for trying any new processes, nor have I the inclination, and in this your previous correspondent—"A Member of the P.P.A."—is perfectly correct and logical.

I know that after my Sunday's rest I am always fresher than any other day of the week, and look forward to the same most anxiously.

As regards the day of the week which should be chosen, this must always be a matter for each town to decide. With us it would be impossible to close on a Saturday, as we do more business then than any other day, but as the large drapers and some other establishments close on Wednesday, we might well have that half-day, as I find, on reference to our appointment book, this has been the quietest afternoon throughout the whole of the last twelve months.

With regard to the loss of business, it may be interesting to cite the case of a friend of mine, who is manager in a large chemist's close by. They invariably close on Wednesday, and he informs me that he has not been able to trace any loss through having adopted this plan. The chemist's business is, of course, different from ours, in that there must always be somebody ready in case of an emergency. But my friend informs me that after the first few weeks his customers soon got to know he was closed, and sometimes now he does not have even one visit between 2 p.m. and 10 p.m. on the half-holiday.

Surely what can be done by the chemist who supplies necessities can be adopted by the photographer who only deals in luxuries.

For obvious reasons, I withhold my name and address.

A CHIEF OPERATOR.

#### THE NON-RETURN OF SPECIMENS.

##### To the Editors.

Gentlemen,—In "Ex Cathedra," of March 16, 1906, the subject of specimens being delayed is again referred to. I also notice the assistant is asked to send the return postage for his specimens.

I should like to know the opinions of a few leading photographers on this subject; myself, I think that if the employer wants an assistant, and the assistant wants employment, which, I take it, is the object in view, why should not the assistant bear cost of postage to the employer, and the employer return them post free. Nothing, I think, could be more simple, or more fair to both.

There is a great need for some fixed rule in this matter, and I should be extremely obliged if a few photographers—preferably high-class portraitists—would give their opinion on the question. I ask this not for myself, as I shall not deviate from the rule I have adopted, but for hundreds of assistants who, I am sure, would wish the matter settled once and for all in the manner I have indicated.—Yours most sincerely

B. T. H.

##### To the Editors.

Gentlemen,—May I tell you of an experience that I had as an assistant as regards the return of specimens, as in this case the blame was very evidently not to be attached so much to the employer as it was to the employees then on his firm. I had answered to my advertisement asking me for particulars and specimens. I sent these with postage for return. My application was not accepted, but the specimens were not returned. I wrote, and still no reply. I wrote again, same result. So finally I sent a letter and wrote "Personal" on the envelope. Within a day or so I had a note from the gentleman with the specimens, apologising for not having sent them, and saying it was the first he knew of it.

should undoubtedly say that the first postcard and note that I sent were never seen by the head of the firm, and were simply put in the waste-paper basket by his clerks as not worth noticing. I have also lost other specimens in answering to a box number, and therefore carefully avoided answering them.—Yours,  
March 19, 1906.

EAST ANGLIAN.

#### COLOUR-PHOTOGRAPHY.

To the Editors.

Gentlemen,—With reference to your remarks of a fortnight since, regarding a permanent exhibition of photographs, may I say that, if you have any difficulty in getting some of the exhibitors to leave their exhibits for such an object, I could let you have one or two of different subjects, by three-colour carbon, and should consider it a distinct privilege to do so?

By the way, I shall only be too glad to form one of your suggested colour society. Perhaps you will enter my name in this connection to help to back up Mr. Butler's sensible suggestion.—Yours faithfully,  
HAROLD HOOD.

St. Bride Works, Middlesbrough.

March 16, 1906.

To the Editors.

Gentlemen,—Referring to Mr. Howard Farmer's excellent suggestion of making your collection of colour-photographs a permanent one, I do not doubt that most exhibitors will be glad of the opportunity to present some of their work, and in doing so express their appreciation of the convenience you so kindly offered to them to compare notes and to form an idea of the present state of colour-photography. The exhibition has been a great incentive to the exhibitors, and the deepest interest has been shown by professional, amateur, and general public alike, and I have positive proof that this interest has not been a passive one.

Mr. Farmer refers to payment for certain exhibits. Surely the fact that this experimental work, with all its imperfections, yet so very promising, is at all considered worth preserving should be taken as sufficient compensation by most exhibitors, especially if the number of exhibits is limited to not more than three. I hope that Mr. Farmer's proposition, which is seconded by the Editors of this journal, will meet with a response in keeping with Mr. Farmer's generous praise, and in tune with the progressive motives which induced the Editors to arrange for this unique exhibition. I need hardly add that I shall gladly offer my exhibits whenever requested to do so. I am, dear Sirs, your faithfully,  
HENRY O. KLEIN.  
Westcliff-on-Sea, Essex.

To the Editors.

Gentlemen,—Mr. Butler's letter in last week's issues states that this camera (Patent No. 4,290, 1905) works at an angle of 35 degs. If the drawing of Mr. Butler's patent in the "Almanac" is approximately correct, then we can take for the basis of calculation and verification the size of a photographic plate as one unit, and we can allow  $2\frac{1}{2}$  units for the focal length; otherwise, should we take a shorter focal length, the plate at "D" would stand in danger of being partly exposed to the direct rays from the lens. By this basis of our calculation the radius of  $2\frac{1}{2}$  units would give a diameter of five units and a circumference to the circle of 15.65, which will show at a glance that  $15\frac{1}{2}$  plate units are required to form a circle, or 360 degs., and so I come to the conclusion that the possible angle of view is maximum 23 degs.

If Mr. Butler can use ordinary glass as colour-filters, and especially as reflectors, he certainly affirms a new view of accurate theory.

I am sure this fencing round my statement, that three equal-sized pictures cannot be made by the now known "reflector system," will not prove the case, but to publish the facts without being safeguarded would not further my interests.

OTTO PFENNINGER.

Brighton, March 10, 1906.

[In reference to the negatives which Mr. Butler forwarded to us, (two sets of half plate negatives), there is not the slightest question as to their being critically sharp and possessing images of absolutely identical size. This is the more readily seen as one is fine, straight, and circular lines, which it is extremely easy to superimpose, and which would at once show want of definition and variation in the size of the images.—Eds., B.J.]

#### A COLOUR PHOTOGRAPHY SOCIETY.

To the Editors.

Gentlemen,—The suggestion made by a correspondent in your last issue with reference to the formation of a society, the object of which is for the mutual assistance of its members and the advancement of that exclusive and fascinating branch of our art science, tri-colour photography, will, I feel convinced, meet with the approval of all workers. Living in the provinces, I do not often come in contact with the work of other people in the above-named branch of work. Should such a society be formed, personally I should be pleased to become a member. No doubt the place of meeting would have to be in the metropolis, but the benefits to be derived by provincial workers might be in the form of a circulating portfolio of prints and a circulating set of slides; lectures and reports of the demonstrations, etc., could be printed in the form of a circular, and would prove a very valuable contribution to the advancement of that branch of photography which in the near future is bound to make a revolution in many trades and professions.

The universal application of this process to the various methods of reproduction at the present time is almost an accomplished fact, and alone is sufficient to show the importance of such a beautiful process, and the present time is very opportune to make and carry out the suggestion made by your correspondent. Two years ago only I gave several demonstrations of my methods of working before various societies connected with the Yorkshire Photographic Union, in which I ventured to remark we should before long find pictorial photographs with the additional charm of colour adorning the walls of our exhibitions. A pictorial worker universally known and a leader of pictorial workers took strong exception to my remarks at the time. I have recently wondered what he now thinks about the matter, if he has taken the trouble to visit your little exhibition in which I feel convinced were two or three exhibits quite sufficient to convince the most sceptical there are exceptional possibilities in the three-colour process practised to-day for picture-making, although only in its infancy, and I think I may venture further and say we shall see distinct advances in this direction at the forthcoming R.P.S. exhibition.—Yours truly,

F. W. PLEWS.

39, Belle Vue Avenue, Roundhay, Leeds, March 19, 1906.

To the Editors.

Gentlemen,—I think with you that if Mr. Butler's suggestion took the form of a postal club it would be of greater value to the greatest number of members. I should very much like to become one of the initial members of such a club if formed, and would be pleased to render any assistance in my power.—Yours faithfully,

HENRY J. COMLEY.

"The County Studio," 10, Russell Street, Stroud.

March 17, 1906.

[Several other correspondents write us to the same effect. We will deal with their letters in a later issue.—Eds. B.J.P.]

#### MEASURING SHUTTER SPEEDS.

To the Editors.

Gentlemen,—It was only yesterday that I came across your editorial in your issue of March 9, referring to my method of taking shutter speeds, which appeared in PHOTOGRAPHY of February 27, or I should have written in time for my reply to have appeared in your following issue.

You ask, in what part of swing of pendulum should the exposure be made?

The position, to be exact, is  $\frac{1}{10}$  ths of the distance from the starting point to the bottom of the swing, measured along the line which represents the "one second" exposure.

This  $\frac{1}{10}$  ths is somewhere between 1.5th and  $\frac{1}{4}$  gr. of that distance, and if the exposure were made at the former position the error in reading would be only 0.034 of a second too little; and if in the latter, 0.039 too much.

You will see, therefore, it is not absolutely necessary that the exposure should be made at this exact position.

On the other hand, if the exposure is made at the centre of the



swing, then the time of the shutter can be ascertained *exactly* by noting the following simple formula:— $E = \frac{L}{S} \times \frac{\pi}{2}$  where  $L$  is the measurement of the line (less its width) representing the full swing of the pendulum;  $S$ , the short line (less its width), representing the shutter exposure; and  $\pi$  is the relation of the diameter of a circle to its circumference (3.1416).

For another method of arriving at the exact measurement, I am indebted to a correspondent in last week's issue of "Photography," who gives a scale for measuring the exposure when taken in *any position of the swing*, and reading off its duration without calculation.

That the writer does *not* "ignore the law of velocity of the pendulum" is clear from the last paragraph of my letter to which you refer.

You are good enough to say the method cannot be accurate. I must refute such a statement, for the exposures can be worked out to any degree of accuracy that may be necessary, and the shutter speed be thereby accurately ascertained, and I assert that this can *not* be done by the ordinary means in use.

You say a certain amount of work is done in bending the flexible tube which will cause the velocity of the pendulum to vary—but as the power required to bend the tube is only  $\frac{1}{16}$  of an ounce, and the pendulum weighs 8 lbs., and whereas the average of the "bob" is six times that at the point where the tube is attached, it follows that the retardation caused by bending the tube is to the momentum of the pendulum as 1 to 30,000. From this it will be seen the objection you raise is reduced to an absurdity.

Further, you say,—the very primitive method of suspending the pendulum will disturb the velocity irregularly.

As a matter of fact, in the instrument I was using it did not. However, if my method of construction was primitive, and I do not, as an amateur, profess to be a mathematical instrument maker, then I fail to see that that, in itself, has anything whatever to do with the system.

Appearances may be misleading, otherwise one might, I fear, be led to suppose that you were labouring to condemn an invention likely to be of service to photographers, that appeared for the first time in a rival paper.—Your obedient servant,

ARTHUR A. WATKINS, A.M.I.C.E.

Bala Lodge, Blackheath, S.E.

March 14, 1906.

[We must repeat Mr. Watkins either ignores, or is ignorant, of the laws concerning the speed of a pendulum. The law is that the speed, which is zero at the commencement of a swing, gradually increases until it is a maximum at the mid-position, and then gradually decreases until, at the end of the swing, it is again zero. Thus at "the lowest point of the arc of motion" there is not "either a slight acceleration or retardation of the angular movement" as stated by our correspondent. In fact, it is the only point at which the acceleration, whether positive or negative, is zero. The law being as stated, we should expect the length of the line made by using the shutter to be longer, the nearer the exposure is made to the middle of the swing. Now, in the specimen exposure published by Mr. Watkins, there are two short streaks showing two exposures. One of these is distinctly longer than the other; it is also the one which is appreciably nearer to the middle of the streak representing the full swing. This then confirms our criticism.]

As quoted by us on March 9, Mr. Watkins directs that an exposure should not be made "when the bob is at the lowest point of the arc of movement." Now he writes that "the time of the shutter can be ascertained exactly" by using a formula, which certainly can do

nothing of the kind. (The correct formula being  $\frac{s-w}{2\theta\sqrt{2l}}$  where

$(s-w)$  is the length of the short line corrected for the width of the sun  $\theta$  = total angle of swing measured in circular measurement, and  $l$  is the length, in fact, of a simple pendulum swinging to same period as the compound pendulum used.)

Later in the above letter there is a paragraph which we confess we cannot understand. First, there is "the power" (work per unit time) which either causes or is compounded with (we are not quite sure) the "retardation"—(negative acceleration) being compared with the momentum (quantity of motion)—of the bob. Does Mr. Watkins mean *moment*? If so, then all we can say is that the length of the

pendulum (the "leverage" of Mr. Watkins) has nothing to do with the moment, causing the pendulum to vibrate. Indeed, our contention concerning the bending of the tube is far from being an absurdity.

As for the assumed uniformity for the movement of the pendulum, even if the pendulum does swing once in a second, it simply means that the average acceleration has been such as to cause the pendulum to complete a swing in this time; but it does not follow that the actual acceleration has not been altered by the varying friction which must result from so crude a method of suspension.—Eds., B.J.P.J.]

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- W. Bradbury, 387A, Limefield, Bury, Lancs. Photograph of a Hen Fostering a Litter of Pups.
- F. Watson, 35, Queen's Road, Bury St. Edmunds, Suffolk. Two Photographs of Old Staircase at the Shirhall, Bury St. Edmunds.
- A. T. Sidwell, Meriden, near Coventry. Two Photographs of Wroczal Abbey, Warwickshire.
- W. Boughton & Sons, 102, High Street, King's Lynn. Photograph of Nurses with the late Mr. F. H. Hand.
- C. Bellinger, 4, Town Hall Terrace, Paignton, Devon. Photograph of a Portion of Winner Street, Paignton, with Old Thatched Roof Houses now Demolished.
- A. Shaw, 32, Briardale Road, Seacombe, Cheshire. Photograph of the Wrecked Soreo Steamer "Fearless" in the River Mersey.
- Armoury-Sergt. J. P. Worral, Whittington Barracks, near Lichfield, Staffordshire. Photograph of Monument to Non-Commissioned Officers and Men of 2nd West Riding Regiment who Died at Dinapore and Barrackpore during 1904 and 1905, Situated at Military Cemetery, Dinapore, India.

**AEROGRAPH.**—Will you please inform me:—1. What sort of colour I must use with the "Aerograph" for carbons and bromides? Will the ordinary kind, diluted, do? Or are there special kinds made? 2. Can you tell me of a firm in Leeds who supply "busts" suitable for practising lighting on?—ROTARY.

1. The best are the pure artists tube colours. 2. We know none in Leeds. We gave the addresses of several in London in a recent issue.

**ARTISTIC LENSES.**—With reference to an article in the B.J.P. of March 9, on "Artistic Lenses," by Messrs. Puyo and de Pulligny (page 184), I should be much obliged if you could tell me or answer the following questions:—1. Is the "adjustable landscape" lens suitable for portraiture also? 2. Can the lenses be used in orthochromatic work? 3. Can they be used in architectural studies? 4. Also, please let me have the address of a firm which makes the lenses, and would supply them either mounted or unmounted.—K. KRALL.

1. It is so recommended by Major Puyo, but it has not the speed of the special portrait anachromats. 2. See our note last week in "Ex Cathedra." 3. At small apertures. 4. See our advertisement pages for the past three issues.

**STUDIO QUERY.**—Will you please give me the best measurements for a small studio to measure about 16ft. by 9ft., single or double roof, and the amount of glass. 2. Would a 1-1 Cooke lens f/8 be suitable?—MELTON.

The studio will be very small, if required for professional work. Either the ridge, or lean-to, form is good, but something will depend upon the situation as to which is the preferable. We should recommend you to get Bolas's book, "The Photographic Studio: A Guide to its Construction, etc.," published by Marion and Co., 2s. From that you will be able to see the form that will best suit your place. 2. The

lens mentioned could be used, but, in so short a studio, it would not do for full-length standing figures. It is also much slower in action than ordinary portrait lenses requiring about four times the exposure.

COUNTRYMAN.—We are sorry, but we do not know the actual makers.

ISTO.—As a rule, the mounts are ordered to the sizes of the prints, but you could mount on plain board, and then use one of the commercial mount cutters, which can be obtained from any dealer.

SUBSCRIBER.—1. You will find two or three firms advertising the lenses in our advertisement pages, and application should be made to them. 2. The trouble can be got over by lining your roof with some non-conducting absorbent material such as thin felt, Willesden canvas, or compo board made by the British Compo Board Company, 18, Roscoe Street, Golden Lane, London.

OMIDE PRINTS, ETC.—1. Are bromide prints (black and sepia toned) permanent, if treated carefully and properly, according to instruction? 2. What focus should a lens be for a studio 20ft. long?—DOUBTFUL.

1. Certainly. 2. It is impossible to answer this without knowing the size of plate, etc. If our correspondent will refer to p. 1124 of the "Almanac" for 1906 he will find a table of working distances for a given sized image, and he will thus be able to find which would be the most useful focus.

NERST LAMP.—1. Is the Nernst light equal in candle-power to an ordinary blow-through jet when used in an enlarging lantern? 2. Are there any particular disadvantages in the use of the Nernst light for this purpose?—NERNST.

1. We believe the lamps can be obtained equal in candle-power to an ordinary blow-through jet, and R. W. Paul, 68, High Holborn, W.C., would send you details. 2. The only disadvantage is that the filaments show on the paper. It is therefore necessary to use a diffusing screen of ground glass between lamp and condenser.

VER PAPER.—You recently had an article in the BRITISH JOURNAL on silver prints; would you kindly tell me the number, as I have mislaid it?—H. G. LUCK.

Probably you mean the articles on plain paper in last year's issues, April 28, May 12, May 19, and June 2. If your query refers to albumen paper the references are June 16, July 21, August 11, and August 25.

RIGHT.—A short time ago I secured some fairly good negatives of a prominent part of our town. Since taking the photographs the most imposing building has been destroyed by fire. The negatives taken were on my own account and for my own use, but I did not have the same copyrighted, as perhaps I ought to. I was somewhat surprised, however, to see in a stationer's window reproductions in postcards from my photographs. No one ever asked my permission to reproduce them, and, of course, I never had a penny for it. (1) Can I take proceedings against the publishers? (2) Can I now have my photographs copyright and stop a further sale? (3) What would you do in such a case?—W. J. B.

(1) You have no remedy for infringement before registration. (2) Yes. (3) Register the copyright at once.

T-ALBUMEN PAPER.—I see there is in the market some matt-albumen paper, different textures. As I sensitise my own ordinary albumen paper would it be possible to procure also matt paper for the purpose, and could you recommend a medium, strong, and rough cheap one? And how would you prepare for sensitising?—MATT ALBUMEN.

We do not know of any unsensitised matt-albumen paper being on the market. The earliest albumen paper used had little more than a matt surface. The formula for that was: Albumen, 20 oz.; water, 20 oz.; chloride of ammonium, 400 grains. Beat up into a perfect froth, allow to subside, and pour off the clear portion. Float the paper upon it, and, when dry, sensitise on a sixty grain solution of nitrate of silver. If less gloss than this gives is desired, use less albumen and more water.

PROPLATINITE.—(1) How should I make a stock solution of chloroplatinite of potassium? Some time since I mixed up a fifteen

grain tube, with water, and in a few days it greatly discoloured. Should I add a few grains of acid to the water to make the solution keep? I require it for making a toning bath for collodion paper. (2) I sometimes want to make small glass cutting shapes for trimming prints. I find the edges of the glass rather too rough. How would be the best way for me to grind the edges?—SEASIDE.

(1) Use distilled water and add a drop of pure hydrochloric acid. (2) The very finest emery powder, obtained by allowing the commercial powder to deposit its coarse particles in water, pouring off the liquid with the finer in suspension, and allowing these to settle in time.

LENSES FOR GROUPS IN AN ORDINARY ROOM.—We are often called upon to photograph wedding and other groups, varying in numbers of three to twenty, at the residence of the parties, or at an hotel, in some room of the house. We shall be glad if you will kindly say which you consider the most suitable form of lens to use for such purposes, taking into consideration the light of an ordinary room and distance at disposal. We have been using Dallmeyer's D. Lenses for this work, but for 12 x 10 sizes a 5 or 6 D. would be required for covering purposes; these sizes we find large and cumbersome. R.R. Lenses are too slow for indoors.—W. H. M. & Co.

The lens we would suggest for the purpose would be one of the No. 11 series of stigmatics, by the same maker as those you have. They have greater covering power in proportion to their focal strength than have those of the "D" series, and work at the same aperture. They have also a flat field, with even illumination all over the plate.

A BUSINESS MATTER.—I am in business as a photographer and dealer in photographic goods. A neighbour of mine in the same block of buildings, and under the same landlord, is a dealer in sweets and fancy goods, including stationery. By our respective agreements we are neither to introduce anything into our business that will clash with the business of the other. We both wish to sell pictorial postcards. I should esteem it greatly if you would kindly inform me as to what extent I may legally go in this line, whether I must confine my sale of cards to photographic work alone, P.O.P., bromide, etc., or whether I may continue to print my own half-tone work, as I am accustomed to do?—POSTCARD.

Without seeing the agreements it is difficult to say definitely. We do not see that if you only sold your own work as postcards it would interfere with the business of the stationery; but if you sold picture postcards, such as come within his legitimate business as a stationer, it certainly would. Cannot you and the stationer come to some mutual arrangement on the subject, without going into the legal part of the question? It might be to your mutual advantage to do so.

RETOUCHING.—Will you kindly give me your opinion as to how many negatives, similar to enclosed photograph, a West-End firm could expect to be retouched (in first-class style) in a day of eight hours?—A. V.

Six to eight per day.

EMANATIONS FROM DARK SLIDES.—I have some 1-1 dark slides, which gave me a lot of trouble last year, because, when plates were left in for any time, the emanations from the front of the slide caused the negative to be of uneven density. I could not for some time discover the cause, and thought that the plates were stale (Ilford Chromatic), but have since found out the reason. Is there any remedy? I was thinking that I might cover the inside of the slide with tinfoil and then blacken it, or would it do to close the pores of the wood with French polish, or perhaps by this summer the wood will be older and not so liable to affect the plates, as it was only in the warm bright weather that it occurred? I shall be glad of your advice.—O. E. CHALLIS.

We fear that you will not be very successful in remedying the trouble with tinfoil, as we imagine you will find a difficulty in getting it to adhere firmly to the shutters when in use. We should recommend you to try filling up the pores of the wood with French polish, to which a little drop-black has been added. As the wood has become better seasoned by this time that will probably remedy the evil. If it does not, you had better return the slides to the maker to fit fresh shutters to them.



**BOOKS ON HALF-TONE.**—A correspondent writes, in reference to our reply in last week to a query asking for a book on half-tone, to the effect that the "Photo-Mechanical Processes," by W. T. Wilkinson, published by Hampton and Co., might also have been named. It was not by intention that we omitted to couple Mr. Wilkinson's book, which we recognise as an excellent one, with that of Verlasser.

A. N. G. (New York).—In our next.

J. T.—Have you made a second application or inquired dates of payment? After doing so, you might, if necessary, put the matter in the hands of a commercial agency, such as Stubbs, 42, Gresham Street, E.C.

**COPYING PLANS.**—I should be much obliged if you could tell me of some accurate method of determining and adjusting the error in parallelism of plate and plan board and ditto for verticality of axis of lens to both planes? I have experienced some difficulty in getting the outside portions of plate accurately to scale, the error being greater than that due to lens corrections. I am speaking of 30in. plates in map reproduction.—CHATHAM.

An accurate method is as follows (Abney):—On the centre of the easel a small mirror is fixed, strictly parallel to the surface of the easel. The point corresponding to the centre of the lens should be accurately marked on the ground glass. On the lens itself an open cap should be fitted, furnished with two cross wires, intersecting on the prolongation of the axis of the lens. The image of these cross threads will be reflected by the mirror, and should be focussed. The board should then be tilted or slewed round till the image of their intersection connects with the point marked on the ground glass.

CHAS. D. RUSSELL.—The chief fault is the want of covering power in the two bottom corners. The lens, no doubt, was raised, but is not equal to covering a much larger plate. The definition generally is not good, and though the conditions of making the photograph may have been partly responsible for this, we think greater sharpness should have been obtained. Decidedly a better lens is wanted for such work.

**SPOTS ON NEGATIVES.**—1. Can you please furnish me with a formula for an acid fixing bath, containing hydrochloric acid? I have had lately many small opaque spots in my negatives, the same occurring in all makes of plates I have tried. I am told the spots are caused by traces of iron in the water either in developer or fixing bath. Our water here is extremely soft, and it is only during the last few months that I have had this trouble, my methods being exactly the same during the last three years. I have found that a weak solution of HCl effectually remove the spots, hence my query. The trouble occurs whether I use the ordinary acid hypo or plain hypo baths. I am sending a negative, which you may destroy after inspection, to give you a better idea of what I am troubled with. 2. I am not a chemist, but if you could give a simple test for iron, I might test the water here.—S. HALL DOWNING.

1. It would be no use for us to give you a formula for such a bath, because you cannot have free acid in the hypo bath without decomposing the hypo and running the risks of imperfect fixation and stains. You can take other measures, however. Filter your water through flannel tied over the tap or with one of the filters (stuffed with cotton wool) sold for the purpose, or you can give the negative a bath of salt before development, washing it afterwards, but if you filter the water used for developing solutions you should not need the salt. 2. Place a few ounces of the water in a white basin, and add a few drops of pure sodium sulphide solution. A dark colouration appearing after, say, 15 minutes, indicates iron or lead. If it is produced, test a similar lot with potass ferrocyanide, which will give a blue colour with iron. The first test is the more delicate.

J. P. (Morden).—Why not use the glossy cards as supplied by the makers?

**APPRENTICE'S INDENTURES.**—Will you please let me know if my master can keep my indentures. I have served my apprenticeship, and now he will not give them to me, as I am going to work for another photographer close to him. My master

had no premium with me, and made out the indentures himself and paid the half-crown for the stamp. He says I can have them if I pay him the 2s. 6d. Can he force me to do that?—MARTIN.

It is usual for the apprentice to be handed his indentures when he has completed his term. We think, though we are not sure on the point, he is legally entitled to them. However, we should advise you to apply to the magistrate presiding at the police court of your district. He will tell you and if you are will see that you have them. Magistrates are empowered to adjudicate in all disputes between masters and apprentices.

**BUSINESS QUERIES.**—1. In your issue of the 16th inst., on p. 218 you give the tenders for the London County Council photographic work. Could you say what size of plate is to be used? 2. Some time ago I was in North Wales taking photographs for postcard work. While at Bangor I was approached by a stationer and bookseller, and ultimately took six views for him to select from. I sent him proofs, and he selected four. Finished copies, together with the account, were sent him. Since then I have had no word from him at all, although the account has been sent in every month. I shall be obliged if you will let me know whether, as the amount is under £2, I can sue him in the county court here or whether, in case he defended, it would have to be at Bangor. In the latter case it would cost me more to get the account than the account is worth. He got the photos from me with the view of having half-tone blocks made and publishing postcards. If he has published them and not paid for the original photos, could in any way, if I were to copyright the views now, sue him for infringement of copyright?—HARTLAND.

1. We have no information. In all probability various sizes are required, but we have not heard that they, or an average, have been specified. 2. You can sue him in the county court and the case will be heard in your town. You cannot register copyrights, because the photographs were taken to your customer's order, and are his copyright, even though he has not yet paid for them. See the article "Photographs unprotected" in the "Almanac," p. 674.

**RETOUCHER.**—We are not quite clear as to whether you want to soften the film or harden it. In the former case use a mixture of glacial acetic acid and methylated spirit, only be careful when using this, as it will in time completely dissolve the film. If you want to harden the film, then we should advise the use of a mixture of formaline and methylated spirit.

CLAUDE NORMAN.—Better ask Messrs. Penrose to put you on the employment bureau, or try a small advertisement in our own columns, or those of the "Photo-Engravers Monthly."

**FOREIGN JOURNALS.**—I shall esteem it a favour if you can give me the addresses of the leading American journals of photography, also French ditto. Can I procure same in England?—SISALA.

You will see the full list in the "Almanac" on pages 870 and 873. Messrs. Dawbarn and Ward, 6, Farringdon Avenue, E.C., could get any of them for you.

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## SUMMARY.

Formulae for focussing screens for ordinary, architectural, and aerial work are given in form adapted for home manufacture. (P. 243.)

The blistering of toned bromides is found to be preventable by proper precautions in the temperature of the baths. A contributor mentions the presence of traces of hypo. as the cause of markings on old bromides. (P. 243.)

The sensitising action of homocoll in admixture with pinacyanol or aniline is advanced by M. Monpillard for red-sensitiveness. (P. 245.)

Formulae for pinatype printing in monochrome from ordinary negatives have been published by Dr. König. (P. 246.)

The tanning action of pyro. developer upon gelatine has been examined by the Lumière brothers, who ascribe it to the oxidation of the pyro, by the liberated bromide to form a compound which, in the presence of sulphite, exerts a tanning action on the gelatine. (P. 245.)

German writer recommends Raffaelli's solid colours for coloured enlargements. (P. 244.)

View of the rising price of copper, photo-engravers are advised to the economies of the stripping process for half-tone. (P. 252.)

Among patents of the week is a system of stereoscopic projection. (P. 253.)

The Professional Photographers' Society of New York has published a list of twenty pressing questions to be discussed at its next meeting. (P. 250.)

A system of artificial lighting by reflection is recommended by a German photographer. (P. 249.)

The Birmingham Society are to provide the next house exhibition at the R.P.S. (P. 255.)

## EX CATHEDRA.

**Reflectors in Artificial Light Portraiture.** Mention was made in the article which we published in our issue of March 2 on the use of enclosed arc-lamps in photography, of the necessity for carefully screening the lens from any glare of light from the lamp or the diffusing media surrounding the lamp. It sometimes happens, more particularly perhaps when lighting what are called Rembrandt portraits, that if the reflector used for illuminating the shadows is placed at the shadow side or even almost up to the lens, an effect of cross-lighting is obtained. By using a reflector with a hole in it, through which the lens points, the effect of cross-lighting is avoided and the reflector forms a most efficient lens shade. The reflector should be so mounted that the hole, which may be rectangular and about the size of a half-plate, may be brought opposite the lens, whether the camera is raised or lowered. It will occur to every practical photographer that the back of the screen should be covered with black velvet and the edges of the opening bound with the same material. The idea was originally that of Mr. Van der Weyde, the pioneer in electric lighting. It has, of course, been used in copying, a black material being used to prevent reflection instead of the light material to produce it in the case of portraiture.

**Pictures of London.** Many of our readers who have seen our references to the work of Mr. Alvin Langdon Coburn, at present on view at the R.P.S. house in Russell Square, will have regretted that the distance at which they live from the metropolis prevents their seeing the remarkable collection of work. Some few of Mr. Coburn's pictures have been reproduced in the various photographic journals, but a further opportunity of studying the characteristics of his work is afforded by the inclusion in the April issue of the "Pall Mall Magazine" of six pictures which have been reproduced under Mr. Coburn's personal supervision. This issue should not only provide good examples of modern pictorial photography, but, in addition, be most interesting as indicating how London appeals to the possessor of an artistic temperament who comes to it as the Londoner, say, goes to Venice, Rome, or Madrid. As the "Pall Mall Magazine" says: "There are a thousand difficulties in the way of a true presentment of the charms of London by means of the camera—difficulties of light, of crowds, of never-ending change. It has been left for a gifted young American to bring a quick eye to bear upon this ever-tempting theme." Mr. Coburn's impulse, according to George Bernard Shaw, is always to convey a mood, and we recommend our readers to see the April issue of the "Pall Mall Magazine" and to study Mr. Coburn's work with this idea in their mind, that the pictures are not records of bricks



or weather vanes, but successful attempts at conveying some idea of the spirit of the great metropolis.

### Three-Colour Natural-History Photography.

\* \* \* The student of natural history by photography has shown himself in numerous instances the most enterprising and the most patient of photographers, as witness the heroic methods of the Kearsons and the telephoto work of Mr. Pike and Mr. Lodge. The next step apparently for the naturalist photographer to take is to colour photography in the field—collectors such as Dr. Hutchinson have utilised the three-colour process—but we have not heard that any general application of the three-colour process has yet proved possible in the case of the living subject. The possibility has, however, been demonstrated at lectures on insect mimicry by Mr. F. Enoch, F.L.S., by whom the assimilation in colour of larvæ and moths to their surroundings was illustrated by a series of three colour slides. An interesting example of Nature's protective measures was recently shown in the behaviour of the caterpillars of the pepper-and-salt moth. When placed on a lime tree they were of greenish-red colour, but when transferred to a laburnum assumed the silvery green tint of their surrounding. Mr. Enoch was optimistic enough to prophesy the practicability of an instantaneous three-colour process in the near future, but he had already showed the invaluable use which naturalists would make of it.

### The National Physical Laboratory.

\* \* \* The annual report which has just been presented shows the increasing industrial importance of the work carried out by the National Physical Laboratory. The fact that physical and electrical sciences are the chief fields in which the labours of the laboratory staff are prosecuted is a sufficient reason for abstaining from a precise review, but it may be mentioned that in the optical department of Bushey House investigations have been continued on standards of light with a view to ascertain the relation between the light standards used in America, Germany, and this country. It is also proposed to improve the methods of examining photographic lenses, though, if we remember rightly, nothing has been done in this direction since the last issue of the last annual report. The laboratory, however, must apply its staff to the demands made upon it, and we see that only eight photographic lenses were sent in for testing during 1905. The optical department also hopes to complete arrangements for the determination of the absorption of neutral and coloured glasses and for the measurement of shutter speeds. In these, as in other branches of its work, the laboratory has been lamentably hampered for lack of funds, but it is satisfactory to find that appropriate grants are likely to be forthcoming from the Government. Such scientific work as that the laboratory is doing has been fully recognised in America and Germany, where analogous institutions receive five and ten times respectively the sum for capital expenditure granted to the National Physical Laboratory.

### The Royal Society of British Artists.

\* \* \* One of the oldest exhibiting societies in London is the Royal Society of British Artists, which on Saturday last held a private view of its coming summer exhibition. Under the régime of Whistler this society enjoyed its palmy days. More recently it did not maintain the same high standard, but quite latterly it seems to have arrived at years of discretion, and is at present mounting again in the opinion of the art world. New members have now to gain their entrance strictly upon the

merits of their work, and they find the ordeal a severe one. It follows that the virility of the society must be looked for in the new blood, and also that as those occasional older members who, having dropped in, as it were, whilst the critical faculty was dozing, drop out again, the average of the work will continue to rise. There is plenty of room for this yet. Amongst the latest additions to the roll of membership the names of Miss Dorothea Sharp and Mr. Frank H. Swinstead are attached to works that display a genuine feeling for landscape, and give promise of poetic work in store for us. Pictorial photographers will delight, also, in the romantic work of Alec Carruthers Gould and D. Murray Smith, and will endorse the truth and charm of the mammoth water-colour seascapes of E. Gouldsmith.

### Art and Business.

\* \* \* A glimpse of the success which waits on the association in a photographic business of a photographer who is an artist to the finger tips with a partner possessing keen business instincts is afforded in the April issue of "The Photographic Monthly," which publishes an illustrated account of the methods and establishment of the Speaight studio in Bond Street. The phenomenal strides which the business has made are due to the supremacy of the brothers Speaight in their separate departments. The two together have established a studio which is a model of the best taste and a palace of ease and comfort besides. In the studio Mr. Richard Speaight's personality is responsible for the success of Speaight, Limited, as photographers of children, yet it is easy to imagine the qualities which have achieved the firm's artistic success thrown away under less adroit stage management. The business has struck a note of such dignity in photographic studios that we imagine many of our readers will peruse both the text and illustrations wherein Messrs. Speaight have, in a measure, taken the editors of our contemporary into their confidence.

### FINE FOCUSING SCREENS.

THE least satisfactory part of the modern camera is, perhaps, the focussing screen. It is invariably of ground glass, and yet the best ground surface is often much too coarse to allow of really critical focussing. The defect is not always felt, for it is only in certain circumstances that the need for a finer surface arises, but when those circumstances exist the need is a very real one. The usual remedy is a clear glass screen used with a magnifying eyepiece focussed on the inner surface, but this is not a very convenient remedy. Considerable difficulty is at first felt in controlling the accommodation, for the eye will quite readily focus itself upon the real image, even when that image is some way in front of the focussing surface. This difficulty can be got over by marking or scratching the front surface of the screen, but it is even then not altogether easy to keep the scratch and the image in focus at the same time. If both eyes are kept open the trouble is diminished, but we have found that even after long practice it is very easy to make mistakes; hence, while the value of a clear glass focussing screen is undoubted, we should always hesitate to recommend its use to the average photographer.

An expedient often advocated is the use of a barium sulphate screen. This is made by fixing an unexposed plate, washing it well, and then soaking it in a solution of sulphuric acid for a few minutes. After a slight rinse it is immersed in a solution of barium chloride, which produces a precipitate of insoluble white barium sulphate in

gelatine. When washed and dried the screen is finished, but our experience of such screens is that they are not very satisfactory substitutes for ground glass. They are finer grain, but still not fine enough to be free from the defects of the glass. Moreover, it is not always easy to produce an evenly distributed precipitate, while very often the deposit is too dense. Perhaps the best way of producing a barium screen is to coat a glass plate with an emulsion of barium sulphate. A fairly good fine grain screen is produced if a little barium chloride solution is added to a gelatine solution. The gelatine commonly contains enough sulphuric acid to produce a precipitate of barium sulphate, but it is not easy to control the density of the result.

Another way of making a screen that is often advocated is to fog a plate by exposure, and develop and fix it. The plate is then either used in this condition, or after the deposit has been bleached with mercury chloride. The effect of this method is that it is not exactly easy to produce the right amount or kind of fog by exposure. The result is generally uneven and often too dense, while the grain resulting from exposure and development is somewhatarser than is quite desirable. A modification of this method has, however, produced most satisfactory results in our hands. A very fine grain and even deposit is very easily secured by fogging an unexposed plate in a developer, and the density of the deposit can be controlled by varying the time of development.

Take three extra rapid plates and immerse them without exposure at all in any non-staining developer free from bromide. At the end of five minutes remove two plates and fix and wash them in the usual way. At the end of twenty minutes remove the third plate from the developer, and fix and wash that also. Next iodise this third plate together with one of the others in a solution of iodine in potassium iodide. When the action is complete, rinse the plates and bleach them in dilute ammonia. Then wash and dry. Finally, take the remaining plate and immerse it in a solution containing 10 grains potassium bichromate and an ounce of hydrochloric acid to every ounce. When the bleaching action is complete, rinse the plate and put it in a fresh plain hypo fixing bath for ten minutes; then wash well and dry. You now have three screens of different degrees of density. No. 1 is a dense iodide screen,

No. 2 a thin iodide screen, and No. 3 a thin "chromium screen."

No. 1 screen will be an excellent substitute for the ground glass in all ordinary work. It can be used without a magnifier or with one, and in either case it will show detail that would not be visible on a screen of ground glass.

No. 2 (the thin iodide screen) cannot well be used without a magnifier, but while it is too nearly transparent to permit focussing with the eye alone, it shows enough grain to render the use of the magnifier easy. There is no accommodation difficulty, and the detail visible on the screen is a revelation to those who have never used anything but ground glass. This screen is of special value for indoor work, such as architectural interiors and copying.

No. 3 (the chromium screen) is quite useless without a magnifier, being almost transparent to the eye. But with the magnifier a very fine grain becomes visible, and as it is perfectly easy to keep this grain and the image in focus at the same time there is no accommodation difficulty. This screen is a substitute for clear glass, and is especially adapted for copying and for low power photomicrography. For high power work it does not seem possible to find any good substitute for clear glass, but with moderate powers the No. 3 screen seems to show almost as much detail as the clear glass, while it has not its disadvantages.

In our own work we have dropped the use of ground glass altogether, and use No. 1 and No. 3 screens exclusively. Others have given the preference to No. 2 screen and use that as an alternative to ground glass, but the practical value of all three screens has been very thoroughly proved in actual work, and we can confidently recommend them. The screens can be ruled in pencil or with fine cuts to give datum marks. We prefer a cross ruling of fine cuts made with a lancet, but this is only a matter of personal choice. If the cuts are adopted it is as well to give the screen an after coating of celluloid varnish. The surface is somewhat readily abraded in the case of No. 2 and No. 3 screens, hence they should be carefully used.

It must be remembered that no fine grain screen shows such a bright image as ground glass. In comparison the image looks dull, but this is a very minor matter, and the extra detail visible far more than compensates for the loss of brightness.

## BLISTERS AND MARKING IN BROMIDE TONING.

The operation of toning bromide prints, etc., has almost reached the stage when we may say that it is as easy to tone a batch of bromides as a corresponding number of P.O.P. prints. For this we have to thank several ardent bromide experts, whose efforts have not always brought them appreciation, most likely because results were shown in the early days rather too hastily, when the tones produced were mainly colour, but somewhat fearful—if wonderful. Nowadays, of course, that is altered. The experimental stage has been passed, and bromide toning has become an everyday operation.

### Blistering During Toning.

On one respect, however, where numbers have to be treated, there is rather too much uncertainty about the final results. The prints are got easily enough, but how are we to insure against blisters and uneven toning. Not such a difficult matter from the point of view of the amateur, but professionally I must confess that calls for a great deal of thought and care and method. That the trouble is real is evidenced by the fact of the extra charge, sometimes ten per cent., for toning; at first sight this seems more than ample, so far as the writer's experience goes, it is not so.

### One Preventative—Constant Temperature.

Blisters, for instance, may come at times like an epidemic, and formaline baths do not invariably act as a safeguard. Al-

though in my practice we always use a formaline bath, the only real safeguard against blisters is an even temperature of the solutions and washing water. My workrooms are heated with hot-air pipes, which run under the sinks and are near enough to the waterpipes to keep the water supply approximately 50 degrees F. all through the winter. Constant attention is required to keep the rooms at 55 degrees or 60 degrees F., which is a comfortable temperature to work in. Hot-air pipes are very nice physically, but they may easily be overdone; in fact, with them it is practically one person's work to keep the rooms at a fairly uniform temperature throughout the day.

Much may be done by making all fixing baths one or two days before required for use. The solution stands in a jar in the room in which it is used for at least twenty-four hours before it is required and is usually only a degree or two below normal. After the fixing bath proper, transference to a similar bath of half-strength is advisable, thence to washing water, which is of average temperature. Much handling of the prints in a moderate-sized deep dish—say 12 by 10—soon brings a rise in the thermometer; one of those instruments should always be at hand for frequent testing. Washing in running water is, I think, hardly necessary; several changes will be safer and as effective. A sieve of very coarse mesh is useful to save much handling of the prints. These may be rinsed and drained very thoroughly in a utensil of the kind. Alum, or formaline, as a



'hardening' bath is invariably used before and after toning, and this operation carried through successfully, no time is lost in getting the day's output safely on the drying boards.

#### A Remedy for Blistered Prints.

Blisters, luckily, dry up sometimes so that the print, if to be mounted, is not wasted, but one cannot conscientiously send out blistered unmounted prints. Even in the mounting, as the blistered film is detached from the paper support, one has to be very sure that—in the mounting—it is quite secured again. The only genuine satisfaction we can get in the treatment of blisters is when they appear on the white margins of vignettied pictures; when mounted and quite dry very fine sandpaper deftly applied quickly obliterates all trace of the trouble.

#### Markings in Relation to Freedom from Hypo.

Then, again, marks of various unshapely outline appear now and then during the toning, in a manner difficult to account for. It is sound advice to remove all the hypo used in fixing by proper washing. It is not an easy thing to do if its total elimination is essential to a perfectly toned print. A developed print may be plunged into a fixing bath and allowed to remain for twenty minutes or so, but it may not be properly fixed unless occasionally moved and turned over during that period. Similarly in the washing stage it is not enough to place them in a dish of running water, even for several hours, unless they are frequently moved and re-arranged during the time. Markings on the prints—uneven toning, and so on—will usually be the result of allowing prints to lie undisturbed and forgotten, and this, unless one is constantly watchful, occurs not only during the fixing, but the washing period. When making enlargements the prints are transferred, after adequate fixing, to a large dish supplied with running water; the first lot put in will have perhaps twenty minutes' washing when the second batch will be plunged in on the top of the first. This may go on during the morning, and some of the first prints will be little nearer the washed stage after three or four hours than they were at the first. In any case, markings from splashes of hypo solution are inevitable. Obviously the first lot

should be moved to clean water and a fresh dish before removing from the fixing bath the second and subsequent batches. If the first few minutes' washing be thorough, half the work is done. This, I think, is a point generally agreed upon.

Only a few hours since I toned twelve prints. Nine of them had received a very short washing, the other three had been in water five hours. The nine toned up quickly and evenly and dried without markings. Two out of the remainder had marks upon them. The nine could not, as the result of such a short washing, have been entirely freed from hypo, and the toning, though rapid to a certain point, did not advance much further than the purple stage. My conclusion was that a trace of hypo might be left in the film and would not spoil the results, provided that the trace was evenly distributed; but from the nature of the deposit in or on the film—the result presumably of the presence of a trace of hypo—the operation would not suit all prints. There is no actual stain, but the shadows are not so pure and transparent as with a print from which all trace of hypo has been removed.

The above remarks refer almost entirely to the "copper toning bath." With the ferricyanide and potash bromide bath (alkaline), and browned with sodium sulphide, I have experienced no blistering, but the abominable odour entirely or practically bars the use of this. With copper, however, the toning is so easy and certain, and the colours so pleasing and satisfactory, that we should certainly continue using it, risking the blisters, but taking all precautions. I may remark here that a bath of methylated spirit has not in my hands been altogether successful, but—if time can be spared—an additional safeguard is, if the prints have come well through the washing stage, to dry them and tone them as an after and detached operation. Of course, a little time is saved by trimming them before toning.

It was a common thing twenty-five years ago for the dry-plate worker to be sneered at as being little better than a mechanic. Whatever the facts may be in the matter of the modern dry plate, no one will deny that bromide toning, carried out with intelligence, is an operation, the results of which would have astonished the veterans of the wet-plate brigade.

"ELECTRIC."

## FOREIGN NOTES AND NEWS.

#### Painting Enlargements.

DUNKMAN, in the "Photographische Chronik," states that he has never obtained satisfactory results using water-colours or glazed colours for painting enlargements, as the photographic image always shows through and robs the colours of their brilliancy. Pastels are also unsatisfactory on the gelatine surface, and, whilst fairly broad masses can be put in, it is almost impossible to draw fine lines with them. The author strongly recommends the solid oil-colour pencils of Raffaelli, which can be sharpened to a fine point, so that the finest line can be drawn. They will take well on any surface, and in a few days will set as hard as ordinary oil colours. They have the brilliancy and luminosity of water-colours, without the troublesome glaze of oil-colours. The most delicate tints can be obtained by mixing over white, or by using one colour over another, and if treated with a brush dipped in turps, soft, glossy mixtures are obtained. Mistakes can be erased with a knife, and lights can be put on by the same means, and they will be found to answer all the requirements of the painter.

#### The International Congress on the Focal Plane Shutter.

The report on this subject just published recommends that every shutter should be tested for the speed of the blind on its release, and when the exposure is finished: and the mean speed should be then deduced. The difference may amount to 40 per cent., which is stated to be an advantage when a considerable amount of sky is included in the picture. If the speed of the blind is more than 2 to 3 metres per second distortion of the object is negligible. If the edges of the aperture are composed of material, it is not advisable to reduce the same below 1 millimetre. Variation of the distance between the blind and the plate affects the efficiency and the useful aperture, and the increase of the latter is approximately  $\frac{e}{f}$

$e$  being the distance between the blind and plate and  $f$  the extension of camera: in most cases this is about 2 mm., and is negligible. As regards efficiency Colonel Moessard gives the following formula:

$R = 1 - \frac{e^2}{af}$  in which  $a$  is the width of the blind aperture and  $f$  the diameter of the lens. In most cases, from a theoretical and mathematical point of view, when the distance is as stated above, the action on the efficiency is of no moment. Practically, on the contrary, the influence may be considerable as regards the quality of the negative. We may conceive, for example, that an aperture, the edges of which are brilliantly illuminated, may diffuse some of the light over the plate; to reduce this diffusion the distance must be decreased. M. Sigriste believes also in the production of a species of fog due to diffraction, which becomes greater the greater the distance between blind and plate. To calculate the speed it is only necessary (to obtain an approximately correct result) to divide the width of the slit in millimetres by the speed of the blind in metres per second.

The method suggested of testing the shutters is to use an opaque disc, pierced by six apertures, which should be rotated ten times in a second; an examination of the images of the apertures in the disc will give the speed of the shutter at various stages. The data recommended to be given with shutter should be the speed at the moment of release, and when the blind is down, in metres per second, the ratio of these two speeds and the mean speed. The maximum and minimum useful widths of the slit should be also given, the mean distance of the blind from the plate and the time of exposures for every 10 mm. slit width.

#### Dark Slide Shutters

Dr. Neuhaus points out in the "Photographische Rundschau" that aluminium dark slide shutters emit radiations which spoil the plates, and that varnishing does not prevent this action. The

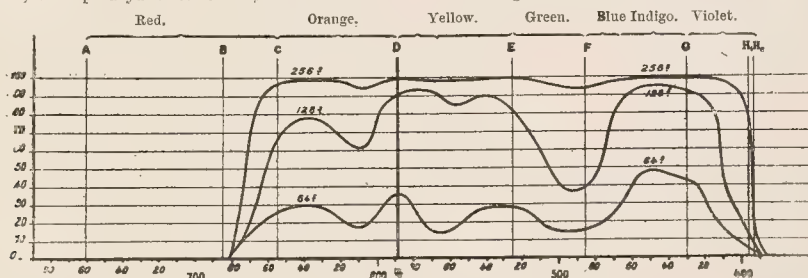
inary ebonite shutters are permeable by violet and ultraviolet light, and they frequently give rise to electric markings. Wooden shutters are also transparent to sunlight, and fresh glue and varnish will also fog plates. From numerous experiments with ebonite and other metals the author strongly recommends brass for shutters—this neither emits nor transmits any rays whatever. In connection with this subject, we may point out that Professor Charkoff, of Charkow, has been investigating the peculiar radiations of metals, and finds that some metals emit rays which affect bromide like light, and that others restore it to its original condition. The former radiation he proposes to call "positive," and the latter "negative," and cadmium and zinc are positive, and platinum and tantalum negative, whilst copper and brass emit a neutral radiation, and mercury and gold none at all. When the plate is thoroughly dried by phosphorus pentachloride there is practically no radiation.

### Mixed Sensitisers.

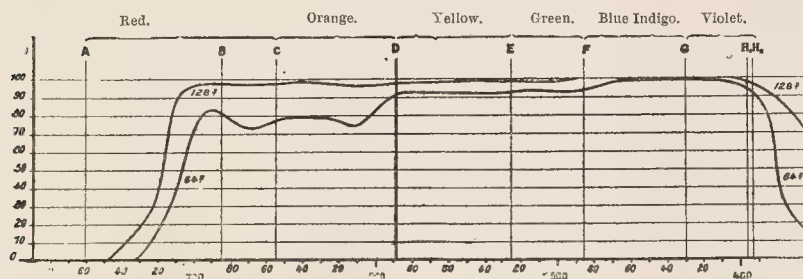
M. Monpillard has been spectroscopically testing the sensitising action of a mixture of pinacyanol, or dicyanine and homococcol, and finds that with both much more even sensitiveness is obtained throughout the spectrum. The bath used was:—

Pinacyanol or dicyanine (1:1000 alcohol)...	5 ccs.
Homococcol (1:1000 alcohol) .....	5 ccs.
Liq. ammonia .....	0.1 ccs.
Distilled water .....	1,000 ccs.

The developer used was the acid amidol developer (see page 208), containing 0.25 per cent. of bromide. With dicyanine the sensitiveness extends to  $\lambda$  750, with pinacyanol to  $\lambda$  680, as shown in the



Pinacyanol and Homococcol.



Dicyanine and Homococcol.

diagrams herewith. It is stated that all the colours are equally sensitive, and that over-exposure was easily obtained with an orange negative, and it is hoped, says the editor of "Le Procédé," that the eternal under-exposure of the blue-printing negative in three-colour work has now been abolished.

### Spots on P.O.P. Prints.

R. E. Liesegang states in the current number of the "Photographisches Wochenblatt" that, having occasion to try and explain the cause of some spots on gelatine P.O.P. prints, it was found that the amidol had been spilt in the room and that this had blown about and settled on the prints. When prints of P.O.P. and bromide and gaslight papers were made and then fixed and well washed and dusted with amidol it was found that a black centre spot was caused, and then there was a white

ring round this of about 2 mm. radius, and then a brown ring of about 1 mm. width. In the white parts the silver was bleached, and this, according to Liesegang, is to be ascribed to the absorption of oxygen by the air, the giving up of the oxygen to the silver, and consequent bleaching of the latter; the brown ring is due to oxidised amidol. If hydroquinone be dusted on to a print then only white spots are caused, as the oxidation product of hydroquinone is not so dark.

### Focussing Line Drawings.

M. Clerc suggests in the current number of "Le Procédé" the following method for ensuring critical focussing with lenses of larger



aperture when reproducing line drawings. Cut from thin card a piece the exact size of one of the Waterhouse diaphragms, and, unscrewing one of the lenses, trace on the card its maximum

Red. Orange. Yellow. Green. Blue Indigo. Violet.

aperture; divide this into four equal parts and cut out the upper and lower segments, leaving them separated by a band equal to half the diameter of the lens. Then carefully blacken the stop, and insert in the lens. Every horizontal line will now be represented double, and the separation between them will be greater the greater the distance from the sharp focus. When the focus is absolutely obtained the double lines will superimpose and form one line.

### The Tanning of Gelatine by Pyro.

MM. Lumière and Seyewetz have been investigating the tanning action of pyro on gelatine, and point out that it is assumed that this is partly due to the silver, as the shadows of a pyro-developed negative remain soluble. A sheet of gelatine immersed for an hour in a 1 per cent. solution of pyro with 3 per cent. of sulphite and sodium carbonate was not tanned at all. A negative developed by



one of the non-tanning developers treated with the same solution was not tanned at all, it was only after three days' action that plain gelatine negatives became insoluble. They found that a plain 1 per cent. solution of pyro did not tan in a month; if 3 per cent. of anhydrous sodium carbonate was added the tanning was complete in two days; with the further addition of 3 per cent. sulphite the gelatine became insoluble after four days. When these experiments were repeated and the air excluded from the bottles there was no tanning action in a month, proving that the hardening action is due to the absorption of oxygen. Other developers treated in the same way also proved in some cases to tan. If a cold saturated solution of quinone was added to a solution of gelatine it rendered it, even in the absence of oxygen, quite insoluble, whilst hydroquinone had no such action; 20 parts of a 0.5 per cent. solution of quinone added to 100 parts of a 10 per cent. solution of gelatine rendered the same quite insoluble, and this solution may be used to harden negatives as well as formaline.

All developers in plain aqueous solution exert no tanning action on gelatine, nor when mixed with sodium carbonate, nor with sulphite and carbonate, if the air is excluded. The conclusion arrived at is that in the case of pyro it is oxidised by the bromide absorbed from the silver bromide, and that this oxidation product, which is formed in the presence of sulphite, renders gelatine insoluble. As regards the other developers, the reason why they do not tan is probably due to the fact that their oxidation products are easily reduced by the sulphite in the developer.

#### Further Applications of Pinatype.

In the current number of the "Photographische Mitteilungen" Dr. König suggests the following methods of further utilising the principle of pinatype. Coloured transparencies may be obtained by printing from a transparency on to bichromated gelatine plates, which may either be useless dry plates thoroughly fixed and washed and then sensitised in a 2 per cent. solution of bichromate, or glass may be coated with:—

Hard gelatine .....	240 grains.
Water .....	10 oz.
Potassium or ammonium bichromate.....	96 grains.

allowing from 68 to 84 minims to every 16 square inches. When dry, the plate should be exposed under a transparency, an actinometer being used to determine the duration of printing, though the speed

of the plates is about the same as P.O.P. After exposure, the plate should be well washed and then stained up in a 2 per cent. solution of a pinatype dye. These can be obtained in black-brown, olive green, bright green, dark blue, and also blue F and red F, these latter being the colours used for the pinatype three-colour process. As soon as the transparencies are sufficiently stained they may be either rinsed and dried, or else treated to a fixative bath of weak copper sulphate solution, and this gives a greater range of colours. The dyes are perfectly stable to light.

By squeegeeing these dyed plates on to gelatinised paper, which may be either of plain, matt or rough surface, the gelatine will absorb the dye, and the prints can hardly be distinguished from carbon prints.

Reversed negatives can also be made by printing from the original negative on to bichromated gelatine and then staining up after exposure and washing in the black-brown dye, which turns black when treated with the fixative. By printing from this reversed negative again another correct negative is obtained, so that by under or over exposure it would be possible to correct a too soft or too hard negative.

#### Solar Prints.

The following method of making solar enlargements is suggested by Hildebrand, in "Der Photograph":—

Milk .....	20 ozs.
Glacial acetic acid .....	$\frac{1}{2}$ oz.

Mix, stir well, and filter, and then add to the filtrate:

Potassium iodide .....	140 grains.
Potassium bromide .....	34 grains.

Paint the solution over the paper and dry as quickly as possible.

The prepared paper can be either floated on the following bath, or it may be painted on:—

Silver nitrate .....	42 grs.
Distilled water .....	1 oz.
Glacial acetic acid .....	65 minims.

The paper must be exposed wet, and it is from three to four times slower than slow bromide paper. The developer is:—

Pyro .....	3 grs.
Water .....	1 oz.
Glacial acetic acid .....	40 m.
Citric acid, 10 per cent. solution.....	4 drops.

## THE ACTION OF ALKALIS IN ORGANIC DEVELOPERS.

The following paper, by M.M. A. and L. Lumière, in the *Revue Trimestrielle*, contains a number of experimental data on a point which has been the subject of much discussion at one time or another. The paper is preliminary to a second, which we have in type for publication in a later issue of the B.J.P.

It is generally admitted that the rôle of the alkalies or their substitutes in the developers is to saturate hydrobromic acid, which is set free by the action of the hydrogen, provided either directly by the reducer, or by the decomposition of the water under the action of the reducer, on the bromine of the silver bromide.

Reeb has recently disputed this hypothesis, and has assumed that the alkalies form with the reducers saline compounds, which are subsequently decomposed by the hydrobromic acid.<sup>1</sup> He has admitted that a substance possessing a developing power, cannot develop the latent image, if it possesses a saline constitution, or could give at the moment of development a salt of such a basic nature that it could saturate the hydrobromic acid.<sup>2</sup>

In the two preceding hypotheses, the quantity of alkali necessary to develop ought to be the same. In effect, the alkali, whether free or combined with the reducer, always saturates the same quantity of hydrobromic acid. There is then a great disproportion between the quantity of alkalies practically used, and that which is necessary according

to the above hypotheses. Hence these hypotheses did not satisfy us. In the present experiments we have tried to explain the rôle of the alkalies in the developers by elucidating the following points.

1. What is the mean quantity of hydrobromic acid set free in the development of a gelatino-bromide plate of given dimensions? Should there be in the developer the theoretical quantity of alkali to saturate the hydrobromic acid? What ratio exists between the reducing power of a developer containing that quantity of alkali and the quantity capable of producing the maximum effect? Is this ratio identical for the same developer with the caustic alkalies and the alkaline carbonates, and with the same alkali does it vary with the nature of the developer?

2. In the same developer can a given weight of alkali be replaced by an equimolecular weight of another alkali, or its substitutes, to obtain the same reducing power? In the opposite case, what ratio exists between the quantities found and the equimolecular weights?

3. Are the ratios between the weights of the various alkalies, which impart to a developer a given reducing power, the same for all developers?

4. Finally, can one obtain the same reducing power in the same time by using the weights of the different reducers proportional to their molecular weights with a given quantity of alkali?

5. What is, in short, the rôle played by alkalies in the developer?

#### The Experiments.

To determine the mean quantity of hydrobromic acid which is formed during development of a 13 x 18 cm. plate for example, six plates of

(<sup>1</sup>) Reeb Bull. Soc. Franc. 1904, p. 324.

(<sup>2</sup>) It cannot be conceived how this hypothesis can be strictly applied to those basic developers, such as paraphenylenediamine, the reducing power of which is considerably increased by the addition of alkalies, and with which one cannot admit the formation of salts with alkalies.

size were exposed to a subject, the larger proportions of which brilliantly illuminated. After development, fixing and washing, films were stripped and then treated with nitric acid to dissolve silver. The gelatine was destroyed by prolonged boiling, and the silver calculated as chloride, and results obtained were:—

Silver chloride .....	0.3652 gm.
Or silver .....	0.274 gm.

of alkali. In the first case, the development was very slow, about 1½ hours at 70 degrees F., the negative was not dense nor yet fogged. In the second case the duration of development for the three first plates was 6, 12, and 28 minutes respectively. The fourth plate only gave a very weak image, but one must take into account the quantity of developer removed by each plate.

The experiment was repeated, replacing the potash by the corre-

TABLE I.

Composition of the developers employed, the quantities of caustic and carbonate of soda per litre beyond which the reducing powers remain stationary.

	1,000 Water .....	40 Sulphite anhydrous ..	10 Hydroquinone .....	1,000 Water .....	40 Sulphite anhydrous ..	9 Metquinone .....	1,000 Water .....	40 Sulphite anhydrous ..	9 Hydroquinone .....	1,000 Water .....	40 Sulphite anhydrous ..	10 Metol .....	1,000 Water .....	25 Sulphite anhydrous ..	10 Pyro .....	1,000 Water .....	30 Sulphite anhydrous ..	35 Elkonogen .....	1,000 Water .....	15 Sulphite anhydrous ..	15 Hydramine .....	1,000 Water .....	40 Sulphite anhydrous ..	10 Edinol .....	1,000 Water .....	40 Sulphite anhydrous ..	10 Pyrocatechine .....	1,000 Water .....	100 Sulphite anhydrous ..	10 Paranitrophenol .....	1,000 Water .....	40 Sulphite anhydrous ..	10 Adinol .....	1,000 Water .....	45 Sulphite anhydrous ..	17 Glycine .....	1,000 Water .....	60 Sulphite anhydrous ..	10 Paraphenyldiamine ..
Caustic Soda .....	7.5	7.51		7.5			7.5			15			10	30 *		20			12.5			15			25.5			17.5			12.5			17.5			17.5		
Sodium Carbonate anhydrous .....	35	20		15			20			30 *			50			† Incom. sol.			15			45			† Incom. sol.			30			45			20			20		
Theoretical quantity of soda to exactly saturate the hydrobromic acid formed by the weight of reducer per litre.....	7.3	6		10.4			7.6			6.3			10.7			3.65			5.7			7.3			7.3			5.5			8.2			7.3					

\* Difficult to judge on account of fog.

† Incomplete solution.

TABLE II.

Showing the replacement of alkalis and their substitutes in the different developers.

Names of the Alkalis and their Substitutes.	Calculated Equivalents.	1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000			1,000		
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The proportion of aldehyde and acetone are indicated by volume (cc. for 10g lithia caustic).

Ammonia has been omitted as it gave rise to dichroic fog.

The proportions of caustic alkalis were carefully determined by titration, and correspond to exact quantities of KOH, NaOH, LiOH, as the commercial preparations are very variable in composition.

corresponding to hydrobromic acid 0.2052 gm. for six 13 x 18 plates, or 0.0342 gm. for each 13 x 18 plate, a quantity saturated by 0.02366 gm. of caustic potash.

We tried whether, with this small quantity of potash, it was possible to develop a 13 x 18 plate, using hydroquinone, and also whether our 13 x 18 plates could be developed with four times the quantity

sponding quantity of caustic soda 0.017 gm. The results obtained were practically the same, but on replacing the caustic soda by an equimolecular weight of carbonate 0.023 gm., the reducing power proved to be slightly less.

When the weight of the reducer strictly necessary to form the hydrobromic acid, which would neutralise this quantity of alkali,



0.023 hydroquinone to 0.017 caustic soda, the reducing power was practically nil. The addition of an excess of alkali to the same quantity of hydroquinone one gave a developer, of which the reducing power was very weak.

We have determined out one part the quantity of caustic, soda for example, and alkaline carbonate with which the reducing power ceases to increase for developers containing the usual quantities of reducer and sulphite. These results are shown in Table I.

We have tried the reducing power of a hydroquinone developer, containing 10 gms. of hydroquinone and 40 gms. of anhydrous sulphite, using each time 75 ccs. of solution, and adding the following quantities of alkali.

No. 1.—0.017 gm. of caustic soda .....	Quantity to exactly neutralise the hydrobromic acid formed in developing a 13×18 plate.
No. 2.—0.023 gm. of carbonate of soda.....	
No. 3.—0.56 gm. of caustic soda .....	Quantity for 75 ccs. of developer corresponding with the maximum reducing power.
No. 4.—2.639 gm. of carbonate of soda.....	

The duration of development to obtain images of equal density was as 120:1 for Nos. 1 and 3, 1 and as 60:1 for Nos. 2 and 4 with the carbonate.

### The Equivalence of the Alkalis.

We have tried whether with a developer, hydroquinone, for example, the same reducing effect could be obtained after the same duration of development, all other conditions being equal, by replacing the weights of the alkalis contained in the developer by equimolecular weights of the different alkalis and their substitutes.

Under these conditions the caustic alkalis alone gave the results: the alkaline carbonates and their substitutes, such as trioxymethylene,

impart to developers a reducing power which varies, and is inferior to the caustic alkalis. This last was also tested by systematically increasing the quantities of the alkalis.

The effect of such alkali or its substitute was employed in increasing quantities. In each series the proportions were chosen which gave the same density after the same time, and the plates were compared and from the results obtained the quantity of each alkali was modified to obtain identical results.

We have confirmed that one can always adjust a developer to the same reducing energy with the alkaline carbonates and their substitutes, as with the caustic alkalis, but only if one takes from two to eight times, the quantity indicated by their molecular equivalence.

The preceding tests were made with the principal commercial developers.

Table II. shows the results of our tests. All the numbers are reduced to the equivalent of 10 gms. of caustic lithia, which has the lowest molecular weight.

We found that with glycin that the addition of a quantity of alkali less than 1 gm. to every 2.5 gms. of glycin only gave a very feeble reducing action, and markedly less than when one used an alkaline carbonate. Quantities of the alkaline carbonates below those stated in the table acted weaker than the caustic alkalis. The numbers given are those which should not be exceeded. With paraphenylenediamine, on the other hand, the addition of caustic alkalis gave a much more energetic action than the carbonates.

A. AND L. LUMIÈRE.

<sup>1</sup> These ratios are not absolute. They naturally vary with the dilution of the alkalis used for Nos 1 and 3, and also with the proportion of hydroquinone which these solutions contain. For this reason exact strength of the solutions is stated.

## THREE - COLOUR PROCESS WORK.

[Abstract of a lecture and discussion at the Croydon Camera Club on March 21.]

MR. A. J. NEWTON, in accordance with a promise extracted on a previous occasion, gave a lucid exposition of three-colour process work. The club rooms for the time being were transformed into a veritable exhibition of process colour work, principally by the students of the Bolt Court School. In addition, such well-known firms as Swain, Hentschel, Andre and Sleigh, Eyre and Spottiswoode, were strongly in evidence, the Continent being also represented by Angerer and Göschl, Albert, and others. With so many admirable examples of a rapidly advancing art, it would be invidious to draw comparisons. A three-colour collotype by Mr. Holley, junr., however, compelled attention by its remarkably close resemblance to a water-colour drawing, from which it was evidently copied. In fact, by artificial light, it would have been difficult to have discovered that it had not come straight from the artist's hands, the indefinable "something" generally lost in reproductions of works of art, being in this case almost, if not quite, retained. Another exhibit, comprising a print from half-tone blocks, with a similar print beside it, printed from electrotypes from the original blocks, showed how duplicate blocks can be obtained with but infinitesimal loss. A fairly close inspection would, moreover, have failed to reveal the process employed for the reproductions, the assistance of a magnifying glass being required to resolve the cross-hatchings. It is many years since Mr. F. E. Ives lectured at the Croydon Camera Club (of which he is an honorary member), and the advances made since then were well illustrated by some superb and realistic stereo pictures, shown in the chromoscope. During the evening, Mr. Newton also showed some excellent slides by the Joly, Lumière, Sanger-Shepherd, and other processes.

The lecture itself opened with a simple explanation of the Young-Helmholtz theory of trichromatic vision, as exemplified by Clerk-Maxwell and others, and the methods of colour reproduction by positive, and subtractive, synthesis. Lantern slides and paper prints fell under the latter class, being pigment processes, pigments acting by absorption, some colours being absorbed, whilst others were transmitted and reflected. Half-tone blocks, lithography, and collotype were the processes generally employed. The last, though affording very beautiful results, was, unfortunately, somewhat uncertain, and, from a commercial point of view, could not compete, as

regards cost, with three-colour blocks in this country at present. Broadly speaking, the method of production of the process blocks was as follows:—Three negatives of the coloured original to be reproduced were taken behind coloured light-filters, under well-known conditions. Transparencies were then made from the negatives, and from the transparencies the half-tone printing blocks were secured. This was known as the indirect method. In some cases it was possible to dispense with the intervening positives, the colour record and screen negatives being made at one operation. This was termed the direct method. In either case the blocks were printed on paper in complementary colours, using as transparent inks as possible, the three images being superimposed in exact register. Any deficiencies in correct colour translations were made good by "fine etching" of the block, a lengthy job at the best, and requiring much skill. It was a pity they were compelled to use "bathed" plates, or collodion emulsion. Dry-plate manufacturers had not yet recognised there was sufficient demand for plates which would fulfil the somewhat exacting requirements of the three-colour process; indeed, they had paid very little attention to the matter. He hoped Messrs. Wratten and Wainwright would remove this difficulty. Mr. Newton then passed round for inspection some fine carbon three-colour prints, and also a capital pinatype print by a student of the Bolt Court School. The excellence of the latter aroused much interest, as when "pinatype" was demonstrated by Mr. Scholl before the members in the autumn the specimens then shown hardly indicated its inherent and undoubted possibilities. With pinatype, Mr. Newton said, there was the advantage that one could easily obtain a matt surface, and once a good result had been secured, duplicate prints could be readily made from the same plates.

In the discussion which followed, Mr. C. E. M. Bennett asked whether Mr. Newton had tried the three-film plate brought out by Dr. Smith, of Zurich. Mr. E. A. Salt inquired how three-colour work stood commercially in relationship to lithography, and their relative advantages and disadvantages. Lithography, with its multiple printing, had produced results which, in his opinion, "three-colour" might rival, but never excel. Lantern slides and paper prints might both be "subtractive," but they had essential differences, notwithstanding. A projected slide on the screen, com-

ed only light actually transmitted by the pigments. On the other hand, with paper prints, the pigments not being perfectly transparent, not only transmitted a certain proportion of the incident light, which was reflected back by the support, but also directly gave light, by surface reflection, a certain amount of light. The order in which the pigments, or printing inks, were superimposed, would, he thought, seem to be a disturbing factor. With water-colour paints, which, he was ready to admit, were far behind the special printing (in point of translucency), if a wash of transparent yellow was laid over a transparent wash of blue, a totally different shade of green would be obtained than in the case of the operation reversed. With three colours, one laid over the other, their relative order seemed all the more relevant, and, in addition, as they each partly directly-reflecting and transmitting light, he did not see how Mr. Mees, or any one else, would calculate, except in the roughest manner, the necessary conditions for accurate colour reproductions. Moreover, if fine etching was necessary for colour correction, this seemed to indicate the necessity of the interposition of an artist. So far as he knew, his mathematical friend made no claim to be an artist, and no amount of science would enable one to become an accurate judge of colouring. The speaker also asked whether the process block maker was tied to three colours. A four-colour process had been suggested, and if better results could be obtained, why not use four, or more.

Mr. Mees said he made no pretence to being an artist, but he did not think that he could accurately measure the colour absorptions and reflections of pigments, which could readily be expressed in the form of a graphic curve. The amount of reflection obviously depended on the angle at which the surface was viewed. There was a great difficulty in persuading the ink makers to produce satisfactory inks for the purpose they had in view; they had, however, inks which transmitted and reflected 75 per cent. of their colour. Alluding to an observation made earlier in the evening by Mr. Newton as to the tendency of bichromated films to become insoluble, he said that he had found that unless they were dried and exposed within four hours, insolubility began to set in; they, moreover, had to be developed in water at a comparatively low temperature, or the geloid support cockled. This naturally affected registration. Mr. Newton, in reply to Mr. Bennett, said he had given Dr. Mees's three-film plate a trial. It appeared to be attended with considerable manipulative difficulties. Dealing with the points raised by Mr. Salt, he pointed out that although the colouring of a reproduced lithograph might be, and indeed frequently was, better

than a three-colour print, yet unless extreme care was taken, and many printings made, the delicate touches of the artist were apt to be lost. His drawing and technique were better rendered by photography than by lithography. With small prints of good quality, the advantage, as regards expense, was also in favour of the camera and process blocks. He had heard of one litho. picture which had received upwards of seventy distinct impressions, an elaboration which most craftsmen would think unnecessary. The interposition of an artist for fine etching was not required, he had a tendency to try and improve on the original instead of endeavouring to produce a facsimile. It was, however, necessary that the fine etcher should have a keen perception of colour. As to the suggested employment of more colours than three, the current accepted theory did not indicate a larger number. On the other hand, the use of only three colours necessitated a very delicate adjustment, which slight errors—even variations in the temperature of the printing room, for instance—could easily throw out of balance. In this connection, some had advocated a "black key"; this would certainly to some extent cover a slight want of register, and give much greater depth in the blacks than could usually be obtained by the superposition of three coloured inks. If all conditions were theoretically perfect, screens, plates, exposures, and printing inks, perfect reproductions would be mechanically possible; but, of course, conditions were never perfect, and some compensation had to be made by hand work. The three-colour process could not, therefore, be considered to be quite automatic. Even the best and most highly sensitive plates had deficiencies, their steepness of gradation, varying with different portions of the spectrum. In practice this would to a certain extent be compensated by alteration of exposure, and time of development.

The President (Mr. W. H. Smith), in proposing a hearty vote of thanks to Mr. Newton, said how pleased he, and, he felt sure, all the members were, to see Mr. Wratten, senr., amongst them that night. His hearers would be interested to know that Mr. Mees had joined Messrs. Wratten. He thought that the association of their able scientific worker, and popular fellow member, with one of the best firms of plate makers, would be very greatly to the advantage of photographers in general, and to the colour-process man in particular. The last observation of Mr. Smith was, no doubt, prompted by the fact that a well-exposed snapshot through a red screen had been passed round for inspection, the negative being taken on a new plate shortly to be placed on the market by Messrs. Wratten and Wainwright, and having a red sensitiveness to 6700.

## A NEW ARTIFICIAL LIGHT STUDIO.

following abstract of an article by Herr Rösl in the current number of the "Photographisches Wochenblatt" will be of considerable interest to many who have been considering the adoption of

which, so far as we are aware, has not yet been tried for portraiture, and that is the flaming sunlight arcs, in which the carbons are impregnated with various salts, with the result of a brilliant yellow

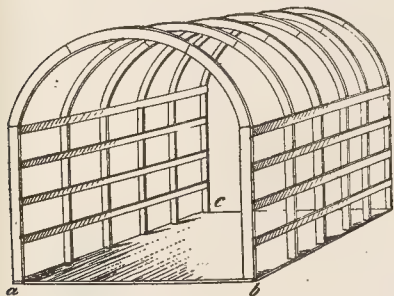


Fig. 1.

sort of artificial lighting for studio work, and in the face of the latest advances in electric illuminants, such as the Cooper-Hewitt, the arc lamp, and the Westminster enclosed arc lamp, more attention should be paid to this subject. There is, however, one type of lamp,

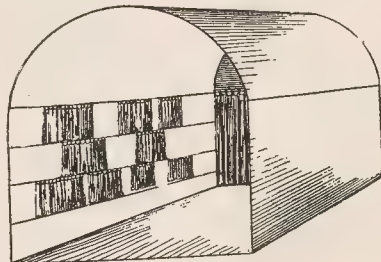


Fig. 2.

light. Many of these lamps, as will doubtless be recalled by our readers, are used for outside shop illumination.

First of all, a stout wood framework, as shown in Fig. 1, should be constructed, and a semi-circular roof erected on the openwork sides, so that a kind of cage in the form of a tunnel is formed. The



measurements are approximately: Breadth *a-b*, 13ft.; length *a-c*, 19½ft.; height to the top of the arch, 14ft. The studio, in which the above arrangement was erected, had sufficient length to give ample working distance.

The above described frame is now covered inside with white linen, so that it finally presents the appearance shown in Fig. 2. Right at the end will be seen a heavy plush curtain, which is useful for head and shoulder pictures; when this is drawn on one side the background is exposed.

The lamp used in this studio consists of two arcs, burning side by side, which are supported on a movable pillar and are enclosed in a reflector, by means of which the light is directed in any desired direction, the front being also provided with a matt diffuser.

The interesting feature about this lamp, however, is that the light is never used direct, but always directed against one of the sides of the tunnel and thence reflected on to the sitter. In order

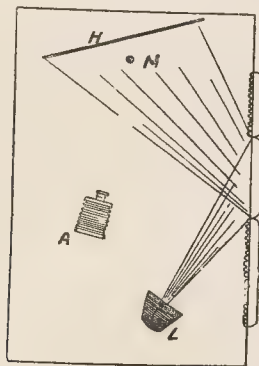


Fig. 3.

to control the lighting the sides of the structure are provided with dark grey linen curtains, each about 180 inches square, and with which the whole of the sides can be covered up or only a part, so as to leave a reflecting surface.

As in an ordinary studio, the light is controlled by drawing the curtains, so in this studio control of the light is obtained in the same way, and the top light is also treated the same.

The author states that the results obtained by this method of working cannot be distinguished from ordinary daylight lighted work. Every possible effect is easily obtained, and he considers that this is a great advance in studio construction, and that extremely short exposures are required with a lens working at *f*/4.5.

#### THE "SINGLE-PICTURE EXHIBITION."

THE proposed exhibition by members of the Professional Photographers' Society of New York, appears to be meeting with enthusiastic approval among the leaders of the profession in the United States. From the current issue of "The Photographer" we find the views of some half-dozen of the well-known men. J. C. Strauss, St. Louis, thinks that "the plan will be of considerable benefit to photographers, especially in the smaller communities."

A. T. Proctor, President of the Photographers' Association of Pennsylvania, writes:—

"Your exhibition idea is an excellent one. It is going to awaken a new line of thought of untold value to your members. That photographers need a stirring up on just these lines. At first glance it is rather a stiff proposition to put up to a man, but as soon as you appreciate the fact that you are supposed to send an example to represent your idea of a certain picture you would want to deliver to a customer at a given value, it becomes easy and interesting."

J. S. Schneider, a former President of the Photographers' Association of America, welcomes the suggestion as a means of enabling photographers to judge how much good work can be afforded for a given price.

J. George Nussbaumer, also a former President, credits the "single picture" scheme, with the ability to make business.

"The plan is so unique and practical that it must appeal to any one who is alive to his best interest as a business photographer," is the opinion of C. L. Lewis.

Charles Wesley Hearn, the President of the P. A. of A., prophesies a success for the exhibition on the ground that "the professional, if he be sane, must always remember that *his profession is a business*, and that just as much attention must be paid to business as to making pictures, and that both of these attributes are combined in the exhibition."

The following list of questions to be discussed at the coming meeting of the Professional Photographers' Society of New York has just been announced.

The members are requested to read the questions carefully and be prepared to state their views concisely:

- I.—How can the ticket swindlers best be discouraged?
- II.—Under what circumstances is the photographer warranted in offering a free sitting?
- III.—Is there ever a time in the photographic business when it pays to cut prices?
- IV.—In the long run, does it pay to "speculate" larger plates or pictures?
- V.—How can a uniform and equitable rate be fixed on school and class work?
- VI.—What ratio in price should the one-half dozen bear to the dozen photographs?
- VII.—What is the best basis upon which to estimate the cost of production?
- VIII.—Is there any reason why a uniform minimum rate of 5 dollars a dozen should not be established by the legitimate portrait photographers of the country?
- IX.—Should a fixed charge be made to cover the cost of the sitting where no order is placed? What is the best procedure in such cases?
- X.—Does it pay to copyright photographs of prominent subjects?
- XI.—How should individual members proceed against fake enlargement men?
- XII.—How can the show-case be made a stronger business-puller?
- XIII.—Should the photographer advertise in programmes, directories, newspapers, etc.? If so, should he mention prices?
- XIV.—Do we adopt the same measures for the prevention of waste in the studio as practised in other business establishments?
- XV.—Is it not an error in judgment to rely upon an extensive line of mounts for differentiation in styles and prices?
- XVI.—How does the present price of material and apparatus in the U.S. compare with prices in other countries?
- XVII.—Has the so-called "Demonstrator" outlived his usefulness?
- XVIII.—In hiring a boy to work in the studio, do you make inquiry to see whether or not he is the proper material out of which a photographer can be made that will do you credit? Should this not be the procedure?
- XIX.—How can the P. A. of A. be made of real and practical benefit to photography?
- XX.—How can the photographic magazines be made more interesting to the professional photographer?
- XXI.—Do the restricted trade conditions now in force affect the business of the professional photographer?
- XXII.—As between mercury vapour and arc lights which has the advantage as to efficiency when cost of installation and operation is taken into consideration?
- XXIII.—Does the business picture exhibition contain more of interest to the photographer at large than those modelled on artistic lines?

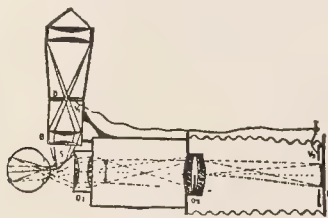
AN accident by which some sixteen or eighteen men were more or less hurt occurred last week at Woking in the printing works of Messrs. Unwin Brothers, the publishers. A photographer, anxious to secure a group of the large staff of employees, had had a staging erected some thirty feet long and ten or twelve feet high, arranged in about six tiers, on which the group could pose. The men were taking their places, and about a hundred were on the staging, when the framework collapsed in the middle, and those upon it were precipitated in a heap to the ground.

## PHOTOGRAPHING THE FUNDUS OF THE EYE.

PROFESSOR E. DIMMER, in a paper published in a recent issue of our contemporary, the "Keystone," reviews his work in the photography of the eye for ophthalmic purposes, and states that by the system which he adopts at present he is able to get negatives instantaneously, i.e., in one-twentieth or one twenty-fifth of a second. The following is a description of the apparatus employed and the method of working.

The arrangement by which I have got rid of the confusing reflexes and flare is by placing a plane mirror S (see figure) exactly in front of the patient's pupil at an angle of forty-five degrees with the optical axis. This mirror receives the whole of the condensed light from the source L, and reflects it into the eye through half the pupil, so that the light which passes out of the remaining half of the pupil is alone employed to form the image. In order to obviate the formation of reflexes near the edge of the mirror, due to half of the pupil being hidden, half of the camera objective is blocked out by an opaque diaphragm O2. This lens O1 is a Zeiss Planar objective of 160 mm. focus. In the diagram the light from the lower half of the pupil will pass through the upper half of the Planar lens, while the light proceeding to the lower half of the Planar is screened off by the diaphragm. It will be noticed in this my last model that the very large aperture of the Planar  $f/4.5$ , which I may add is 45 mm. in diameter, takes in the whole of the rays emerging from the half pupil, so that none is wasted. The image of the half pupil formed by the first objective O is, of course, half-moon shaped, and so large that in my former instrument the decentred lens (an astigmat of only 9 mm. diameter) invariably cut off a portion of the light.

The frosted screen used in the illuminating apparatus is now abandoned, so that the image of the electric arc I is formed in the plane of the open diaphragm D. From this diaphragm an inverted image of the illuminating system B is formed in the half of the pupil effected in the mirror S, by which means the area of the background of the eye which appears in the photograph, and no other part, will be illuminated.



The shutter V1 lies immediately behind the diaphragm D, while the second shutter V2, which I have changed to a roller blind, lies just in front of the plate P. By means of a mirror (not shown in the figure) the image of the fundus can be observed up to the very moment of exposure. A squeeze of the rubber ball T causes the mirror to flap up, and at the same moment both shutters, controlled by a single wire, are opened and closed again by an electric current. The eye is thus exposed a trifle longer than the plate, i.e., about one-eighth second.

The front part of the instrument between the two objectives must never be touched. The focussing due to anomalies of refraction in the examined eye is obtained by racking the focussing screen P in or out, as the case may be.

The position of the eye to be examined is obtained by getting the patient to fix the image of a flame (seen in a mirror placed before him) with his other eye, or else by means of a cross wire placed in the illuminating zone, which is observed by the patient with the eye about to be photographed. By this latter method a patient possessing only one eye can have it photographed.

In emmetropia the image taken by the direct method has a diameter of about 30 mm. The original negatives show an enlargement of three diameters, so that the largest picture shows a magnification of nine to eleven diameters. I have shown that by lateral and vertical movements of the patient's eye a much more extended area can be photographed. This extension, after repeated trials, is found to be about 10-12 times the diameter of the disc in the meridional line. The construction of the instrument has been undertaken by the firm Zeiss, which has met my wishes in the fullest way, so that all the

requirements necessary have been carried out and no further adjustment or alteration in the illuminating apparatus has been found to be needed. The two large tubes,\* one of which contains the condensing lenses for illumination, the other the two sets of objectives for the camera, are firmly fixed to each other, but nevertheless are capable of coarse and fine adjustment for the eye. All that is necessary to take a picture is to adjust the arc light (which is identical with that employed by Zeiss for his projection camera), so as to illuminate the fundus to enable the image to form a focus on the plate in the camera slide. Last year I used a Nernst lamp, but this I have been able to replace by the more powerful arc light, so that a photograph can now be taken in an instant even by the merest tyro.

## PHOTOGRAPHY AND TAILORING.

In the "Photo Era" an account is given of a photographic method of taking measurements for clothes which is put forward as the original invention of a Mr. Gerhard Moe, of Wisconsin. We may quote what is written of it, while reminding our American friends that the method of the line screen between the sitter and the camera is a well-known device for the photographic registration of dimensions, and has been used in France for human measurements for scientific purposes:—

According to Mr. Moe, the photographic outfit necessary for these measurements is of the simplest kind, consisting of an ordinary 7 by 5 camera with rectilinear lens of medium focal length. As a preliminary to the making of the measurements, the camera is first fixed in a position which it should always occupy when in use for this purpose. At a distance of from 8 to 10 ft. from the front of lens, according to the focal length of the instrument, a line is drawn upon the floor, which represents the position always to be occupied by the subject being photographed. The proper position once being determined, a large screen strung with white silk running in opposite directions so as to form squares of exactly 2 in. between the threads is placed over the line previously marked on the floor, thus occupying the position later on to be taken by the subject. This screen is photographed upon the plate, and a permanent grating or screen (with squares of exactly the same size shown in the reproduction of the larger screen) is affixed to the back of the camera, immediately in front of the sensitive plate or film.

Once the size of these squares is ascertained and provided for in the camera, no matter what that size may be, the large screen is done away with, as each square shown in the succeeding photographs will represent exactly 2 in. on the subject being photographed, if placed in the same position before the camera. A large sheet, ruled diagonally with heavy black lines, or a fabric made up of red and white stripes, serves as a background behind the figure being photographed, and helps materially to read the marking on the finished print. At the back of the camera, inside, is arranged a hinged door or sliding cut-off, which covers either half of the plate during exposure of the other half. Thus both views of the figure are produced upon the same plate, and are made under the same conditions in every case.

By making a reproduction of the large screen on a transparent film and interposing it before the negative in the printing frame, the same results may be obtained as with the screen in the camera. It is, of course, important in all work of this kind that the size of grating used in front of the plate or film corresponds exactly with the image of the large screen as it appears upon the ground glass of the camera.

A camera of any size may be used, and a lens of any focal length, provided it is rectilinear, or an outfit especially prepared by the inventor which does away with the making of a special screen and grating.

An exhibition illustrating "Georgian England" opened yesterday at the Whitechapel Art Gallery, and will remain open until May 9, 1906.

\* These tubes are indicated in the diagram. The entire apparatus is very massive and heavy, being about 5 ft. to 6 ft. in length. The wheels in the apparatus are attached to long screws, which enable the instrument to be raised or lowered, turned laterally, or moved nearer to or further from the patient's eye, whereby much time is saved, as the adjustments can be instantly effected.



## ARTISTIC LENSES.

INFORMATION on the practical properties of the anachromatic lenses of MM. Puyo and de Pulligny being sought by a number of our readers, we may translate the substance of a circular issued by one maker of them, M. Turillon, of Paris, who is manufacturing from M. Pulligny's calculations.

The mounting used for these lenses is the same as usually employed for portrait lenses, namely, with rack and pinion, and either iris or waterhouse diaphragms are fitted. The largest aperture is  $f/5$ , and each succeeding stop requires double the exposure. On the inner tube is engraved the necessary anachromatic correction, which should always correspond to the focal length of the lens used.

Each objective is fitted with a pair of symmetrical meniscus lenses, a single meniscus and a plano-convex lens. The two latter may be used by themselves; the focus for each is then 12 inches for a  $7\frac{1}{2} \times 5$ , and 16 inches for a  $9 \times 7$  inch plate.

When only one lens is used it is advisable to place it at the back of the mount, so that the convex side is turned towards the plate. If it were placed in front, the convex side would be towards the sitter.

All other combinations may be added according to whether the camera has a long or short extension. If large sized images are required, it is advisable to mark the anachromatic correction for such focus on the tube.

The symmetrical meniscus lenses, when used together, one in front and one behind, with their convex surfaces outwards, may be used for all subjects with full aperture of  $f/5$ .

The plano-convex and meniscus lens, with full aperture of  $f/10$ , may be used for landscape, full length portrait and groups, it gives more diffusion at the same aperture.

When the objective is used in its original mounting, the rack and pinion should be moved till the front of the piece cut out of the outer tube butts up against the diaphragm, and then the anachromatic scale engraved on the inner tube should be found, and the lens racked back till the back edge of the aperture coincides with the O, in which position focussing should be done. Then the anachromatic correction should be made by racking the inner tube back till the edge of the aperture corresponds with the point of the scale which is equal to the distance of the sitter, and the exposure should then be made.

## Exhibitions.

## CAPE TOWN PHOTOGRAPHIC SOCIETY.

THE Exhibition of the Cape Town Photographic Society, held in the City Hall, from February 3 to 10, has been a success in many respects. It has put before South African workers a selection of leading European work, and has thus given an incentive to the practice of photography throughout the Colony. It was not expected, we believe, that the exhibition would prove a financial success, and the present depression at the Cape has not given the promoters any occasion to point to their prophecies as unduly pessimistic. However, we understand that a deficit of well above £100 is faced by the Cape Town Photographic Society with *esprit de corps*, and that the success in every other direction has amply rewarded the executive and its secretary (Mr. A. J. Fuller) for their labours of organisation. In addition to the competitive classes, the exhibition included a selection of work by the Linked Ring and by the North Middlesex Photographic Society, and it also embraced the examples of marine photography by F. J. Mortimer shown at the Royal Photographic Society's Exhibition last year. The awards in the competitive classes were as follows:—

Gold medal for best picture in the show.—Charles R. Armstrong.

Silver medal for the most artistic picture in Section A.—J. P. Edwards.

## SECTION A. (PHOTOGRAPHERS IN SOUTH AFRICA).

Landscapes (South African).—Medals: Charles R. Armstrong, J. P. Edwards. Special mention: E. Peters, J. P. Edwards. Honourable mention: Mrs. V. Rayner, Sydney Taylor, E. J. Steer.

Seascapes (South Africa).—Medals: Sydney Taylor, Victor Romilly. Special mention: Dr. G. M. F. Nellen. Honourable mention: E. Campion, Geo. Greene, Victor Romilly.

Genre and Figure Studies.—Medals: Charles R. Armstrong, A. Elliott, Miss H. Watkins. Honourable mention: E. Peters, A. Elliott, Sydney Taylor.

## SECTION B. (INTERNATIONAL AND OPEN).

Landscapes.—Silver medal: G. J. T. Walford. Bronze medals: W. H. Fowkes, A. J. Fuller, J. E. Latham. Special mention: Geo. Easonsmith. Honourable mention: Lewis Lloyd, F. A. Tinker, I. Petschka, E. S. Maples, Fred Judge, J. E. Latham, Ed. Garrone, F. J. Whitworth, G. Castruccio.

Seascapes.—Silver medal: W. Clayden. Bronze medal: Edgar G. Lee. Honourable mention: William Norrie, William Clayden, Rev. A. E. Bor.

Architecture.—Silver medal: Edgar G. Lee. Bronze medal: H. K. Campion. Special mention: W. A. Clark. Honourable mention: G. J. T. Walford, J. P. Edwards, Fred Coop, H. R. Campion, W. A. Clark.

Genre and Figure Studies.—Silver medal: John Moffat. Bronze medals: Alfredo Ornano, Ed. Garrone. Special mention: John Moffat, T. H. Stoward. Honourable mention: H. W. Lane, Edgar G. Lee, Walter Norgrove, L. Ussher, F. Coop, A. Minnie, G. Castruccio, Carl Sciutto.

Still Life.—Silver medal: A. E. Henley. Honourable mention: A. E. Henley, S. G. Kimber.

Lantern Slides.—Silver medal: Edgar G. Lee. Bronze medal: F. Nemirowsky. Honourable mention: Fred G. Tryhorn.

Stereoscopic Paper Prints.—Silver medals: A. J. Fuller, H. Wormleighton, Sydney Taylor.

Scientific and Technical Photography.—Silver medal: E. H. V. Melville.

Lantern Slides.—Silver medal: William Farren.

## Photo-Mechanical Notes.

## The Price of Copper.

THE rising price of this metal is becoming serious to photo-engravers, as they have seen the metal in polished sheets advance from about 1s. 2d. per lb. to about 1s. 8d. and more within the last month or two. In spite of rumours as to a ring controlling the supply, there seems to be every reason for thinking that the increasing demand for this metal is bound to keep the price high, unless some unexpected source of supply should appear. The financial supplement of the "Times" for March 5 last devotes a long article to the subject of copper prices and consumption, and shows that last year the price of crude copper rose by £11 per ton, and refined by £16 10s. a ton, though the production has increased by 75,000 tons, or  $11\frac{1}{2}$  per cent. The consumption, however, has absorbed all this, and much that was held in stock, the increase being attributed to the 60,000 tons that China had taken for new coinage, and for the very large amounts of copper that are required nowadays in shipbuilding, electricity, and agriculture.

## The Economy of Stripping.

While copper remains at this high price, and the money obtainable for the finished blocks shows no tendency to increase, it behoves engravers to study every means of economy. Stripping wet collodion negatives is one of the ways that means no small saving of metal. One firm recently found that it could save 20 lb. of copper weekly by introducing this method. And, of course, there is further economy all round, for less time is taken in printing, and in the rough etching. And if no prism is used, then the exposures may be shorter, and there is economy of space in the camera room.

The best method of stripping is to allow the negative to dry, to rule it round with a knife to size required, then take a piece of paper cut roughly to size of film, soak this in water, lay on the negative, allow to remain for a minute or so until the film has been penetrated by the water, then with a penknife lift one corner of the film, and it will come away

tached to the covering paper. If it has now to be reversed is transferred to another piece of paper; if not, it is laid on directly on the large glass upon which the number are to be stripped. This glass should first be covered with a film of starch paste or gum, in order to make the films adhere satisfactorily. This method is quick, and avoids the use of rubber and flexible collodion.

# A New Process for Reproducing Plans.

For some time there has been in use in Paris a method for reproducing plans quickly and true to scale by means of a kind of graph process. A similar method has now been worked out by Messrs. J. Hall and Co., of Westminster, who are selling licences to work their process. It consists of preparing a jelly, which is spread evenly over glass or metal and allowed to set. A blue print is then made from the tracing, which, without washing to develop, is laid upon the jelly. After a short time it is removed, the plate is then inked over with a roller charged with printing ink; the ink then takes on the lines. Paper is now laid on and slight pressure applied. When the paper is removed it will be found that a perfect impression in black lines is left on the paper. The process does not need an unlimited number of copies, but it is stated that twenty can be pulled without difficulty.

## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes.*

The following applications for patents were made between March and 17.

**POSING PLATES, ETC.** No. 5,926.—Improvements in means of carrying and exposing dry sensitive plates of films in the camera. Robert Ballantine, Arthur Ballantine, Hew Ballantine, and John Linstrum, 37, West Nile Street, Glasgow.

**THEATRE EXHIBITION.** No. 6,228.—A piece of apparatus to be used with an optical lantern, to show slides without the need of darkening the room. Arthur John Henry Brown, Ebor School, Bexhill-on-Sea.

**EMATOGRAPHS.** No. 6,324.—Improvements in automatic light cut-off for cinematograph projectors. Robert Royou Beard, 10, Trafalgar Road, Old Kent Road, London, S.E.

**PHOTOGRAPHS.** No. 6,512.—Improvements in photographic exposure shutters. Alfred Woods, 4, South Street, Finsbury, E.C.

## COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 3d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**POD STANDS.** No. 18,332. 1905.—The invention consists of a tripod stand, consisting of a triangular metal head, with a central bore, to each side of which is hinged a metal plate, which is connected to the top of the tripod leg, so that the latter can be spread out as in an ordinary tripod. The three plates are secured to the triangular plate by a circular locking plate. Alexander McLeod, 171, Queen Street, Brisbane, Australia.

**STEREOSCOPIC PROJECTION.** No. 3,998. 1905.—The invention consists of a system in which the stereoscopic effect on the screens is witnessed without observing the projected pictures alternately with the right and left eyes. The claim is for a stereoscopic lantern with a revolvable or travelling shutter or shutters so arranged and worked that the stereoscopic pictures are alternately projected in periods separated by a distinct period of total obscuration of both pictures equal in duration to the duration of either period of exposure or projection. The author describes various forms of shutter, disc, and band, and points out that in each the essential feature is the alternate exposure or projection of the respective pictures, together with the total obscuration of both pictures, equal in length of time to the exposure or projection of either picture. The invention is stated to differ

from those where it has been proposed to project stereoscopic pictures superimposed upon a screen without the aid of a device to place before the eyes of an observer, in such an arrangement, the pictures have been projected in quick succession without the measured periods of the tentative total obscuration of both pictures, as is the case in the present invention, and which is found to produce a complete and perfect stereoscopic effect upon the pictures projected. Walter Henry Everson, Royal Colonial Institute, Northumberland Avenue, Westminster.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—  
TELEPHOTO LENSES. No. 4,523. 1906.—Photographic tele-objectives. Carl Zeiss.

## New Materials.

Barnet "Medium Ortho" Plates. Made by Elliott and Sons, Ltd., Barnet, Herts.

In introducing a second orthochromatic plate to share the market with the well-known "Barnet Ortho," Messrs. Elliott have had in mind the wants of those using an orthochromatic plate for landscape work, etc., with a stand camera. The new plate, to be known as the "Barnet Medium Ortho," is not by any means rapid, but it possesses colour sensitiveness of a good panchromatic plate, and should therefore meet with favour for many purposes where short exposure is not a *sine quâ non*. Its other properties evidence the carefully controlled manufacture which we expect from the Barnet factory. The plates develop quickly, are without fog, and are evenly coated. These qualities, apparent to a user of the plates, are equally evident to those familiar with sensitometric specifications such as we have been accustomed to give in reviews of new plates.

The following, obtained by the methods of Mees and Sheppard, explained in a recent series of articles in our pages, apply to the particular sample of the "Medium Ortho" submitted to us by Messrs. Elliott (Batch No. 8,169).

Inertia (H. and D., pyro-soda) 1.26.

$\gamma_{100}$  (density-giving power of the plate) 2.53.

K (velocity constant of development with standard ferrous oxalate developer) .113.

t<sub>1</sub> (time necessary to obtain a standard gradation of 1 with the standard developer, i.e., the time for which the plate should be developed with that developer) 4.4 minutes.

The new plates are placed on the market at the popular price of 1s. per dozen quarter-plates.

**Pinacyanol- and Pinachrome-bathed Plates.** Made by Wratten and Wainwright, Croydon, Surrey.

General experience and practice having long recognised the fact of the superior orthochromatic action of a dye when applied as a bath to a plate in comparison with its action as a constituent of the emulsion the question of the commercial supply of such bathed plates has been raised and representations made to manufacturers. Technical and commercial obstacles, unknown, perhaps, to many making the request, are in the way of the introduction of new products of this description, but it is interesting to find that a response has at length been made by the old-established firm of Wratten and Wainwright, who two years ago placed three-colour workers under an obligation by the introduction of the "Verichrome" plate. They are now taking further advantage of the newer isocyanines and of the method of treating dry plates so as to secure their maximum effect, by issuing "Pinachrome-bathed" and "Pinacyanol-bathed" plates. These plates, tested by exposures to the spectrum, give the characteristic sensitiveness conferred by bathing plates in the dyes, the "pinachromes" giving a practically even sensitiveness beyond the blue to about the orange red, 6,300, A.U., and the "pinacyanols" still further in deep red to about 6,800 A.U. The spectrum of the latter to unscreened acetylene gives the usual marked maxima at 5,900 and 6,400, and the gap in the green at 5,000 to 5,600, but exposed to daylight the plate gives a remarkably even deposit from 5,000 to 6,500, showing only very faint



maxima. Of course, the blue sensitiveness is predominant, but this spectrum shows that with a yellow filter to cut this down it would be possible to get an almost even spectrum photograph of daylight, extending to the C Fraunhofer line, which for some purposes is exactly what is required. Both these plates are extremely rapid, and in our hands have proved far and away the best commercial plate we have ever used for three-colour work, equal, in fact, to any home-bathed plate.

It is advised that the plate be developed in the dark—certainly one could not use a red, however deep, for the pinacyanol plate—but it is not difficult to develop in absolute darkness, since Messrs. Wratten state on the instruction card placed in each box the time of development at a certain temperature necessary to give good results.

These are not the only particulars enclosed with each packet of plates. The ratios of exposure, for several sets of commercial filters are also stated, in addition to speed numbers and the ratio of blue sensitiveness to red sensitiveness which we have been accustomed to give in these columns. The offer of assistance in this way to the user is in the nature of an innovation, and we may therefore reprint a specimen card as showing the method by which Messrs. Wratten and Wainwright hope to facilitate the work of their patrons:—

### BATHED PLATES.

To be developed only in absolute darkness.

#### Batch No.

Sensitiven ss. H. & D. 50.  
Watkins 220.  
Wyn e F120.

(NOTE.—This sensitiveness is measured to daylight; by artificial light it is greatly increased, for incandescent gas about 20 times compared with ordinary plates.)

Blue Sensitiveness  
Ratio ————— 1:2  
Yellow Sensitiveness

Ratio for ————— three-colour filters—

Blue Green Red

Daylight

(The Blue filter requires — times as much exposure as the plate without a filter.)

In respect of the mechanical properties of the plates, we can only add—and we can give no higher praise—that they are up to the standard of the other dry plates made by Messrs. Wratten and Wainwright. The prices of the two new plates are 2s. per dozen quarter-plate, 4s. 3d. per dozen half-plate, and 8s. whole-plate.

THE current issue of "The Bromide Monthly" is nothworthy in issuing as a supplement a negative on "Rotograph" negative paper, a manufacture of the Rotary Photographic Company which has steadily grown into favour for the making of large negatives for carbon printing and other purposes. Four separate subjects are distributed through the issue of "The Bromide Monthly," and the opportunity thus afforded of proving the quality obtainable in a paper negative is one which may be seized with advantage. A single copy is sent by the Rotary Company on receipt of three penny stamps.

A VARIETY of mouldings is sent us by Messrs. Daniell Bros., 38, Morley Road, Lewisham, accompanying a list of prices for frames 24 by 20, 20 by 16, and, in some cases, 25 by 16. The prices for the frames impress us as being moderate—from 40s. to 60s. per dozen—and the selection of mouldings ought to enable Messrs. Daniell's customers to suit all tastes in the matter of framing, from the ornate gilt to plain wood in various art shades.

### DEVELOPING FORMULÆ.

Do not wet the film before applying the developer.

Any developer can be used except those containing ammonia. We recommend the following:

METOL HYDROKINONE DEVELOPER  
Metol .. .. . 10 parts  
Hydrokinone .. .. . 5  
Sodium Sulphite .. .. . 100  
Sodium Carbo ale (cryst.) 100  
Water to .. .. . 1,000

Time of development with above solution minutes—

	for	Portrait	Architecture	Landscape
Temp. F. 50°	3'0	4'0	5'0	
" 65°	2½	3'0	4'0	
" 80°	1½	2½	3½	

Time of development for three colour negatives.

	Red filter	Green filter	Blue filter
Temp. F. 50°	3½	4'0	4½
" 65°	2½	3'0	3½
" 80°	2	2½	2½

### CATALOGUES AND TRADE NOTICES.

As announced in our "Correspondence" columns, the Platinotype Company have been obliged by the continuous rise in the price of platinum, to raise the prices of platinotype papers. Both classes of paper, black and sepia, on whatever raw paper, will now be sold at the following uniform rates:—

Packets of Twenty-Four Pieces.

Quarter-plate .....	2s. 3d.	Half-plate .....	5s. 6d.
5 x 4 .....	3s. 3d.	7½ x 5 .....	6s. 6d.
6 x 4½ .....	4s. 6d.	1-1 plate .....	8s. 6d.

Packets of Twelve Pieces.

10 x 8 .....	6s. 6d.	12 x 10 .....	9s. 6d.	15 x 12 .....	14s. 0d.
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The prices of tubes of sheets, 26 x 20, will be as follows:—

Three sheets .....	9s. 6d.	Twelve sheets .....	36s. 6d.
Six sheets .....	18s. 6d.	Twenty-four sheets .....	72s. 0d.

Postcards will be sold at 12 for 2s. 3d. The new prices, it will be seen, represent a very considerable advance on those hitherto in force, but the aim of the company is admittedly to supply the best paper that can be made, and with that desire they have had to yield to the inevitable in manufacturing the same article whilst one important raw material is four times its price.

In "What Can be done with the Goerz Lens," the firm of C. P. Goerz issue a booklet (free on application to 4 and 5, Holborn Circus, London, E.C.), which, with its illustrations, is an incentive to good technical photography, and for that reason alone to be commended for perusal. The text goes with the half-tone reproductions, and gives a good deal of information on the qualities desirable in lenses for landscape, architectural, flashlight, and other photography.

AN informative illustrated booklet reaches us from the Emil Busch Optical Company, 35, Charles Street, Hatton Garden, describing the use of telephoto lenses for portraiture, etc., and the properties of the Busch "Bis Teler," a new telephoto lens, in particular. The special features of the lens are its small size, simple optical construction, and its price (48s. for half-plate size.)

Mr. S. H. Fry, of enlarging fame, announces his change of address to larger quarters at Frisian House, 5, Highbury Grove, London, N.

A new list of ferrotype apparatus and materials has just been issued by Mr. Fallowfield, 146, Charing Cross Road, London, W. It includes, we note, a number of new accessories, and novel designs of mounts and frames for ferrotype photography.

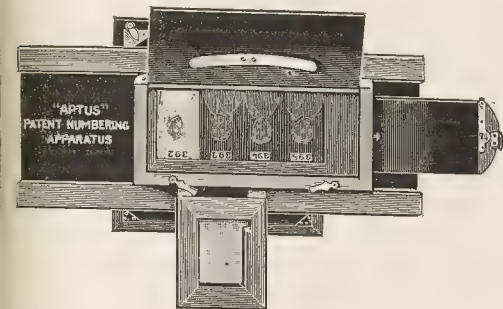
THE Marvels of Photography.—An article of apparently American origin on this subject appears in our handsome contemporary, "The World's Work and Play," and will interest photographers from its reproduction of the first photographic portrait, that of Miss Dolly Draper, made in 1840, alongside that of Mr. George Eastman, a fitting conjunction of past and present. The writer is laudatory in his references to photographic portraiture as represented by Stieglitz and Steichen, though we cannot allow to pass uncorrected his statement that the latter's photographs were admitted to the Paris Salon. It will be remembered that though selected by a preliminary committee they were thrown out by the General Jury of Admission.

A CIRCULAR from J. Lizars, of Bold Street, Liverpool, supplies particulars of the classes in elementary and advanced photography which are held at that establishment, a species of enterprise which reflects credit on the firm's activity in responding to the needs of its amateur patrons.

At Mr. Hanfstaengl's gallery in Pall Mall East (writes the "Globe" art critic) there is now on view a series of colour-engravings which can be commended to the attention of people who are interested in the processes by which facsimiles of works of art can be produced. These engravings are printed in colour from photogravure plates, and they are remarkably successful as reproductions of the pictures selected, because they suggest faithfully enough not only the colour but also the technical qualities of the originals. By the use of photography the actual brushwork and paint surface are closely imitated in the prints, and the subtleties of colour gradation are not less correctly realised by the method adopted of preparing the plate for printing. The process is not simply mechanical; it allows the printer scope for the display of his individuality and taste, and, therefore, the results attained have a more than ordinary right to serious appreciation.

## New Apparatus, &c.

the "Aptus" Numbering System for Midget Photography. Made by Sharp and Hitchmough, 101-103, Dale Street, Liverpool. The system of numbering each negative in making a series on one plate has passed through several forms in the hands of Messrs. Sharp and Hitchmough until its arrival in the convenient shape in which it is embodied in the present apparatus. One form which was, and is still, employed consists in a frame, bearing a number at its upper extremity, which is suspended behind the sitter so that the figures appear at the upper edge of the negative. This position is justified by a balancing weight which the operator moves whilst passing the sitter. Such a system, though valuable, is less satis-



factory than one in which the numbering device is concealed from view in the camera itself, and the new system permits of this being done by the interposition of a stencilled number on cardboard in front of the plate. The numbered ticket is slipped in grooves, and brought into register by the act of withdrawing the dark-slide shutter, the numerical series being recorded on the plate without the attention of the operator. The finishing touch to the device is given by a special accessory to the "Aptus" printing-frame in which only the first of a series of negatives has the number pressed upon it if so desired. Full illustrated particulars of these other midget apparatus are supplied in a special booklet issued by Messrs. Sharp and Hitchmough.

## News and Notes.

THE manager of the Bank of Italy and several other members of the Milan Alpine Club, one of whom had taken photographs of a part of the Riecco Valley, have been arrested by Austrian gendarmes and imprisoned at Caporetto, on Austrian territory. THE Royal Photographic Society. The programme of forthcoming meetings of the R.P.S. includes a number of fixtures in which colour photography figures largely. Next Tuesday, April 3rd, the Autochrome Company will give a practical demonstration of three-colour printing by their trichrome tissues, the *modus operandi* of which, it will be remembered, was described in our issue of February 9 last. ON April 10 the paper is on "A new method of calculating the results of development at various temperatures," by W. B. Ferguson, F.R.P.S. On April 24, Mr. W. A. Scoble, A.R.C.S., will read a paper on "The Red Sensitiveness of Dyed Films." A. Norman, on May 1, is to demonstrate "Three-colour photography by the Sanger-Shepherd Process," and the remaining papers up to May 22nd are to be filled by a paper by Major-General Terhouse, by Mr. F. Dunsterville, F.R.P.S., on "Bypaths in photography," and by S. E. Sheppard and C. E. K. Mills on "The Theory of Development and Combined Development and Fixation." C. E. KENNETH MEES, B.Sc., who is well known for his numerous papers on photo chemistry and sensitometry embodying results of investigations made alone or in collaboration with Mr. S. E. Sheppard, B.Sc., has joined the firm of Wratten and Wainwright, Croydon. We understand that his association with this established firm of plate-makers is based on a part-proprietary interest in the business. One of the first effects of Mr. Mees' con-

nection is the issue of two new colour-sensitive plates, a review of which we publish in another column.

THE R.P.S. House Exhibitions. As we mentioned last week, the present Coburn collection of landscapes and portraiture closes to-morrow, Saturday. Its successor at Russell Square is to be a collective exhibit of work by the Birmingham Photographic Society. If any provincial society can make a strong show it is Birmingham, for there is none which numbers in its own ranks so many exhibitors of standing. The names of Greathatch, Cruwys, Richards, Harold Baker, Smedley Aston, W. A. Clark, Bernard Moore, and Miss Silverston, not to mention the prolific Mrs. Barton, readily occur. It should be an easy matter to put on a fine show at Russell Square.

ONE of the earliest workers in dry plate manufacture passed away on Saturday, March 24th, in the person of M. Dominique Tackles. M. Tackles, who had arrived at the ripe age of 76, was the brother-in-law of Van Monckhoven, and was associated with him in the establishment of his dry plate works at Ghent. After Van Monckhoven's death, he directed the manufacture for the widow and family. He was a great lover of the carbon process, and he also reproduced several of the famous pictures in the Ghent picture gallery. An ardent sportsman, one of the pioneers of the Royal Sailing Club, and of very unassuming manners, and withal a genial companion, he was highly esteemed, and will be much regretted in the town where a great part of his life was spent.

THE Clevedon Photographic Society are holding an exhibition on May 15, 16, and 17. The Rev. F. C. Lambert, M.A., will act as judge, and the honorary secretary, from whom further particulars may be had, is Rev. E. A. Sandford, 18, Hallam Road, Clevedon.

THE Photographic Convention.—The first outward and visible sign of the *entente cordiale* which is to prevail at the Southampton meeting of the Convention in July reaches us in the shape of the French edition of the programme. We hope to see a large foreign contingent at the Convention.

A POSTCARD of metric equivalents in English measures is kindly sent us by our contributor, Mr. Charles Louis Hett, of Springfield, Brigg, whose advocacy of the metric system is additionally interesting from the fact that Mr. Hett is an engineer, and engaged in industrial operations on a considerable scale.

## Commercial & Legal Intelligence.

KENT AND LACY, Ltd. (Photographers, Newcastle-on-Tyne).—Debutante, dated 6th March, 1906, to secure £100, charged on the company's undertaking and property, present and future, including uncalled capital, has been registered. Holder—F. G. Lundy, 15, Grey-street, Newcastle-on-Tyne.

COPYRIGHT Action by Mr. Gambier Bolton.—Before the Chancery Division last week a motion was brought by Mr. Gambier Bolton, the author and owner of twelve photographs of animals and birds of which he had registered the copyright under the Fine Arts Copyright Act, 1862, for an injunction restraining the defendant, until the trial or further order, from copying or reproducing or importing into the United Kingdom, or publishing, selling, or offering for sale any copy or reproduction of the said photographs, or otherwise infringing the plaintiff's copyright therein. According to the "Times" report, the alleged infringement was committed by means of picture postcards printed by Theodore Eismann, of Leipzig, and which reproduced in whole or in part the subjects of the plaintiff's photographs. The defendant in his affidavits swore that until this action commenced he was ignorant of any infringement, and that he had done nothing beyond forwarding a parcel containing the postcards to a firm which he alleged had bought them direct from Eismann. He also said that Eismann believed himself to have acquired the right of reproduction in 1904 from M. Peiser, of Amsterdam, who professed to be the owner of it, and that on the issue of the writ he (the defendant) first became aware of any piracy and immediately communicated both with Eismann and the purchasing firm with the view of putting a stop to the distribution and to any further importation. The result of his action, he said, was that only a few of the postcards had been sold. He was willing to agree to a perpetual injunction, but submitted that he ought not, under the circumstances, to be ordered to pay all the costs. It was agreed to treat



the hearing as the trial of the action. Mr. Justice Swinfen Eady did not consider the evidence as wholly exculpating the defendant. He granted a perpetual injunction with costs and an inquiry as to damages, and made an order for delivery up of the infringing post-cards—being the full relief claimed in the action.

**THEFTS** from the Stereoscopic Company.—At the Clerkenwell Sessions last week, Wm. Stone and Fredk. Tyler were convicted of having smashed the windows of the London Stereoscopic and Photographic Company, Ltd., Regent Street, W., and stolen nine lockets and a pendant, value £26. Stone was sentenced to twenty-one months' hard labour and Tyler to three years' penal servitude and three years' police supervision.

**PHOTOGRAPHING a Band.**—On March 15 Mr. Charles Cornfield, bandmaster of the 7th Dragoon Guards, was sued by Mr. E. C. Elliott, trading as Elliott and Fry, photographers, of Baker Street, for £3 12s. for photographs supplied, and costs. The evidence showed that Messrs. Elliott and Fry wrote to the defendant asking to be allowed to photograph the regimental band, with which request he complied. An order for two photographs of the band, mounted, and twenty-two of the band on foot was put in. This was signed in defendant's name with his sanction. When the photographs arrived the men of the regiment refused to accept them. A second lot was sent, but Mr. Cornfield refused to have anything more to do with it. His Honour Judge Bacon gave judgment for the plaintiff, holding that the order was binding on the defendant.

## Correspondence.

\**\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### EMANATIONS FROM DARK SLIDES.

To the Editors.

Gentlemen,—Referring to the inquiry from O. E. Challis, re the "Emanations from Dark Slides," in the current issue, I beg to give this gentleman, and also other readers of your paper, the method used by ourselves when bringing new slides into use; it has always proved a certain cure.

Directly the new slides have been received from the maker they are opened out as wide as will allow them to stand on their edges, thus exposing the inside to the air, they are then placed on a shelf, or anywhere out of harm's way, where a current of air will circulate round them, but not in a position for the sun or damp to get at them. They are allowed to remain in this way until the peculiar smell, which is noticed upon opening a new slide, has entirely gone. This may perhaps take several days or weeks to accomplish. Should the slides be required for use during this airing process they should be carefully dusted before placing the plates in them, and after the exposed plates have been dealt with the slides must be opened out and placed back again on the shelf as before. It is advisable during this time to be careful to remove the plates from them as soon as possible after exposing; but when the smell has been eradicated no harm will come to the plates even if left in for a time.

Having had several lots of plates fogged in the same way as your correspondent through using new slides I hit upon this idea, and have never had the trouble occur since trying it. When once cured the slides may be put away, closed up in the ordinary way, without fear.

I am afraid using tinfoil as suggested would only cause further trouble by straining, and perhaps jamming the shutter of the slide when pulling it out or replacing.—Yours faithfully,

32, Burchell Road, Peckham, S.E.

H. E. EDMEADS.

March 23, 1906.

### MEASURING SHUTTER SPEEDS.

To the Editors.

Gentlemen,—As last summer I devised a pendulum method (not yet published) for determining the speeds of my shutters and time exposure bulbs, I was naturally interested in your "Ex Cathedra" notes (March 9) and Mr. Watkins' letter (March 23) on this subject.

I must confess that my procedure has not the alluring simplicity of the method described in Mr. Watkins' letter in "Photography"

(February 27), nor can I guarantee my results to the third decimal place of a second, which is a remarkably good performance for a pendulum with a nail suspension (i.e., for a pendulum of variable length). I do claim for my method, however, that the dynamical principles underlying it are sound, and that it is capable of giving results of as high a degree of accuracy as there is need for.

It is well known that for small angular swings the pendulum executes a simple harmonic motion, the characteristic of which is that the acceleration is varying continuously, always being in direct proportion to the distance of the centre of oscillation from the mid-point of swing.

In view of this continually varying acceleration I altogether fail to understand how Mr. Watkins can obtain by his method of procedure results which even distantly approach exactitude.

The differential equation expressing the time taken by a pendulum to move over a certain arc compared with the time of a complete swing does not, I believe, admit of an exact solution (i.e., it cannot be integrated without simplifying assumptions), and even the approximate solution demands an exact knowledge of the angles between the vertical and the axis of the pendulum at the extremities of the arc in order that the time taken to traverse the arc may be arrived at! The determination of these angles at the exact instants of the opening and closing of the shutter might well give one pause before committing one's self to such a method of shutter speed determination.

Mr. Watkins says, "That the position, to be exact," at which the exposures should be made in his procedure is when the pendulum is 17.79 of the distance between the starting point and the bottom of the swing. It is to be regretted that the reasoning on which this datum is founded has not been given. I believe it would be of considerable interest to students of dynamics.—Yours faithfully,

DOUGLAS CARNEGIE.

Blackheath, S.E.

To the Editors.

Gentlemen,—I have read Mr. Watkins' letter regarding his pendulum method of testing, but cannot understand why a system involving so many elaborate formulae and corrections should be chosen.

Most of us would be quite satisfied with an error of within 10 p.c. and spinning a bicycle wheel with a white cardboard disc fixed to the spokes will certainly within my experience give this degree of accuracy. For anyone who cares to try it, turn a bicycle upside down, fix a white card disc, about three inch diameter, to the spokes, so that the centre of disc is about nine inches from centre of wheel. Focus the camera on the wheel, getting the latter as large as possible on the plate, and get some one to spin the wheel at about 120 revolutions per minute for the maximum speed of shutter (assumed to be about 1/100th sec.), and proportionately slower will do for the lower speeds.

The resulting negative will show the disc elongated, the difference between the length and width being the movement during exposure. Using any convenient scale (a mm. measure is as good as any), the actual speed of shutter will be

$x$

$$R \times 6.28 \times r.$$

where

$x$  = movement of disc in mm.

$R$  = revolutions per second.

$r$  = radius of centre of disc in mm.

The accuracy of the method, of course, depends on the men spinning the wheel, but should not be more than 10 per cent. at the outside.

For focal plane shutters it is, of course, only necessary to test the speeds with maximum width of slit, the rest being inversely proportionate to the width of slit.—Yours truly,

73, Holly Avenue, Newcastle-on-Tyne.

March 24, 1906.

To the Editors.

Gentlemen,—Your editorial footnote following my letter in your issue of March 23 calls for some reply.

I was perfectly cognizant of the law as expressed by you concerning the speed of a pendulum, but perhaps I should have said near "the lowest point of the arc of movement," instead of *at the lowest point*, to have avoided the haggling over words. If I had not known that the exposures would show longer lines "the nearer they are made to the middle of the swing," I should not have made the remark

which seems to have raised the disdain of your critic. I am, however, obliged to him for the formula he gives for arriving at the correct value of the exposure when it is made at the centre of the swing. I venture to think, however, that there is either a mistake or a slip in the formula as given.

In a specific case I have recently taken, the length of the line of exposure of a shutter taken in the centre of the swing was 4.2 mm.; the length of the long line representing the one second was 93.9 mm.; the diameter of the sun 1.1 mm.; the angle of swing of the pendulum 15 degs., 15 minutes, 15 seconds; the length of the compound pendulum 933 mm.; and the length of a simple pendulum swinging to the same period would be 994 mm.

By the formula I gave, the actual exposure works out to 47.02, or as nearly as  $\frac{1}{47.02}$  of a second (= 0.0212). I see the formula would be better expressed if the figures were transposed, and I had stated it as  $\frac{S}{L} \times \frac{2}{\pi}$ . I own to a failing in not having done so.

By Dorman's scale the exposure measures about  $\frac{1}{47.5}$  or 0.021 of a second, and by Beck's system of shutter testing, said to be correct five per cent., the exposure is 0.022. All three are very nearly alike. I claim my method to determine the shutter speed more exactly than any other, but, if not so, it cannot be far from correct unless other methods are all wrong.

By the formula you have given I cannot arrive at figures within five per cent. of any of these values, perhaps by an error of my own. I would be glad, therefore, if you would kindly give the working out of the above case by your formula.

I note you still adhere to your contention that the bending of the flexible tube affects the vibration of the pendulum, and I am sorry I cannot understand my reasoning where I explain how this contention is reduced to an absurdity.—Your obedient servant,

Bala Lodge, Blackheath, S.E. ARTHUR A. WATKINS.  
March 26, 1906.

[As pointed out by a correspondent the pendulum moves harmonically—that is to say, the acceleration of the bob at a certain point varies directly as the distance from the lowest point. This

is expressed by the formula  $\frac{s-v}{2\theta\sqrt{2l}}$  which we gave last week, and

which we assumed would have been recognised by our correspondent as holding good only for comparatively small angles. The fact that it applies it to the case of a swing of 40 degs. confirms us in our belief that his previous conclusions were made in ignorance of it. Even with the inversion of the formula which we see our correspondent

is now recognised, we are unable to see how the constant  $\frac{2}{\pi}$  makes the necessary correction for the harmonic motion of the pendulum. It appears to us mathematically impossible for it to do so.—Eds., B.J.P.]

#### NEW APPARATUS.

To the Editors.

Gentlemen,—May I be permitted to endorse the remarks on the subject of the necessity for examination of new apparatus which appear upon page 223 of your present issue? I have just purchased a new 1-1 plate set by a first-class firm, and on looking over it immediately on arrival I found that the lens was scratched across the centre of the front combination, and the iris diaphragm was out of order. It worked all right down to  $f/32$ , but from there two or three of the leaves stuck, and the diaphragm assumed an egg shape. The tripod supplied was split right across, and one of the dark slide cutters had a slight crack in it. I enclose for your information the maker's name, and my card.—I am, Sirs, yours faithfully,  
Newcastle-on-Tyne. March 24, 1906. A PROFESSIONAL.

#### PHOTOGRAPHY FOR THE L.C.C.

To the Editors.

Gentlemen,—As one of the four firms invited to tender for the photographic work required by the London County Council, and in reference to your remarks, we venture to give you the following information, which we have no doubt will be of interest to many of your readers:—

The size of each negative referred to in your remarks last week was to be 12 by 10, and the price quoted to include "travelling and other expenses or charges for carriage, packing cases and packing,

and the supply of such negatives and prints as might be ordered for delivery at places specified by the Council."

These particulars are from the tender form, our own tender being, unfortunately, not successful.—We are, Sirs, your obedient servants,  
CLEMPSON AND HUTCHINSON.

Chichester House, Chancery Lane, London.

March 21, 1906.

#### CONTINENTAL TRADE METHODS.

To the Editors.

Gentlemen,—When travelling on the Continent I have, as an amateur photographer, had occasion to note with interest the up-to-date lines on which the photographic supply business is carried on in Germany. One firm, especially that of Soennecker and Co., in Munich, seems to me quite unique in the way it studies the interests of its customers. Under the auspices of Dr. Hauberisser, a photochemist whose name is not unknown in the English trade periodicals, courses of instruction in photography are given gratis, frequent lectures with illustrations, and every possible assistance is afforded; an original up-to-date photographic periodical is placed at the disposal of customers, and it is thought to stimulate amateurs to produce work of the highest class by offering prizes of considerable value for the best photographs. It is surprising what a wide range of the art is covered by the lectures, such as photography in natural colours, the improvement of indifferent negatives, demonstrations of the newest styles of printing, etc., and even amateurs of many years' standing will always find some new subject which is interesting. No doubt if something of this style was started by our English photographic supply companies it would meet with popular approval and support.—Yours truly,  
H. WRIGHT.

64, Lichfield Road, Stafford.

[We would remind our correspondent that the methods he describes and others which he does not mention are adopted by a number of leading firms in this country. A paragraph on another page mentions, by a coincidence, a course of lectures offered by a Liverpool firm to its customers.—Eds., B.J.P.]

#### PLATINOTYPE PAPERS.

To the Editors.

Gentlemen,—We have to inform you that owing to the very great increase in the price of platinum, we have been most reluctantly compelled to raise the prices of our papers. As you are probably aware, the price of platinum has increased in the last few years from about 25s. to 100s. per ounce.—We are, dear sirs, faithfully yours,  
THE PLATINOTYPE COMPANY.

22, Bloomsbury Street, New Oxford Street,

London, W.C., March 21, 1906.

[We give in another column the new scale of prices for platinotype papers.—Eds. B.J.P.]

ABERDEEN PHOTO ART CLUB.—A lecture on "Portraiture and Retouching" was given by Mr. W. Dunn, a well-known professional of the Granite City. In urging the members to give more attention to portraiture, he said that a studio and expensive apparatus were not essential to the producing of high-class portraits. The light from an ordinary window could be so controlled as to give beautiful effects, and he showed some fine specimens of work so produced. It was necessary, however, to acquire technical skill, both in the making of the negative and in producing the picture. Technical knowledge, however, would not produce a work of art in the real sense. Photography was easy up to a certain point. The difficulty began when a certain conception had to be portrayed and a certain character delineated. Artistic temperament could be cultivated, he said. Aim high, strive to make a good likeness. Delineate character. Here he envied the amateur the leisure in which he had ample opportunity of thoroughly knowing his subject. He spoke of methods in portraiture, and referred in high terms to the excellent work of Mrs. Margaret Cameron and Mr. Coburn. Much had been written regarding the "artistic lens." He had practical experience of its excellence, and showed by specimens the softness and beauty of the results produced by it. Much retouching was not necessary, and the lecturer showed by negatives how such could be done with care and practice by the merest tyro. Retouching was, he said, the curse of the professional. Give a professional retoucher a negative to work on and he would stipple the face all over, destroying every semblance of flesh tints and obliterating every line and wrinkle, producing the commercial article that appealed to and was in demand by the man in the street. The result, however, was neither a likeness nor a picture. At the close Mr. Dunn showed a number of portraits which bore out in a marked degree what he had been saying.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

March.	Name of Society.	Subject.
30.....	Colne Camera Club .....	"Scotland." Messrs. R. Duckworth and W. N. Bateman.
30.....	Aberdeen Amat. Photo. Assn.	"Pictorial Possibilities." Mr. J. W. Eadie.
30.....	Watford Photographic Society	"Various Methods of Toning Bromide Prints." Dr. A. E. Cox.
April.	Scarborough and Dis. Ph. Soc.	Y.P.U. Portfolio of Invitation Prints. Lecture. Dr. Tempest Anderson.
2.....	Catford & Forest Hill Ph. Soc.	Hints for Beginners. Short Papers by Members.
2.....	Widnes Photographic Society...	Annual Competition. Annual Meeting.
2.....	Bowes Pk. and Dis. Ph. Soc. ...	"Self-Toning Papers." Mr. R. Core Gardner. Competition, Genre Subjects.
2.....	South London Photo. Society ...	Annual General Meeting.
2.....	Wandsworth Camera Club .....	"Microphotography." Demonstrated. Mr. J. D. Kettle.
3.....	Royal Photographic Soc. ....	"Three-Colour Printing with the Trichrome Tissues." The Autotype Company.
3.....	Birmingham Photo. Society. ...	"Gum Bichromate." Demonstrated. Mr. J. O. S. Mummary, F.R.P.S.
3.....	St. Helens Camera Club .....	"Early Photographic Apparatus." Mr. J. Carey, B.A.
3.....	Gloucestershire Photo. Society	Annual Business.
3.....	Darlington Camera Club .....	"Elementary Photo-Micrography." Mr. R. Borrow.
3.....	Cardiff Windsor Amat. Ph. Soc.	Competition Night.
3.....	Otley & Dis. Cam. & Art Soc.	Annual Meeting.
3.....	Sheffield Photographic Society	"Photo-Micrography." Demonstrated. Mr. Thomas Skelton Cole.
3.....	Worthing Camera Club.....	Annual Meeting.
3.....	Manchester Amat. Photo. Soc.	"Toning Bromide Prints." Mr. T. L. Cooper, and Mr. F. Eastwood.
3.....	Warrington Photo. Society....	"The Ozotype Process." Mr. Harry Wade.
3.....	Sunderland Camera Club .....	Paper by K. S. Yeaman.
3.....	Newcastle-on-Tyne Photo. Assn	"Bromide Toning." Mr. J. T. Carnaby.
3.....	Bristol Photographic Club .....	"The Platinum Process." Mr. F. Wilkey.
3.....	Stafford Photographic Society...	Competitions. 1. Survey Prints. 2. Paper Prints.
4.....	Hampstead Scientific Society ...	"Portraiture and Figure Study." Mr. E. O. Hoppé.
4.....	G.E.E. Mechanics Institution...	"Gum Bichromate." Demonstrated. Mr. E. L. Warner.
4.....	Cricklewood Photo. Society.....	Beginners' Night.
4.....	Croydon Camera Club.....	"Odds and Ends." The President.
4.....	Everton Camera Club.....	"Hastings and St. Leonards." Mr. J. Dixon.
4.....	Redhill and District Cam. Club	Mr. G. E. Frisby.
4.....	Edinburgh Photo. Society .....	"Composition and Chiaro-oscuro." Illustrated. Mr. W. Grant Stevenson, R.S.A.
5.....	Leeds Camera Club.....	"Stories without Words." Focus.
5.....	Southport Photographic Soc. ...	Members' Lantern Slide Competition and Exhibition of Excursion Prints and other Work.
5.....	Coventry Photo. Club.....	Annual Meeting.
5.....	Rodley, Farsley, & Calverley Dis.	Photography Prize Slides.
5.....	Tunbridge Wells Ama. Ph. Assn	Annual General Meeting.
5.....	Hull Photographic Society ...	"Japan." Dr. Murray Cairns.
5.....	Liverpool Amateur Ph. Assn....	Enlarging Competition. Members' Slides.
5.....	Richmond Camera Club .....	Affiliation Lantern Slides, 1903 and 1904.
5.....	Chelsea and District Ph. Soc. ...	

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, March 27, the President (Major-General Waterhouse) in the chair. Mr. W. Gamble exhibited a new spectroscopic camera by Mr. F. E. Ives, somewhat resembling the Tallent camera. The grating replica, however, was cemented between two prisms of 7 degrees, and was mounted with the collimator and slit in a separate box which was instantly removable from the camera proper of the apparatus, and could be then used as a direct-vision spectroscope. Mr. T. Thorne Baker, F.C.S., then read a paper on "Spectro-Photometry applied to Chemical Analysis." He first described the spectrograph camera necessary to obtain the necessary resolution of the fine lines. The instrument used by him was of the prism grating type, and 24 inches in length, and of resolving power 2,000. An equally important factor for resolution was a plate of fine grain. He had prepared an emulsion of fine grain and speed, 200 H. and D., which he colour-sensitised with

homocol and a black dye. The "resolving coefficient" necessary for spectroscopic work was .083 mm., but he was able to obtain a figure of .0025, combined with the rapidity above-mentioned. Mr. Baker described the precautions necessary in making qualitative analysis by spectrography, and instanced as tests which were usefully made by it for commercial purposes, the detection of iron in sodium chloride, and of calcium in barium chloride. Mr. C. P. Butler thought .001 mm. a large figure for grain; .03 was considered a coarse plate, and a photo-mechanical plate had a grain one-quarter of this size. Mr. C. E. Kenneth Mees thought that spectrographic methods were more useful at a later stage of a qualitative chemical analysis than as preliminary tests for the recognition of elements. The fault of the spectrographic method was that the prominence and number of the lines were not in any way proportional to the relative quantity of the elements in the mixture. An element might give a number of lines and yet be present in quantity which was unrecognisable by chemical tests, and of no practical importance. Mr. S. E. Sheppard said that an average grain of a fast plate was .004, and of a slow one .0013, but the definition of permissible grain was a complex matter, and required to be considered in reference to the conditions under which the plate was to be used. A hearty vote of thanks to Mr. Baker concluded the meeting.

SOUTHAMPTON CAMERA CLUB.—On March 24, Mr. W. R. Kay lectured on the "Bernese Oberland." "The Playground of Europe" as the lecturer styled this most beautiful district of the Swiss Alps, formed a most delightful medium by which a wealth of pictorial beauty was displayed. First came pictures of Old Berne, with its cathedral and its wonderful bridges over the Aar, and its equally wonderful river scenery; then Thun, with its old world buildings and its quaint costumes. Then followed a glimpse at the modest Niesen, and at Interlaken with its many beauties. Approaching the Alps by way of Brienz, the lecturer showed the beauties of the Schynge Platte. Some splendid pictures were shown of the Stabach Fall, with its 720 feet drop, and of Murren, the last stopping-place of the train. From this point the wonders of the mountains themselves were entered upon first; the Jungfrau, with its dazzling snow-fields; the sombre black Mönch, with its forbidding masses of black rock, or the Eiger in all its solid beauty. In the illustrations were shown in succession the mighty Wetterhorn, the Schreckhorn, and Finsternhorn. After this the lecturer passed to Grindelwald, with its quaint chalets, the gorge of the Lutschine, and then to the glaciers which abound in the district.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—On Thursday, the 21st inst. (Mr. Arthur B. Fry in the chair), Mr. E. T. Holding visited the society and lectured upon figure studies. He said that a comparison of the arts of fifty years ago and to-day showed a great improvement. Moreover, photography had to-day placed draftsmanship within the reach of all, for if the camera were used with knowledge and intelligence one could depict tones of the most delicate degree. The user must, however, possess the sense of what was beautiful. Mr. Holding suggested that the study of modern paintings was more to the advantage of the photographer than those of the old masters, because photography is a modern art, and is more in touch with modern life and ideas, yet the study of old masters was an education, inasmuch as one could study the lighting, and the light and shade; and whatever printing process was used, light and shade was the groundwork of the beautiful. The personality of the worker decided the results. He presented things as he saw them; composition was like humour—it must come spontaneously, and the resulting picture must be obtained by the aid of light and shade. The principal point should never be central, and one should keep in mind that the art of composition was to hide the fact that composition had been used or called into aid at all. A well-balanced picture was one in which the lights and shades balanced each other. Sharpness of focus must be decided by the photographer, and either extreme sharpness or fuzziness might be used, each forming the key to success in varying pictures. A single long focus lens would give a broader and more complete diffusion than a doublet. To simplify was to strengthen. The worker, therefore, should determine the principal effect of the subject and strengthen it. Details must be shown, but they must be essentials. The would-be historical photographer must walk very carefully, as he had many pitfalls to contend with. For home work a room at the top of the house, with a blind that could

raised from the bottom, and two pairs of curtains—one white and transparent and the other of a slightly more opaque nature—were recommended, as various effects of lighting could by their means be obtained. Let the models as far as possible pose themselves, give them the idea that was wanted, if possible, by a rough sketch, get them interested, and they would, as a rule, fall at once into the proper pose. With children a box of chocolate was a very useful thing to have at hand, but on no account let the young sitter think that she is to be made use of. An ordinary long-focus field camera would answer every purpose. It must work, however, at an aperture that would allow of quick exposure being given when wanted. He personally used a Ross at  $f/5.6$ , but often found that a single combination gave the better result. It was sound advice to use the slowest plate that the subject would allow, but at times one wished for a plate four times the speed of the fastest obtainable, hence the choice must be left to the workers. A discussion, in which Messrs. Teape, S. H. Fry, Child, Bayley, and others took part, followed, most of whom thought that Mr. Holding had treated the subject in a masterly manner.

**BRISTOL PHOTOGRAPHIC CLUB.**—"The Possibility of Portraiture in colour" was the title of a lecture and demonstration given last week by Mr. S. E. Neame, who has already made a name for himself by his charming studies of heads and drapery. Mr. Neame demonstrated in detail the Sanger-Shepherd three-colour process making transparencies in natural colours, as in his opinion this is the best and simplest method at present available. The serious drawback to the use of this or any other "colour" process for portraiture is the long exposure necessary, three minutes about the minimum and five minutes the average time required, even under the best conditions of lighting, and with a lens aperture of  $f/3$ . However, with careful—i.e., restful—posing and a quiet sitter, it is possible to give a total exposure of five minutes about any movement being apparent in the three negatives. The sitter must be supported either by the arms of the sitter, a head-rest, or the background, but the absolute necessity for a comfortable position is not altogether a disadvantage, for it imparts a useful quality to the final result, a quality which was much valued by the old masters in their paintings, but which is often neglected by photographers. It is essential that the three negatives should coincide, for the movement of even a finger spoils the final result. For relative exposures required under the red, green, and blue lenses, using a Cadett "spectrum" plate, are approximately in the proportion of 40:10:4, but the proportions vary with each batch of plates, and it is necessary to make a trial set of exposures upon a white object, such as a piece of white blotting-paper, well marked up. With correct relative exposures the white object will be represented of equal density in the three negatives. To determine the absolute time of exposure, Mr. Neame gave the following rule—that the time taken by Watkin's actinometer paper to darken to standard tint is equal to the exposure required through the red screen, using a Cadett "spectrum" plate and a lens aperture of  $f/8$ . Mr. Neame showed several fine examples of portrait work by himself and others of various subjects by Messrs. Sanger-Shepherd and Co., but, summing up, he considered that portraiture in natural colours could not come into general use until the time of exposure was greatly shortened.

**DUNDEE PHOTOGRAPHIC SOCIETY.**—The annual lantern slide competition was held on Thursday, the 22nd, in the Queen's Hall, Dundee, the President, Mr. J. T. Cundall, B.Sc., in the chair, and notes and descriptions of the slides being read by Mr. R. C. Colm. About 500 slides were shown in the members' competition, while for exhibition thirty-six very beautiful Japanese coloured slides lent by Mr. J. M. Pillman, also slides from Messrs. J. F. Hie, John Burns, and Archibald Hepburn, together with a number of the latest cinematograph films. Medals were awarded as follows:—Archibald Watson, Glasgow; John M. Comrie, Ardross; George A. Hall, Edinburgh; Arthur Scott, Newcastle-on-Tyne; Thos. Kent, Kirkwall. Honourable mention: J. D. Brown, Dundee. There was a large attendance of the general public members. Mr. Haddow had charge of the cinematograph, and the Society's lanternist, Mr. J. M. Brnks, worked the electric lantern.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- H. Dunning, 12, Bridge Street, Usk, Mon. Photograph of H. A. Williams, M.P.H., and Three Foxhounds.
- W. Brown, 9, Gilmour Street, Paisley, Scotland. Photograph of the Rev. A. B. Scott. Two Photographs of the Rev. D. J. Allison.
- T. E. Scholey, 2, Sutton Bank, Manchester Road, Broadheath, Altrincham, Cheshire. Photograph of Mr. and Mrs. W. J. Crossley and Driver in Motor Car.
- P. Beales, 21, Silver Street, Gainsboro', Lincoln. Photograph of Grave of the late Mr. H. D. Marshall, New Cemetery, Gainsboro'.
- P. Moll, 208, Battersea Park Road, London. Photograph of Rt. Hon. John Burns, M.P.
- J. W. Stephens, 84, Cobden Street, Leicester. Three Photographs of Police Constable J. W. Stevens of Leicester.
- H. E. Cull, 169, St. Alban's Road, Watford, Herts. Four Photographs:—Lord Essex Lodge, Longspring, Watford. Watford Fire Brigade Practice. Callowland Farm House, Watford. Watford Fire Brigade, Turn Out.
- J. Thompson, Crane's Buildings, Wellington Place, Belfast. Two Photographs of the Rev. Father D. McCashin.
- A. Hinkins, The Studio, Exchange Street, Retford. Photograph of a Group of Girls in Fancy Dress in "The Taming of the Shrew."

**OBSCURING GLASS.**—Can you inform me of an easy method of making the ordinary glass in a verandah appear as ground glass?—S. H. Dagg (Allahabad).

The glass may be obscured by painting it over with thin white paint and stippling it over with a dry brush. Or it may be stippled over with starch, or flour paste, to which a little common whiting has been added. The latter has the advantage that it can, at any time, be easily cleaned off.

**REGISTRATION OF NAME.**—I am thinking of registering the name of an article I intend putting on the market. Can you advise me as to method of procedure, and what it would cost me?—W. H. SEAGER.

The name must be registered under the Trade Marks Act. If you write, enclosing a penny stamp, to the Comptroller, the Patent Office, Trade Marks Branch, 25, Southampton Buildings, Chancery Lane, for the "Instructions to Persons Wishing to Register Trade Marks," a copy will be sent you. From this you will see how to proceed. The application form is five shillings, and the registration fee one pound.

**STUDIO QUERY.**—I am building a studio, 36ft. x 18ft. (outside), and find that, according to the bye-laws here all wooden buildings must be at least 8ft. from the footpath, so I am bound to set my place back that distance. The south side comes on to the street, but the north light is quite unobstructed. I am having 12ft. of glass at the sides (8ft. to eaves), and on both slopes of the roof. 1. Would you advise ground or plain glass. 2. What colour blinds would you suggest, and on what principle? 3. How many panes, and what colours for dark-room window? It will be about 12 inches square. I thought two ruby and one orange. 4. Should my backgrounds be on stretchers, and if so, how can I manage with foreground continuations?—BEGINNER.

1. For the south side we should advise ground glass, and for the north plain. Fluted glass might be used in the north side, which will prevent persons in the street seeing into the studio. As both ends of the studio could be used there seems little need of the south side being glazed at all. 2. Black or very dark green for the south side, a pale green for the north blinds to pull down for the roof, and curtains for the sides. 3. One thickness of ruby and one of orange will be safe, if the glass is of the right kind. 4. By attaching them temporarily to the bottom of the back ground frame.



B. H.—Messrs. Houghton's, Limited, we believe, are the agents, if not the makers.

RETOUCHING (Reply to E. E. L.).—Were it not for your very weak modelling on the forehead, we should consider you had been practising for six years rather than six months, as your touch is soft and blended, and far in advance of the majority of the specimens sent to us. The treatment of the forehead should have been more tender, and following the natural formation closer, especially on the shadow side approaching the temple. The line from nostril to mouth is also badly worked, and should be softened into its depth from the cheek side with nice gradation, and yet fully retain its force and character. Your retouching is more than promising, but be careful of overworking.

HOOSIER.—It is contrary to our custom to make such comparisons. Both papers are very largely used, therefore either should answer your purpose.

COPYRIGHT.—Last year I bought from Mrs. —, the studio camera and accessories, the property of her late husband. My employer and I agreed partnership whether the goods were turned into cash or put into a studio. The receipt was made out in his name. Amongst the goods I found some negatives of the Painted Hall, Greenwich. Since then the whole of the goods were given to me, and removed to my own premises, some being sold. On leaving my employer I lent the negatives to him for postcard work, and I have recently made negatives for my present employer from prints in my possession. Unfortunately, I have no receipts for any of these transactions. It is impossible for us to tell who is the author of these negatives. If Mr. — (who died six months ago), they were undoubtedly taken many years ago. We have been demanded (by a solicitor) to give up all negatives and prints immediately. It is my opinion that not knowing who is the author of the negatives, it is as much my property as anybody's. In fact, common property.—H. J. G. URGENT.

If the negatives were sold, supposing there was a copyright in them, and the copyright was not assigned with them to the purchaser, it has ceased to exist. It has become public property. If the facts be as stated, the demand by the solicitor is simply "bluff."

S. A. C.—The only apparatus of the kind we can suggest are the changing boxes, carrying twenty films in sheaths.

ARTISTIC LENSES.—I should be greatly obliged if you would kindly answer me the following questions:—1. Is the adjustable landscape suitable for indoor portraiture, in room 15ft. x 12ft., used with half-plate field camera, of 20 inches extension? 2. What is largest working aperture, focal length, and cost? 3. What would be the shortest allowable distance between sitter and camera, in taking large heads on half-plate, without risk of noticeable faulty perspective? 4. Is there any book written in English dealing fully with these lenses?—V. HEX.

1. The adjustable landscape lens could be used. 2. The aperture and the focus is adjustable according to the distance of the object from the lens (see footnote, 2nd column, p. 188, of March 9, and, on the same page, half-way down the second column). The cost depends upon whether the lenses are made of best crown or St. Gobain crown (see advt., p. viii., of last week's issue). 3. The distance should be about 10ft. 4. There is no English work on these lenses.

D. CARNEGIE.—Many thanks for prints, which we will examine.

POSITIVES DIRECT.—Kindly give directions as to how to produce a positive directly from an ordinary negative, i.e., how I may convert a negative into a positive by chemical means. I know of the method involving the use of hydrogen peroxide on the unfixed negative, and subsequent staining, but as I am employing the positives in colour photography, the instability of the peroxide and the difficulty of dissolving off the acted-on gelatine, make results uncertain. The positives into which I wish to directly convert the negatives should be, if possible, of a neutral colour, e.g., black and white.—ALFRED N. GOLDSMITH.

There should be no difficulty in dissolving off the gelatine with hydrogen peroxide, particularly if Merck's 30 per cent. solution is employed, and this will keep well in the dark, provided a developer has been used which does not tan the gelatine. After

development and before fixing, the negative is well washed and then treated to a 2 per cent. solution of chromic acid and well rocked. After about the lapse of a minute the plate may be examined by faint daylight, and the acid must be allowed to act till the black image is completely converted into red chromate of silver. Then immerse the plate in a 20 per cent. solution of sodium sulphite till the chromate of silver is dissolved, and then develop the previously unreduced bromide with a strong developer (such as metol-hydroquinone or amidol). It is frequently necessary in order to obtain a sufficiently contrasty positive to place the negative before treating with chromic acid glass down on some black surface, and expose the film to daylight till the shadows just turn blue-grey, but this is dependent on the make of plate.

COLOUR FILTERS.—Some weeks ago you kindly answered some questions of mine in the B.J.P. on the making of colour-filters. I am now in difficulty about drying the dyed gelatine films. The film dries with a grained appearance, although the gelatine is three times thoroughly filtered. On examining this under the microscope I find it is composed of very fine crystals. I use Nelson's No. 1 photographic gelatine, and dry in a current of air at a temperature of 70 degs. It is the green and red filters I have the most trouble with. Any information you can give that may help me out of this difficulty will greatly oblige.—A. M. A. C.

This trouble we do not understand, provided our instructions as to the use of the particular dyes and distilled water were carefully carried out. We have not met with it, and should like to see one of the filters showing this defect. Very frequently the gelatine will have a slight granular appearance when dry, but this disappears when two filters are cemented together, and does no harm.

A WORKER.—We do not reply to anonymous queries.

A QUESTION OF PRICE.—I should be much obliged if you would say what you would consider to be a fair and reasonable charge to make for the following order. The order is from a firm of organ builders, and is—"to make from designs and tracings of organs,  $\frac{1}{2}$  plate negatives, and supply three mounted prints from each, plain mounts." The number of designs to copy is seven, which means seven negatives and twenty-one prints (bromide). I thought 2s. 6d. for each first print and 1s. per print after. This they consider to be too much. Of course, doing seven at one time after the first design is fixed up and focussed, means less time is taken than would be the case if only one design was to be copied at a time, but for future orders, probably only one, or at most two designs, would be given me to do.—"H. TMS."

We think the price a reasonable and moderate one. We cannot say whether it will pay you to lower it, as we do not know your cost of production.

ALF. SMITH.—Next week.

ARTISTIC LENSES.—Is it possible that the effect produced by the new "artistic lenses" can be identical with the effect produced by using stained diaphragms, as described on page 714, "B.J. Almanac" of 1894? Are both due to chromatic aberration?—INTERESTED.

The action is quite distinct, as the effects of chromatic aberration are modified by the diaphragm.

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## The British Journal of Photography.

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## SUMMARY.

The expert photographic assistant is gradually improving his position: the less skilled worker is as surely losing ground." That the conclusion of Mr. John A. Randall from an analysis of wages in 1905 compared with those of past years. (P. 269.)

ens-testing methods as employed by Messrs. Beck and Chalmers demonstrated before the Optical Society last week. (P. 271.)

ortraiture with flaming arcs and orthochromatic plates is discussed in reference to economy and efficiency by Mr. Arthur Payne. (P. 278.)

structions for the making of photographic enamels by the iron order process are given by an American worker. (P. 268.)

etching methods applied to landscape negatives are detailed in article by Mr. Arthur Whiting. (P. 267.)

reviewing the exhibitions of the Photo-Secession a Transatlantic per gives his impressions of J. Craig Annan and Fredk. H. Evans. (P. 267.)

atters of importance in the making of coloured miniatures to be in large numbers are considered on page 262.

intensification in Theory and Practice.—The first of a series of papers on the use of the modern intensifiers commences on page 264.

practical notes on the working of the double transfer carbon process given in the series of chapters on printing processes. (P. 263.)

ethods of gum printing were demonstrated before the North Essex Society last week by Mr. J. C. S. Mummery. (P. 276.)

efore the Watford Camera Club, Mr. E. Seymour gave a method of soft prints on gaslight papers. (P. 276.)

## EX CATHEDRA.

### Duty Free Alcohol.

It will be remembered that a year or two back a Departmental Committee was appointed to inquire into the use of duty-free alcohol for industrial purposes. In the House of Commons one day last week it was stated in reply to a question that the conditions under which alcohol should be procurable for industrial purposes were examined and reported upon a year ago, and the recommendations were embodied in the Revenue Bill brought in last session. The present Government hoped to be able to introduce legislation on the subject at an early date. Alcohol is not so much required in photography as it was in the collodion days, and for the purposes it is now used for the methylated spirit does just as well, except for the manufacture of collodion. If duty-free spirit were allowed to be used for that, its price could be very considerably reduced. Collodion contains about equal parts of ether and alcohol, and at the present the cost of the latter is three times that of the former. If it were not for the duty, pure spirit could be sold for the same price, or even less, than that of methylated spirit.

\* \* \*

### Carrying Coals to Newcastle.

In the "Inland Printer" (American) for March, lately to hand, there is contained an advertisement for a works manager wanted by first-class firm of photo engravers in England; only experienced men well up in all branches need apply; salary £400 per annum. One would have thought it unnecessary to go to America to get a suitable manager; in fact, in the light of Mr. Gamble's account of his observations in America, it is doubtful if men there are so "all-round" as they are in England. We happen to know of two similar advertisements appearing in the same paper from English establishments, and both vacancies were filled, not by Americans, but by Englishmen who had only been in America for a short time.

\* \* \*

### Stripping Bichromated Albumen Paper.

A query we have had this week from a correspondent is a somewhat novel one, and for this reason we deal with it here instead of in the usual "Answers" column. The writer wishes to know, in effect, if albumen paper, sensitised with bichromate of potash, can be used in the same way as ordinary carbon tissue—that is, printed and then transferred and developed upon another support. Now if ordinary albumen paper be sensitised with a solution of bichromate of potash, and printed, the light will penetrate through the film in the more transparent portions of the negative to the paper, hence is could not be stripped off for development. In the case of carbon tissue, the pigment prevents the light from penetrating very deeply, so that there is always a soluble layer of gelatine intervening between the printed image and the



paper; consequently, when the tissue is mounted on its support and put into the warm water for development, this layer dissolves and liberates the paper upon which the pigmented gelatine was spread, and allows of the washing away of the unaltered, by light, portions. These conditions have to be observed if any other colloid than gelatine is desired to be employed, and the printed image in half-tone has to be transferred from the paper on which it was printed. It is quite conceivable, though we have not tried it, that if paper were coated with a much thicker layer of albumen than the ordinary one, and the albumen contained sufficient of a pigment to prevent the action of light going right through to the paper, that it might be transferred and developed in the same way as an ordinary carbon picture. Of course, the development would have to be done in cold or quite tepid water, as hot would coagulate the albumen and make it insoluble. In place of albumen it is quite possible that gum arabic, which our correspondent says will answer his purpose as well, might be made to serve. In any case we should surmise that the metal plate upon which the image is desired would require to have a coating of insoluble gelatine, such as that on the usual single transfer paper. One way in which an albumen picture in bichromated albumen may be transferred to a metal plate may be mentioned, but it is only applicable to line subjects. The paper is first coated with a thin solution of indiarubber and then with the bichromated albumen, printed, and afterwards developed in cold water—that is, the unacted upon portions dissolved away. The wet print is squeezed down upon the metal plate previously coated with insoluble gelatine, and allowed to dry. Then if the back of the paper be sponged over with benzol it can be stripped off, leaving the albumen on the plate.

### Portraiture 2,000 Years Ago.

Should a church service ever form part of a photographic function or convention it will not be difficult to find a text for the sermon. We will suggest one which would appeal particularly to professional photographers—perhaps the Rev. F. C. Lambert may be glad to file a note of it. In Ecclesiastes (revised version) we read:—"They that cut gravings of signets, his diligence is to make great variety. He will set his heart to preserve likeness in his portraiture, and will be wakeful to finish his work." This sums up in a very few words the qualities that go to make a successful photographer. Human nature is, after all, much the same to-day as it has ever been, and our readers will not be surprised to see that customers of 2,000 years ago wanted their portraits to be likenesses, and wanted them quickly after placing their order. The "diligence to make great variety" is possibly a point which needs some attention nowadays. There is a great tendency for work to become stereotyped, and the only way to avoid this is the way indicated—"diligence," or, in other words, a careful study of the methods of obtaining variety without losing characteristic pose or expression. We might, in fact, say that variety should be obtained by observing and recording characteristic pose instead of fixing the sitter in some preconceived position of one's own.

### Free Sittings.

In several issues of late reference has been made to the forthcoming "single-picture exhibition," and congress, inaugurated by the Professional Photographers' Society of New York. It is to be a purely business meeting and for purely business purposes. Last week we published a list of twenty-three subjects set down for discussion, all of which are important to the profession there, and equally so in this country. One of the foremost subjects we see is, "Under what

circumstances is the photographer warranted in offering a free sitting?" If the free sitting business is carried on in the States as it now is here, the question is a very important one indeed. Some persons have an idea that the invitation, or free, sittings system is a somewhat modern innovation, but, as a matter of fact, it is nothing of the kind. It is almost as old as photography itself, or rather as old as the collodion process. In the middle fifties a firm of photographers in the City made a feature of securing the portraits of the leading men in science and members of scientific societies for publication, and a very fine collection of portraits they obtained. The pictures were of the whole plate size, and were published at half-a-crown a copy. When the "carte de visite" came in, several of the leading portraitists made a feature of portraits of theatricals, male and female; others went in for members of Parliament, others for medical men, the clergy, etc. The portraits were, of course, all taken at invitation sittings. Yet all this is quite a different thing from the present system of giving free sittings to nobodies. In the instances we are recalling only those who were of note in their particular spheres received invitations, and the photographers relied solely upon the publication of the portraits for their profit. Now, in many cases, a free sitting is given to anyone; the photographer relies only on the chance that the sitter may order copies for his own use. We were recently told that a photographer in a rather fashionable suburb of London was employing female canvassers, going from house to house inviting people to go and sit for their portraits, for which no charge would be made. The sitter was to be presented with a copy of cabinet size, the photographer depending for his profit on the chance that further copies might be ordered. Whether the scheme pays or not, it is certainly playing photography very low. We somewhat doubt if it is being played so low as this in the States, but if it is, it will be interesting to see what remedy the Professional Photographers' Society of New York can suggest.

\* \* \*

### Coloured Miniatures.

Several correspondents having recently addressed queries to us as to the methods of preparing the class of miniature which can be produced in numbers at a low price, the following hints will perhaps be of value, also to others desirous of working such a side line. All that is necessary is a good clear print, of the required size, in gelatino-chloride, unmounted. The colouring is very simple, and could be done by the "reception room lady" after a few lessons. The colours needed are only three: red, yellow, and blue aniline dyes, but they must be colours that will mix. Red will usually combine with either of the others, but some samples of blue and yellow will not combine to form green, but precipitate one another to a muddy mess at the bottom. But any of the firms who make a special feature of dyes will supply a yellow and blue that will combine. Having procured these three colours saturated solutions should be made. The print needs no preparation except wetting; the surface moisture is removed with a clean cloth and the print is ready. A little of each of the three colours is poured out into separate saucers, and with a clean brush a little red is put into a clean saucer and considerably diluted, and a small proportion of yellow added, to form a flesh tint. It should be tried on a waste print. The brush is well filled with colour and mopped over the face, and almost at once the colour on the surface is wiped off with a piece of clean soft rag, rather moist, which is held in the left hand ready to take up the surplus colour. The tint left on, or rather in, the print will perhaps be too pale after only one application, and a second or third application of the brush may be necessary, always followed immediately by the

can rag. Any colour that is needed can be obtained by mixing the three colours in different proportions. For small parts, such as the lips and eyes, a fine sable should be used and the colour should be less diluted. It is surprising what pretty effects can be secured by these simple means, depending on the taste and skill of the wielder of the brush. After the colouring of the print is finished it should be allowed to become "bone dry" before doing anything more with it. It will have an unfinished appearance and needs to be glazed; this may be done in several ways, by cementing it upon a piece of celluloid, as recommended for "photo-buttons," or it may be attached to the inner side of the glass of the locket it is intended to fill, with a little warm gelatine solution, or it can be enamelled by squeegeeing down upon a piece of clean French-chalked glass, or waxed ferrotype plate. If the print is thoroughly dry after colouring, it may be moistened for enamelling without fear of the colours running, but it must not be left soaking too long or the colours will be washed out.

### PRINTING PROCESSES.

#### XX.—CARBON—DOUBLE TRANSFER.\*

In the previous articles of this series the single transfer process of working was very fully dealt with, but with that method the pictures are reversed as regards right and left unless a laterally reversed negative has been employed. If carbon prints are required the right way out from ordinary negatives, the pictures must be developed on some support from which they can be afterwards transferred to a permanent one. Here we have a great choice of materials on which the pictures can be developed. It may be a rigid one, such as plain glass, round glass, zinc; or it may be a flexible one, such as paper which has had a coating of insoluble gelatine and one of shellac applied to it; or it may be paper coated with a solution of indiarubber. The former is what is universally employed in this country, and is known commercially as "flexible support." The latter is, however, largely used on the Continent. It may be mentioned at whatever support the print is developed upon, the finished picture will have its surface: if developed upon matt surface glass, say, smothed opal, which is much better for the purpose, the picture will have a matt surface; on plain glass, a polished one; if on the usual commercial flexible support, it will possess about the same surface and gloss as that of an ordinary albumen silver print. Whatever temporary support be chosen, it must be so prepared that it holds the image firmly during the development, and will readily yield it up to a permanent one when required; an attenuated film of beeswax fulfils its end perfectly.

We will first deal with the ordinary flexible support as that in the one most commonly employed in everyday work. Suitable waxing solution is as under:—

White rosin .....	$\frac{3}{4}$ ounce.
Genuine beeswax .....	$\frac{1}{4}$ ounce.
Rectified spirit of turpentine	20 ounces.

When the rosin and wax are dissolved the solution is ready for use. The support should be an inch or so larger each way than the picture that is to be developed upon it. A little of the solution is poured on and then only rubbed over with a piece of flannel. After resting a few minutes, during which time other pieces may be similarly treated, the wax is cleaned, or rather polished, with another piece of flannel until the surface is free from streakiness and looks evenly polished. The same

flannels will serve for many pieces—indeed, up to a certain point they improve by use. The waxing is best done a few hours before the support is used, so as to allow all traces of the turpentine to evaporate. If, instead of the flexible support, a rigid one be used, and a very general one is smothed pot opal glass, which yields pictures with an excellent matt surface, the same waxing solution will answer. The glass is first thoroughly cleaned with soap and water, well rinsed, and allowed to dry. It is then waxed in the same way as the flexible support, but not so much solution should be used as to fill up the grain of the glass. In using opal glass some workers prefer to coat it with a rather thin enamel collodion, as this gives a somewhat greater transparency to the shadows of the pictures. In this case the glass may be rubbed over with French chalk and then dusted. This is less trouble than waxing, and answers the purpose quite as well. After the collodion has been allowed to set thoroughly the plate is put into cold water until all appearance of greasiness has disappeared. If a highly enamelled surface is desired, plain glass should be used. This, after being thoroughly cleaned, is polished with French chalk and then coated with the ordinary enamel collodion and treated in the same way as in the case with opal glass. The support, whatever is used, being ready, the exposed tissue is squeegeed upon it just as if the single transfer paper were being used. If, however, the glass has been coated with collodion, a piece of thin indiarubber cloth—that known as nursery sheeting is the best—is laid over the plate to protect the collodion film while squeegeeing. The manipulations in the development, etc., are precisely the same as in the single transfer method, which need not be further referred to. It must, however, be borne in mind that prints on a temporary support will not bear the same rough treatment as those on single transfer paper. For example, they will not stand such hot water in reducing over-exposures, as there would be some little risk of blistering. Also any "faking" that may be desired must be more tenderly done than when the prints are on single transfer paper. For these reasons over-exposure should be avoided as much as possible, and when it happens a longer soaking and in water at a moderate temperature is better than a shorter treatment in that at a greater heat. Furthermore, in this way the flexible support is not so much injured for future use as it would be if very hot water were employed. The pictures being developed are treated with alum, rinsed and allowed to dry spontaneously, and are then ready for transferring to their permanent support.

The double transfer paper, which is supplied commercially, is paper which has been coated with gelatine that has been rendered partially insoluble by chrome alum. If it be long soaked in warm water, or if the water be too hot, the coating will entirely dissolve, and the picture will then not transfer. Some workers place the transfer paper direct into water at a temperature of from 90 degrees to 100 degrees Fahr., but others prefer to soak it for ten minutes or so in cold before putting it into the warm. But whichever method be adopted, the paper should be left in the warm water until its surface has acquired a distinctly slimy feel on the surface. It is then ready for use. If the print is on the flexible support it should be allowed to soak for about a quarter of an hour in cold water before the softened transfer paper is applied. The coating of the latter having been got in the right condition, the picture on the support is put under it, in the warm water, and the two brought in contact, removed on to a glass plate, and the two squeegeed together. The squeegeeing should not be so heavily done as when mounting the exposed tissue on the support, as that would tend to press

\* Continued from page 143.



out the coating of the paper if that were made unnecessarily soft in the warm water. The prints are then pinned up and allowed to dry spontaneously. When thoroughly dry, and not before, they are stripped off. Should the pictures when stripped show any marks of the waxing solution, they may be removed by polishing them with a piece of flannel slightly moistened with turpentine. The same flexible support will serve for many prints, but it will, of course, require to be re-waxed each time.

If the pictures have been made on a rigid support the same procedure is followed in transferring them, except that if the glass had been collodionised the indiarubber cloth must be used to protect the edges of the film in the squeegeeing. If the film were torn the print would have a tendency to leave the plate before it was evenly dry all over. Should it be desired to retain the full enamel gloss when the picture is mounted, a second piece of softened transfer paper should be applied on the back of the first, after that has become surface dry; then the print can be mounted in the ordinary way without the loss of gloss. Indeed, worked in this way the carbon process is the easiest method of producing enamelled pictures. Spotting of them can be done with tube oil colours, diluted with turpentine, before the transfer paper is applied so that it does not show in the finished result.

From the flexible support the carbon picture may be transferred to any material, such as ivory, opal glass, metal, wood panel, or indeed to almost any homogeneous surface. The procedure is as follows:—An ounce of gelatine—Nelson's No. 1 is a very suitable one—is soaked in a pint of cold water till soft and then dissolved by heat. Twelve grains of chrome alum, dissolved in two ounces of warm water, are then added gradually, stirring well the while. This solution is then put into a dish, kept warm; the picture on the support and the material, whatever it may be, which has been well cleaned, are immersed in it, the two brought in contact and afterwards squeegeed in the usual way. When dry the support is stripped off. If the picture is to be coloured with water colour, it will be well to rub it over with a pledget of cotton wool, moistened with benzol to remove any traces of wax that may be on it, otherwise it will not take the colour freely. Carbon pictures on a rigid base, as ivory, which are to be coloured, are best printed from rather soft negatives, as then there is a thinner film of gelatine in the shadows than is the case when they are printed from more vigorous ones.

In the next and concluding article the sensitising of the tissue to suit different types of negatives will be dealt with.

## THE THEORY AND PRACTICE OF INTENSIFICATION.

### I.

THE intensification of negatives assumed many years ago a position of importance, inasmuch as, besides the occasional necessity for it which a badly exposed or developed plate gives rise to, it is a universal custom to intensify half-tone photo-mechanical negatives subsequent to their partial reduction. A great number of large and experienced firms of photo-engravers employ nothing but the mercury-ammonia method of intensification, and this method probably represents quite nine-tenths of those used at all, uranium only sharing a limited popularity. It is, however, very desirable to make use of any method which is more adapted to our work than others, and I shall endeavour to give, by combining mathematical with practical results, some better ideas than have hitherto been expressed as to the comparative results secured by the various procedures.

It is hardly necessary to observe that in order to obtain the best results the characteristics of the intensifier must correspond with the requirements of the negative. Thus a harsh, under-exposed negative will require such treatment as will produce greater intensification in the shadows than in the high-lights; a flat, over-exposed negative will require greater intensification in the high-lights than in the shadows; and a correctly-exposed but under-developed negative will require a proportional increase in density for each tone in the image. The necessity for the preliminary reduction of flat over-exposed negatives before intensification can be overcome by an intensifier which only adds density to the high-lights, whilst it reduces the shadows; that this is quite an easy matter will be seen later on. That certain methods of intensification are capable of acting in entirely different ways by modification is also evidenced by photometric investigation.

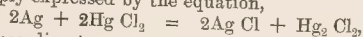
There is a growing tendency nowadays to supersede the older methods by more recent ones, such as the chromate bleacher with subsequent redevelopment, and the conversion of the silver into a haloid which will darken on exposure to light. But the old-fashioned mercuric chloride intensifier is capable of giving a very great variety of results, and it is only a matter of choosing

a suitable blackening agent to make it deal successfully with almost any class of negative.

Mercury is a metal which belongs, by reason of its chemical behaviour, to two families of metals, and is a member of the group which includes lead and silver, as well as of the divalent group which includes metals whose sulphides are not affected by dilute acids. There are thus two compounds of mercury with chlorine,  $Hg_2 Cl_2$  and  $Hg Cl_2$ , and it is probably to the ease with which a certain percentage of  $Hg Cl_2$  becomes ionised in aqueous solution that the efficacy of mercuric chloride is due.

We must always look upon a negative as being built up of tones, or minute portions, some of which are very dense, some less dense, some still less, and so on; the more opaque or dense portions are made up of correspondingly large deposits of silver, whilst in the lighter parts of a negative we have only a few small granules of reduced silver haloids, more widely separated from one another in the gelatine vehicle. Under certain conditions the dense "tones" become intensified, while the lesser tones obtain little intensification, and under different conditions again the dense tones receive intensification, whilst the lesser tones become so little changed that in the reblacking they actually lose some of their original density. This may be readily understood in the case of mercury, when we consider that its action during bleaching is to form a surface-coating containing silver chloride; the extremely small particles of metallic silver become converted entirely into silver chloride, and the reblacking agent being a solvent of silver chloride, it is completely removed in the second operation.

The conversion of the silver image by the mercuric bleaching bath is simply expressed by the equation,



although, according to many authorities, the chloride is a double compound expressed as  $Ag_2 Hg_2 Cl_4$  or  $Ag Hg Cl_2$ ; it seems more probable, however, that the two halides become formed side by side. Each atom of silver, by this operation, becomes richer by

re metallic atom, and, with the larger grains, which are metallic on the outside surface and sub-haloidal within, the grains which are superficial become similarly enriched. The image is formed by the action of ammonia on the bleached image may be expressed as  $\text{NH}_3 \cdot \text{Hg}_2 \text{Cl}$ , the silver chloride being reduced. But diverse opinions are held regarding the action of ammonium sulphite, which does not reblacken the image, but produces an intensification accompanied by brown coloration. It is assumed, for example, by Vogel that the mercurous sulphite reacts with sodium sulphite to form mercurous sulphite, which is soon decomposed, and gives metallic mercury and mercurous sulphite. According to analyses carried out by him, a compound of the metals mercury and silver was obtained in the proportion of 67.5:32. A compound of the formula  $\text{Ag}_x \text{Hg}_y \text{S}_z$  is suggested by Hauberisser, but the general opinion is that a sulphide is formed, despite the indication of it given by a brownish colour.

Reblackening with thiosulphates and various sulphites produces the same brown coloration of the image, so that one may reasonably infer that the action differs essentially from that of ammonium chloride.

The use of lead and silver compounds for intensifying has not met with any lasting approval, but the metals of the chromium and manganum series in particular—have been tried with a measure of success. The precipitation of an insoluble oxide made use of, which thus enriches the preliminary silver image, and there is every reason to believe that tungsten and manganum intensifiers can be found to equal those which are based on chromium. That molybdenum may be considered as equivalent to chromium, "photographically," is evident from the fact that an acid solution of ammonium dimolybdate has the same action on the negative as dichromate.

Metallurgically, any metal whose salts can be precipitated on the negative, and silver only, in a negative may be utilised for reblackening purposes. Thus, bismuth trinitrate was tried and gave a fair amount of success, and seems well worth further investigation; an acid solution of the nitrate is used, and in this case the action that can be observed takes place, but on finally treating the negative with a weak aqueous solution of ammonium sulphite, a very powerful intensification is effected.

Uranium has some interesting properties when employed for reblackening, the nature of which becomes evident on comparing the curves obtained by plotting the densities of the gradations in two negatives, one intensified with potassium ferricyanide over potassium ferrioxalate, the other with an excess of ferricyanide over uranium. The sepia compound precipitated on the image when excess of potassium ferricyanide is used has a preference for depositing upon the under-exposed parts, whilst the bright red deposit obtained when an excess of uranium is used does the reverse, i.e., intensifies the over-exposed parts to a greater comparative extent than the under-exposed parts. A great deal depends, however, on the character of the negative.

Proceeding further, let us look into the matter of reblackening more closely, and determine the effects of various reblackening agents. It is only natural that some agents will act in a different manner to others; for example, reblackening with thiosulphate may reasonably be expected to have a more drastic effect on the under-exposed portions of the negative than ammonia, being a more ready

reblackening agent. A comparative action of various reblackening baths was determined by making a number of negatives with the Hurter and Driffield sensitometer, identical in character, so that in each negative there were nine divisions, one which received no

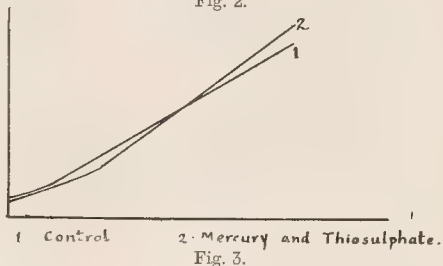
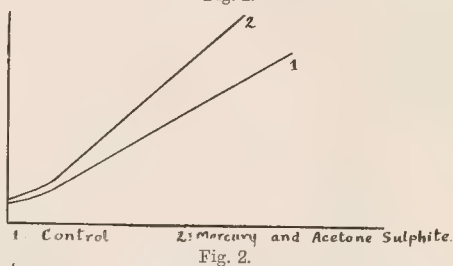
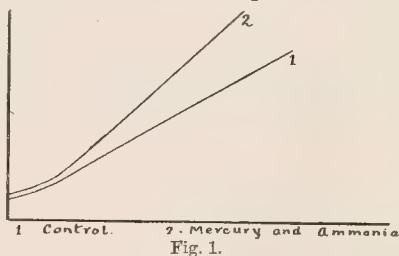
light, and the other eight receiving exposures such that each division was twice as long exposed as the preceding division; the negatives were thus made up of nine divisions, each division being of a different density, so that the whole represented the various tones in an ordinary negative, from black to white.

Several of these strips were bleached with a solution of mercuric chloride and ammonium chloride, the proportions of the two salts being in accordance with their molecular weights, viz.,  $\text{HgCl}_2$  271, and  $(\text{Am Cl})_2$  107. The solution was decinormal in all experiments, the formula for a convenient quantity being:—

Ammonium chloride .....	2.7 gms.
Mercuric chloride .....	6.8 gms.
Distilled water .....	250 ccs.

The strips having been bleached altogether, and, of course, for the same time, they were then thoroughly washed and reblackened, each one with a different agent; ammonia (10 per cent. solution), sodium sulphite, sodium thiosulphate, and acetone sulphite were the four used in the first experiment. The intensified strips were next washed and dried, and each one read off in the photometer, the densities of each portion of a strip being plotted on a curve alongside of the unintensified or control strip.

The comparative curves are shown in the accompanying diagrams. Mercury and acetone sulphite and mercury and



ammonia gave very similar results, as will be readily seen. But with mercury and thiosulphate and mercury and sodium sulphite the weakest portions of the strips were actually reduced in density, whilst intensification was received only by the denser portions. Further experiments, in which a longer bleaching was given, showed the same result in the case of thiosulphate, but with sodium sulphite a slight increase in density was



generally observed in the weak portions, and intensification took place in good proportion, altering the gradations very

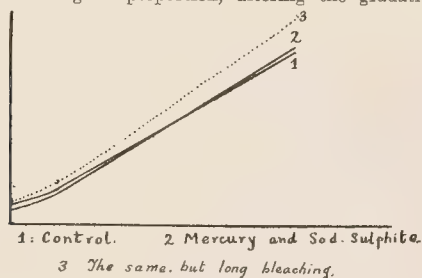


Fig. 4.

little indeed. Thus compare the readings obtained with strips before and after intensification as follows:—

#### I.—MERCURY AND SODIUM SULPHITE.

	Fog Portion.	1st Tone	2nd	3rd	4th	5th	6th
Control Strip .....	1.5	2.5	6.9	11.7	16.5	21.0	—
Intensified Strip .....	2.2	3.3	8.4	14.5	20.3	27.1	—
Control Strip .....	1.1	2.2	5.6	9.0	12.2	15.0	17.0
Intensified Strip .....	.9	2.2	6.5	11.4	16.2	19.5	23.1

Mercuric iodide and hypo gave a result similar to mercuric chloride and ammonia, but the effect on the gradation was

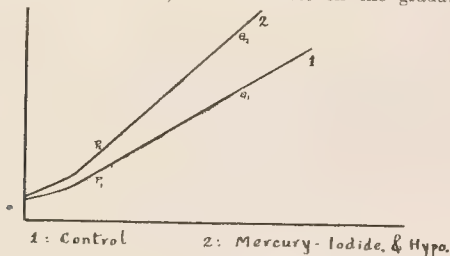


Fig. 5.

not so uneven. An ideal intensifier should add density to every tone in a negative in the same proportion; thus, take

any two points on the unintensified and the intensified curves, P1 and P2; the density for the same exposure (expressed is measured along the abscissa) is 2 for P1 and 2.7 for P2; that  $I_N$ , the intensification, is  $I_N = \frac{2.7}{2}$ , or 1.35; i.e.

intensifier has increased the density 1.35 times. Now take two points Q1 and Q2; the density for this exposure is respectively 5.6 and 8.2, so that  $I_N = \frac{8.2}{5.6}$ , or 1.46.

Clearly, then, in this case the more exposed portions of the negative receive more liberal intensification than the less exposed parts.

Now, this is obviously desirable in the case of an over-exposed, flat negative; but with an under-exposed, harsh negative we require an intensifier which will give us the greatest addition of density in the dark shadows, or least dense parts. For a properly exposed but insufficiently dense negative we require even intensification throughout, so that at any point  $I_N = k$ , where  $k$  is some constant.

The intensification of process (half-tone) negatives is usually carried out with mercury and ammonia, but mercury and sodium sulphate is obviously preferable, as we get with it very little density in the blacks and an actual cutting out of the faint portions, so that the dots are cleared in the reblacking; has yet to be ascertained whether thiosulphate prevents the corners of the dots from joining where desired, but this could be adjusted by the use of a suitable diaphragm in the exposure of the plate.

The foregoing remarks indicate that special attention is required in the selection of an intensifier suitable for under-exposed, harsh negatives, which will favour the deep shadows and have little effect upon the high-lights; that mercuric chloride and sodium sulphate form an excellent intensifier where an even—i.e., proportional—increment is required for each tone in the negative, provided that sufficient time be allowed for bleaching; and, finally, that by reblacking with thiosulphate it is easily possible to reduce the weakest tones in density whilst intensifying the high-lights, and that therefore this method is suitable for the intensification of flat negatives. Ammonium thiosulphate is preferable to the sodium salt.

The next chapter will treat more particularly of intensification with chromium and uranium.

T. THORNE BAKER.

## RETOUCHING LANDSCAPE NEGATIVES.

It frequently happens that landscape negatives are most disappointing owing to numerous eccentricities of varying or unsuitable light, wind, moving figures, etc., yielding results undesirable in the extreme. And whilst many spend a vast amount of time endeavouring to atone for the caprices of fate by chemical manipulation, is it not a wonder that so few place their landscape negatives upon the desk, and with pencil, stump, and knife engrave their knowledge of art upon the luckless film?

A few weeks ago the B.J. published some sinister remarks extracted from *T.P.'s Weekly* (vide page 18) about "Photographic Artists"! in which the term is ridiculed on the ground of Ruskin's definition of art, viz., "Human labour regulated by human design."

Now, the veriest tyro will agree as to there being plenty of the former in a photographer's work; but surely it is a fact that the latter is neglected to a large extent. Yet I venture to submit that, notwithstanding "faking" is a very ugly name, it does, and will, aid the photographer immensely in proving that his craft is an art after all; and, personally speaking, I like to

see the work of a man who is not only an "artistic photographer," but a "photographic artist" as well, for then he will not only choose and arrange his subject with artistic ability, but the resultant picture will have lost its mechanical or so-called "photographic" appearance.

The chief defects to be looked for in landscape negatives from the negative artist's point of view are:—Halation: Too much or too little intensity of lights or shadows; lack of clouds in landscape or through over-exposure of sky; moved figures and trees; undesirable loss of detail through haze; spots, light streaks from faulty dark slides; fog; imperfect lighting of subject, etc. All these defects can be more or less remedied by skilful handwork upon the negative. The order of such work should be: First, knife work; secondly, rubbing down; then fine pencil work on the medium film, and "splatter" work (if any). Then, after varnishing, stump pencil and brush work, matt varnishing on back, puttying, etc.

The knife will be chiefly required in removing specks, harsh lights on leaves, and for sharpening up moved figures. In doing the latter cut away the doubled outline on the denser portions,

t in with light touches such shadow detail which has  
arranged by the movement.

well, on commencing work, to decide concerning the  
of lights and shadows, and obliterate or subdue any  
irritating patches of light with the knife, or by rubbing  
The latter process (described recently in an article on  
etching Negatives of Interiors") will be used to remove  
lation, and to reduce hard lights and streaks of light  
g the negative through using a faulty dark slide. The  
is a very difficult thing to rectify, and whilst it is best  
rate upon the broader patches with alcohol and tripoli,  
narrower portions should be negotiated with a somewhat  
indiarubber charged with dry tripoli powder. However  
ly the streak may be removed, it is more than likely that  
amount of pencilling and stump work will be required  
afterwards to remove all trace of it.

Attacking hard lights full consideration must be paid  
ly to their intensity, but also to the range of gradation  
highest light to deepest shadow, and it is in little points  
ese that a dual knowledge of the art and science of photo-  
g manipulation becomes more fully necessary. For he  
be an artist who would retouch successfully a difficult  
ape negative, and, indeed, he must be more. He must  
photographer to understand just what to do, so that he  
es a "photographic artist," whether the "knights of the  
" like the term or not. The artist will, therefore, from  
points of view, allow his knowledge to direct him in  
ulating these masses of light and shade. After reduction  
en satisfactorily accomplished rub medium over the film,  
pon it pencil up all detail which needs strengthening,  
such matter as may be desired and conveniently produced  
pencils, which should be sharpened in two ways—a round  
oderately fine point, similar to that used for ordinary  
g purposes, and a flat-edged chisel-shaped one, the latter  
specially useful for putting in detail in foliage.

operate on the trees successfully observe their nature  
cally, and use the necessary form of touch to depict them,  
would in making a pencil drawing; only, remember you  
orking upon a negative, and not a positive. Sometimes  
ill find it convenient to use the broad and sometimes the  
w surface of the chisel-edge (pointing downwards) so as  
ble you to make broad or narrow touches. Approximately,

for oak, beech, and elm trees use the broad edge, and for fir,  
ash, chestnut, larch, pollard, willow, and yew use the knife-  
edge. Whilst probably the round-pointed pencil will be most  
serviceable in making the touches for birch, silver birch, weep-  
ing willow, and poplar trees.

### Splatter Work.

Splattering is a method of applying splashes of paint to  
lighten portions of a negative, or to represent shingle, stones,  
flowers, snow, etc. To apply, first lay the negative almost flat  
on a table, but inclining slightly towards the operator. Cover  
every part not requiring to be splattered with bits of paper.  
Then take a fine bristle nail or tooth brush, which, after being  
dampened, has been lightly charged with liquid indian ink,  
indian red, or "photopake." Then, holding the brush over  
against the negative, bring the teeth of a small-toothed nursery  
comb smartly over its surface in the direction of the operator,  
when a spray of splashes will migrate from the brush to the  
negative. When the work is applied over grass it will, with a  
little subsequent pencilling, give the appearance of flowers, of  
shingle if applied over paths or roads, or of waterweed and  
lilies over water. Some skill is needed to cause the smaller  
splashes to be deposited over the parts of the scene farthest away  
from the camera, and the larger ones in the foreground.

Before proceeding to varnish the negative it may be useful  
to knife in some herbage, water-reed, or water-ripples to com-  
plete the harmony of the scene. After varnishing with flattening  
varnish rub down and stump up the high-lights and shadows  
where necessary, finishing with pencil or brush work, and put-  
ting in lights over knifed portions, or, still further, working up  
trees and herbage so as to bring out from the rest of the subject  
such parts as seem (from an artistic standpoint) to need it.

When all has been done on the film it is seldom necessary  
to apply yellow putty or matt. varnish to the back of the nega-  
tive; but it is obvious that, should it be desirable, much addi-  
tional help can be rendered by such means.

I have said nothing about treating skies and putting in clouds,  
for this must be reserved for a future occasion.

In conclusion, it may be mentioned that many find actual  
brush work on the negative an additional and valuable aid in  
converting mechanical impressions into pictorial effects.

ARTHUR WHITING.

## BRITISH PICTORIALISTS THROUGH AMERICAN SPECTACLES.

isms, or, we suppose we ought to say, appreciations of the  
tions in the Little Galleries of the Photo-Secession occupy  
deal of space in our American contemporaries, where a remark-  
evolution is discernable. The scoffers now applaud and admit  
an almost surprising unanimity that Mr. Stieglitz has  
shed over all opponents, and though everyone may not see eye  
with him in art matters, no one questions the sincerity of his  
claim and the consummate skill with which he has organised  
public exhibitions of pictorial photography. In the "American  
our Photographer" we find a brief description of the present  
es in Fifth Avenue, in which the series of Secession Exhibitions  
ing held.

Little Galleries in New York consist of three rooms, all hung  
neutral burlap, and containing a few simple but effective  
ations of oak leaves and flower or grass sprays in vases. On  
alls the mounted prints are disposed in a single row under plates  
ss held in position by small tacks. The whole effect of extreme  
city sets off the pictures to great advantage.

he same issue of our contemporary appears a series of notes  
work of English pictorial workers who have shown in New

The opinions of the writer, "Roland Rood," will doubtless  
ad with interest if not with a certain amount of amusement  
udents of pictorial photography in this country:—

### J. Craig Annan.

The scientist is a man to whom nature does not speak. He must  
go to her, and with labour, cunning and infinite patience wrest from  
her her secrets. His function in life is dissecting and defining; his  
passion, discovery. When he has realised his passion and under-  
stands the nature of the cause or effect he has been searching for,  
his interest ceases and he turns in another direction. He is said  
to be inartistic in temperament; this is not so: he is merely un-  
artistic; and this as a necessary corollary to his composition. The  
artist is content to spend his life reiterating the same truth and in  
the end succeeds in doing it in such a way as to be generally intelli-  
gible and to charm; the scientist states each truth but once, and as  
his interest is absorbing knowledge for his self-satisfaction, he takes  
little pains in making his statement other than intelligible to him-  
self and a few of similar mind. When the scientist paints, his  
pictures, although all different from each other, and although all  
exemplifying some law, are uninteresting, because he has only  
appealed to himself. When, however, the scientist, in addition to  
the above repertoire of qualities, is possessed of penetrative imagina-  
tion, he becomes a most unusual being. Instead of having to attack  
nature bit by bit to read her, he is able almost intuitively to seize  
the truth, and, being an analyst, understand it when seized. He is



also able to understand human beings and thus explain the truth to them.

Such a man (the scientist with imagination) is J. Craig Annan, and his eighteen prints at present being exhibited at the Photo-Secession exemplify my definition. They are all different from each other, and literally almost seem the work of so many different men. To give a general description of their most characteristic traits is impossible; it would require eighteen different descriptions. As an exhibition, of course, such a combination is slightly distressing: no sooner is the visitor attuned to one mode of thought than he is thrown into another. The catalogue of the Photo-Secession speaks of Annan as being "one of the first of the living men to attract universal attention by the excellence of his work and by his spirit in the evolution of the photographic movement." And it adds: "He was one of the founders of the Linked Ring and is generally recognised as the strongest link in British photography."

**Frederick H. Evans.**

A sphere is a body every point of whose surface is at an equal distance from a point within called the centre. A sphere is at the same time the most perfect and the most incomplete of all bodies. It is the type of absolute symmetry, regularity and unity, but also of monotony. The conception of variation, rhythm and harmony cannot be attached to a sphere—only that of perfection. A sphere

has the advantage over all other bodies in that it is the most comprehended. Start out from any point on its surface, in any directions are alike. From any given point all the rays are identically the same as from any other point. The only difference in spheres is that some are larger and some are smaller.

Mr. Evans, honorary secretary of the Linked Ring, is a man of great artistic power. After having seen one of his thirty prints of architectural subjects, being now shown at the Photo-Secession, one has seen all the possibilities of the art. They vary from each other in size, it is true, but otherwise are the same. The subjects are all different, but the pictures are all perfect. They are all perfect. The exposures have all been exact, the developments equally exact. The printing likewise. Every detail, down to the minutest touch, is also perfect. All possibility of irregularity and consequent harmony has been eliminated. They are the result of the most deadly exact calculation, but such are incapable of arousing in the spectator any other feeling than that of admiration for their spherical perfection. For minutes I stood benumbed before them. More I cannot say, it is impossible to criticise perfection.

In conclusion I wish to congratulate Mr. Evans on his achievement, thought, ever circling around the centre, never receding, approaching, always returning on itself, logical perfection of physical expression.

## CERAMIC PHOTOGRAPHS.

LIKE many another beautiful process, the photographic enamel or ceramic has enjoyed but little popularity, and probably many of the younger generation have never worked one of the processes or even seen a specimen of the result. The recent publication (in translation) by Messrs. Liffé of a French work on the subject may draw attention to technical ceramic methods, though it seems a miniature of any kind cannot hope for any warm welcome just now. Nevertheless, it may be worth while to reproduce here, from our contemporary the "Photo Era" the directions for the iron "dusting-on" process, which has the advantage of others to which it is allied that the negative is printed from direct without the interposition of a positive transparency.

Of the many purposes to which photography can be applied the production of ceramic photographs is one of the most beautiful and, at the same time, one of the most useful. By its aid pictures of any colour or combination of colours can be produced on porcelain, and, by using suitable colours, also on glass. The objects to be decorated may be of any shape, although the photographs are most easily applied to flat or very slightly convex surfaces. It is evident that portraits, landscapes, and also exact copies of pictures can be reproduced in this manner. The process is eminently suitable for the production of miniatures.

### Ceramic Processes.

Ceramic photographs can be divided into two great classes, namely, those produced with ordinary pigments, as, for instance, by the carbon process (which, of course, cannot be vitrified and do not withstand the action of water), and those produced with ceramic colours, or with the precious metals, such as platinum, gold, etc., and which must be burned in. They are thus vitrified and become part of the ware. These pictures resist the action of all acids, except hydrofluoric, and also the action of the atmosphere, being, in fact, as permanent as the ware itself. The latter group can again be subdivided into two groups—i.e., the "substitution process" and the "dusting-on process." The "dusting-on process" can be carried out with (1) salts of chromic acid, (2) salts of iron. Of these processes, only the latter, employing salts of iron, will be described here.

This process possesses the advantage over the "dusting-on processes," employing salts of chromic acid, that a diapositive is not required, the printing being accomplished with the negative.

It is based on the fact that when a solution of ferric chloride of suitable strength is poured on a glass plate and dried in the dark a skin is formed, which is not hygroscopic. When this skin is exposed to sunlight the ferric chloride is reduced to ferrous

chloride by the action of the light. Since ferrous chloride is hygroscopic, it attracts moisture and becomes sticky, so that the ground powders will adhere to it. It is evident, since the ferric chloride is reduced by the action of the light and is thus rendered hygroscopic, that a negative must be used to print from. This is an advantage, because it saves the time and labour required to make a diapositive, necessary in the other "dusting-on processes."

### Iron Dusting-on Formulæ.

The chemicals required are cheap and readily obtainable. Several formulæ for preparing the solution, of which the sensitive solution is made, are in use. Of these, Poitevin's and Obernetter's will be given:—

Poitevin's Formula.			
Ferric chloride .....	10 gms.	154 grains	
Tartaric acid .....	5 gms.	77 grains	
Water .....	100 c.c.s.	3½ ounces	

Obernetter's Formula			
Iron citrate .....	10 gms.	154 grains	
Citric acid .....	5 gms.	77 grains	
Concentrated solution of ferric chloride .....	2 gms.	31 grains	
Water .....	100 c.c.s.	3½ ounces	

Dissolve the substances in the water; bring to a boil, cool, and filter.

After having carefully cleaned some glass plates (slightly larger than the required picture), and having prepared the solution according to one of the above formulæ, the process is carried out as follows:—

One of the clean glass plates is held in the left hand and a pool of the sensitive solution is poured on it, near the lower right-hand corner; the plate is then tilted, so that the pool spreads over the plate, being allowed to flow, first from the lower left-hand corner to the upper left-hand corner, thence to the upper right-hand corner, and finally to the lower right-hand corner. The excess is then allowed to run off the plate, at the lower right-hand corner into a clean bottle. This solution can be used again after filtering.

After the plate has been coated it may be put aside to dry spontaneously in the dark, or it can be dried by the aid of heat of a stove or over an alcohol flame, in a room illuminated by artificial light, or very diffused daylight. The two latter methods of drying are preferable.

### Printing.

When the plate is dry and while still warm it is put into the printing frame on the negative to be printed. Generally the film

of the prepared plate is placed in contact with the film side of the negative. By this method all the details of the negative are reproduced. If it is desired to produce broad, sketchy effects, the negative is reversed, so that the glass side of it is in contact with the film side of the sensitive plate. In order to produce the same effect a sheet of thin white tissue or tracing paper may be placed between the negative and the plate, but this method increases the time required for exposure.

The time of exposure varies, depending on the opacity of the negative and on the light. With a negative of medium opacity an exposure of about seven minutes in direct sunlight, or about one hour in good diffused daylight, is generally sufficient.

#### Development.

For development the plate is taken out of the print-frame and placed on a cold surface, where it is allowed to remain for several minutes. This treatment is specially recommended to be used in warm weather, in summer, and when the picture was printed in sunlight. For the development of the picture a small quantity of finely-ground ceramic powder colour, of the desired colour, is dusted on the plate and carefully spread, by a motion of a wide, soft brush. This must be done carefully, colour being added from time to time, as required. By this method the picture is slowly developed. When the process is complete—that is, when all the details are clearly visible—the excess colour is carefully brushed off the plate. If the plate was over-developed the development will be complete in about three minutes. It is well to remember that the picture becomes somewhat over-developed in firing and to develop it accordingly. If the plate is over-developed it develops too rapidly, and the colour also adheres to the plate; if under-exposed, the image will not take the colour properly—i.e., the colour will only adhere to those portions representing the deepest shadows. It is essential that the air of the

room in which the development is carried out is not entirely dry; it must contain a certain percentage of moisture. If, after removing the plate from the printing frame, it is breathed on, then the development can be carried out at once.

The picture being developed, it is fixed by pouring a 2 per cent. solution of plain collodion over it. The collodion is prepared by dissolving 2 parts by weight of gun-cotton in a mixture consisting of 50 parts by weight, each, of alcohol and ether. After the collodion has set, but before it has become dry, cut the film to the required size all around the picture with a penknife, and plunge the plate into a tray of water. This will loosen the collodion film, to which the picture is now attached, from the glass. The film is now carefully floated off the glass and washed out well.

The picture is now ready to be transferred to the object to be decorated. For this purpose the object is put into the tray of water containing the picture and the film carefully floated on, in the required position. With the aid of a soft brush this operation is easily carried out. Care must be taken to have the picture facing the right direction, and to avoid wrinkles. They can be smoothed out, by the careful use of the wet brush, as the object is lifted out of the water. This having been accomplished satisfactorily, the object is set aside to dry spontaneously. When thoroughly dry it is ready for firing.

Any of the ceramic powder colours on the market can be used, provided they are finely ground. For decorating porcelain, over-glaze porcelain powder colours must be used; for glass, glass powder colours. In regard to the choice of colours, it will be found that any of the blues, such as royal, delft, or old blue, produce good results. Deep red brown, which is more a brownish red, violet of iron, black, as well as the dark browns, such as chestnut, bitumen, Vandyke brown, and sepia also produce good results.

H. C. TER MEER.

## THE WAGES OF PHOTOGRAPHIC ASSISTANTS.

THE BRITISH JOURNAL OF PHOTOGRAPHY, dated September 3, 1897, set up a comparison between the general rate of wages of the years 1883-6 and 1897. During 1905 I compiled from the advertisement columns of the BRITISH JOURNAL OF PHOTOGRAPHY, and from information supplied by assistants and employers a record of the current rate of wages, and as this topic has recently been raised in the columns it may not be without interest to make a further comparison between the rates of the former periods, and those of the present time.

In my paper of 1897 the wages paid to assistants were divided into three classes, it being impossible to fix any uniform or standard wage. The average for these three classes worked out as under:—

#### COMPARISON OF WAGES 1883-6 AND 1897.—PER WEEK IN SHILLINGS.

	1883-1886.			1897.		
	1.	2.	3.	1.	2.	3.
Operator and Retoucher .....	70	60	30	60	35	25
Retoucher .....	84	60	40	60	40	35
Operator .....	35	30	25	63	30	20
Assistant Operator .....	30	25	20	30	25	18
General Assistant .....	80	25	20	30	25	22
Receptionist .....	80	25	21	35	30	25
Printer .....	18	15	10	30	25	10
Enlarger .....	50	—	—	50	40	25
Manager .....	—	—	—	16	15	10
Printer .....	—	—	—	18	12	—

The variation in rates between these two periods is not very marked; the chief differences being a fall in the wages of operators, and a rise in the wages of the first and second classes, and a decided rise in the wages made to a first-class receptionist. The other assistants remained in almost the same position.

Proceeding to the rates for 1905 my statement becomes as follows:—

#### WAGES IN 1905.—PER WEEK IN SHILLINGS.

	Rates by Assistants.			Rates by Employers.		
	1	2	3	1	2	3
Artist .....	65	60	55	100	70	60
Operator (Studio) .....	84	40	25	80	35	25
„ (Press) .....	60	—	—	60	30	20
„ (Commercial) .....	140	100	80	—	—	—
Operator and Retoucher .....	63	30	25	70	35	25
Retoucher .....	42	30	20	40	25	20
„ and B & W .....	50	30	25	30	25	—
Assistant Operator .....	50	30	20	30	25	21
General Assistant .....	45	25	20	40	25	18
Enlarger .....	42	—	25	—	—	—
Printer .....	35	25	21	30	25	20
„ (Bromide) .....	35	30	25	30	25	21
„ (Carbon) .....	35	—	—	63	42	—
Receptionist .....	80	25	6	—	—	—
Mounter and Spotter .....	18	14	10	15	—	—
Improver .....	21	15	10	18	15	10
Apprentice (Premium) .....	—	—	—	£75	£10	£40
Manager (Working) .....	50	40	25	35	30	25

These rates were collected, and averaged, without any consideration of the final result, and until they were tabulated it was not seen how closely the figures given by employers and assistants agreed. This would indicate that they may be relied on for accuracy. The standard of employers is quite up to that of the assistants, in several instances being much higher.

Compared with the table for 1883-6, and 1897, several important changes are noticeable. The list of workers has been extended to include those, now recognised as specialists, who, even in 1897, had no separate existence, i.e., the press operator, bromide printer, and others. This separation always follows the advance of any industry.



In the early stages one man will undertake a multiplicity of duties, but as the trade expands it becomes possible to divide these amongst several workers. New processes, and fresh applications of old methods also increase, and thus, in place of the all-round man, we have the studio, press, out-door, and commercial operators. The fact that such a division of duties has become necessary, is, in itself, evidence that photography has progressed since 1897.

Another point brought out is that the operator, artist, and every worker of special ability, are much better paid than in 1897, the rates being equal to, or more than, in 1883-6. An artist can now command a salary of £5, whereas, in the previous years, £2 10s. was considered enough. The operator in all departments has recovered the loss in wages which was evident in 1897 having now come back to the 1883-6 level. The photo-mechanical operator is at present the most highly paid of all photographic assistants, that is, if the figures given by assistants can be taken as a correct valuation of the rate accepted by employers. I do not think, however, that these high wages will be long maintained. During the last five years this branch has grown rapidly, and, in consequence, the number of men having a practical knowledge of the work is limited, the supply of experienced men not being equal to the demand. When things settle down these high rates can scarcely be paid by employers. The photo-mechanical operator thus occupies a unique position, hence his rate of pay cannot be taken as a standard for other workers in branches where the competition is more severe.

With the above exceptions the rate of wages shows but little movement since 1883-6. In the first class there is on the whole a marked advance, in the second and third a distinct fall. To assistants the moral of this comparison, extending over twenty years, is obvious. It proves beyond a doubt that good wages are regulated by the possession of special ability. It is quite useless to wait for the time to rise of their own accord, to depend on long service, or to expect an increase by reason of age and experience. What the assistant has to do is to increase his skill in order that he may rise from second and third class into the first. Once acquire this special ability and he becomes independent of the general rate of wages, and employers who are willing to engage his services at the highest rate.

Taking the seven chief workers in a photographic business, and summing up the value of their wages, per week, in 1905, it compares with the former periods as under:—

	1883-6.	1897.	1905.
Class I. ....	397 Shillings	308 Shillings	320 Shillings
" II. ....	240 "	210 "	195 "
" III. ....	166 "	155 "	145 "

Here again it is evident that the expert man is steadily improving his position, whilst the less skilled worker is as surely losing ground.

JOHN A. RANDALL.

## THE ACTION OF THE RELATIVE WEIGHTS OF ALKALI AND REDUCER.

THE experiments in the preceding paper (see p. 246) were repeated:—

1. With the same proportions of alkali (corresponding to 1.75 gm. of caustic lithia per litre) and with one-third the quantity of reducer and sulphite.

2. With the same proportion of alkali, and double the strength in reducer and sulphite.

3. With one-third the proportion of alkali and one-third the quantity of reducer and sulphite.

Under these conditions the numbers in the previous tables require some notable modifications.

With eikonogen, metol, paraphenyldiamine, metaquinone, metol and hydroquinone, par-amidophenol and adurol, the differences were found to be insignificant.

We have tested the reducing power of various developers containing equimolecular weights of the reducer with the addition of the same quantity of a caustic alkali—soda, for example. These developers have very different reducing powers.

We have recognised that it is possible to make with equimolecular weights of various reducers developers possessing the same energy, by adding variable quantities of caustic soda or carbonate of soda.

The necessary quantities of the alkalis to obtain this result are given in the following table:—

Names of the various developers in order of the decreasing reducing powers.	Equimolecular weights of the reducer in the like of developer containing 45 gms of anhydrous sulphite.	Caustic Soda.		Carbonate of Soda.	
		Relative weights of NaOH to produce the same reducing power. That for metoquinone being taken as unity.	Reducing power of the developers compared, glycidol being taken as unity.	Relative weights of Na <sub>2</sub> CO <sub>3</sub> to produce the same reducing power. That for metoquinone being taken as unity.	Reducing power of the various developers, glycine being taken as unity.
Metaquinone .....	12	1	4.2	1	74
Metol-hydroquinone .....	12	1.25	3.33	4	18.5
Paramidophenol .....	11	1.25	3.33	inc. sol. *	—
Paraphenyldiamine .....	11	1.66	2.5	spcl. case†	—
Hydramine .....	11	1.66	2.5	inc. sol. *	—
Picro .....	12.6	1.66	2.5	11	6.7
Hydroquinone .....	11	2.08	2	34	2.3
Picrocatechine .....	11	2.3	1.3	40	6.1
Metol .....	17	2.3	1.3	10	7.4
Eikonogen .....	26	2.3	1.3	11	6.7
Edinol .....	14	2.8	1.5	32	2.3
Adurol .....	14.5	3	1.43	17	4.1
Glycin .....	16.5	4.2	1	74	1

\* Incomplete solution.

† Special case.

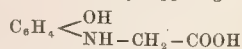
An examination of this table enables us to draw the following conclusions:—

1. The caustic alkalis may be substituted one for the other, all developers, in equimolecular weights.

2. With the alkaline carbonates, not only are the quantities to be used much greater than the calculated equimolecular weights of the caustic alkalis, but also the various alkaline carbonates are not proportional to their own molecular weights.

Potassium carbonate, which has a greater molecular weight than the soda salt, must always be used weaker whilst the quantity of caustic potash to be used instead of soda must not be more. The proportions of alkaline carbonates are practically the same with the majority of developers, but notably differ with hydroquinone, picro, glycine, and paraphenyldiamine. Hydroquinone, the isomer of picrocatechine, requires about three times the quantity of alkaline carbonate that the latter does. Finally, glycine and paraphenyldiamine are exceptions to the rule. As regards the former we have already pointed out that less than 1 gm. of caustic soda to 2.5 gm. of glycine gives a very weak developing power, notably inferior to that obtained with the alkaline carbonates. Above this quantity the caustic alkalis are more active than the carbonates.

This anomaly may be explained by supposing that in glycine



the carboxyl is first converted into a salt by the caustic, and that the salt formed is not decomposed by hydrobromic acid, whereas carbonate of soda does not produce this salt in the cold, and can therefore act directly on the hydrobromic acid. If glycine is treated with carbonate of soda in the cold there is no evolution of carbonic acid. The quantity of caustic soda which exercises the normal reducing power is a little more than that required for salification. These facts support our hypothesis.

In the case of paraphenyldiamine these numbers are much higher and correspond to about thirty times the equimolecular weight, whilst with the caustic alkalis comparatively small quantities are sufficient. This anomaly may be explained by assuming that paraphenyldiamine, which is a strong base, absorbs the hydrobromic acid before it can decompose the carbonate of soda, and that the bromide formed is not decomposed in the cold by the alkaline carbonates, whilst it is by the caustic alkalis. In support of our hypothesis, it was found that the hydrobromide of paraphenyldiamine did not evolve carbonic acid in the cold in the presence of carbonate of soda.

With the alkaline substitutes different numbers are obtained,

which the greater number, those of trioxymethylene, aldehyde and tribasic phosphate, are about the equimolecular quantities calculated from the caustic alkalis.

Acetone gives very variable numbers, from 5 to 20 times the equimolecular weight, calculated from caustic soda. With certain developers, the reducing power diminishes considerably when a certain quantity of acetone is exceeded. The same phenomenon is observed with trioxymethylene.

In examining the experiments when only just enough alkali was used to neutralise the hydrobromic acid given off in developing a 13 x 18 plate, it was seen that this small quantity of alkali was sufficient to develop the latent image in an excess of hydroquinone; on the other hand it was quite insufficient if the weight of the hydroquinone corresponded exactly to the quantity of hydrogen necessary to form the hydrobromic acid set free. In this case a weak reducing action could be produced by considerably increasing the quantity of the alkali.

In examining the quantity of caustic alkali and alkaline carbonate which produced the maximum developing action for the various developers, it will be seen that the quantities are very different for the same proportions of reducers having equal molecular weights or nearly so, such as hydroquinone, pyrocatechine, par-amidophenol and paraphenyldiamine. These quantities of the alkalis differ notably, with the exception of hydroquinone, from those which can exactly saturate the hydrobromic acid formed with the hydrogen of the reducers, supposing that each molecule of the reducer furnishes  $H_2$ .

Finally, the preceding experiments prove that one can obtain the same reducing effect with equal molecular weights of different reducing agents, but by adding variable quantities of the same alkali, either caustic or carbonate, the order in which the reducers may be classified according to the increasing quantities of alkalis necessary to produce the same effect, differs considerably according to whether one uses the caustic or alkaline carbonates. In both cases it is metoquinone which requires the least and glycin which requires the most alkali.

This, then, is the order in which one may classify the various developers according to the increasing quantities of caustic alkalis which they require: Metoquinone, metol-hydroquinone, par-amidophenol, paraphenyldiamine, hydramine, pyro, hydroquinone, pyrocatechine, metol, eikonogen, edinol, adurol, and glycin.

To summarise, these different results prove that the alkalis or their substitutes play a role in development which is much more complex than is usually supposed. One cannot but admit, in fact, that a substance the purpose of which is primarily to saturate the hydrobromic acid set free in development by reduction of the silver bromide, cannot be replaced equimolecularly by different saturators of hydrobromic acid. At the same time one cannot deny that the reducers require variable quantities of the alkalis and their substitutes to produce the same reducing effect; these differences apply at the same time to two isomeric substances, such as hydroquinone and pyrocatechine, which the recent hypotheses do not explain more satisfactorily.

A. AND L. LUMIERE.

#### LENS-TESTING METHODS.

At the meeting of the Optical Society on March 29, at the Northampton Institute, Clerkenwell, Dr. Walmsley in the chair, Mr. S. D. Chalmers gave an interesting lecture on the subject of photographic lenses and their aberrations. The lecture was followed by a demonstration of the methods employed at the institute for determining these aberrations. Of these, two—one a visual and the other a photographic method—call for special notice.

In the visual method a special optical bench, designed by Messrs. Beck and Chalmers, is employed. In the original apparatus of Messrs. R. and J. Beck a lens-holder is adapted to slide along a steel rail some 50in. or 60in. in length. The same rail also carries a carriage upon which a second transverse rail is mounted. Upon this second rail an examining microscope is mounted to travel in a direction at right angles, of course, to the main rail. The lens to be tested is screwed into the holder, and the image of the test object produced by it is examined throughout a horizontal line extending through the image by means of the examining microscope, which is racked along the transverse bar for the purpose. In the modified apparatus employed at the Northampton Institute the

necessity for the transverse bar has been dispensed with in a very ingenious way. The lens-holder, as in the original form, is adapted to rotate about an axis passing through the back nodal point of the lens. The microscope which is mounted to slide in guides over and collinear with the main bar is so connected up to the lens-holder that when the latter is rotated it moves automatically along its slide the necessary amount to keep points in the ideal focal plane of the photographic lens in focus. The object to be observed is placed in the focal plane of a distant collimator. The apparatus is first adjusted so that the image of the distant point source, say, is projected on the axis of the photographic lens to be tested and in the centre of the field of the observing microscope. If the lens-holder be then slowly rotated, the image observed, if the aberrations present are of the usual kind, passes out, and it may be into focus again, and at the same time moves backwards and forwards in a horizontal direction in the field of view of the microscope. These longitudinal and transverse deviations can be measured with suitable scales for any inclination of the lens to the axis of the microscope.

The second or photographic method described by Mr. Chalmers is a modification of the well-known Hartmann method. The modification consists mainly in the application of graphic methods of analysis to the photographic results obtained. In the Hartmann method of lens-testing, as is well known, a perforated diaphragm is used with the lens to define a number of very small pencils, and then, by means of a photograph taken at various distances from the lens, the intersections of these pencils with a number of transverse planes are determined. From these photographs the path of each pencil is accurately determined with respect to three axes mutually at right angles to one another. Mr. Chalmers places the usual perforated diaphragm in the stop plane of the lens, and then, by means of a beam of parallel light, takes two photographs—one just within and the other the same distance without the focus of the lens. In the case of an ideal lens these two photographs, after one had been rotated through an angle of 180deg. in its own plane, would exactly superpose the discs or dots on one on those of the other. When, however, as is usually the case, some of these pencils defined by the perforations in the diaphragm, do not intersect in the focal plane, this superposition becomes impossible, and the measure of this departure from superposition is a measure of the aberration of the lens. This superposition is effected graphically in the following way: One of the photographs is placed on the object stage of a microscope and its magnified image projected by means of a camera lucida on to a sheet of paper, upon which dots are made corresponding to the positions of the small discs in the image. The second photographic plate, after having been properly oriented on the stage of the microscope, is then treated in the same way and its image superposed, so far as possible, and drawn on that of the first plate. The second series of points obtained may be differentiated from those of the first by means of small crosses. In this way magnified images of the two photographs are superposed, and the distance between corresponding points becomes a measure of the aberration. Pairs of photographs are taken and treated in this way for inclinations of the incident beam of 0, 5, and 10 degrees, etc.

#### DEVICE FOR DEVELOPING CORONA PHOTOGRAPHS.

ONE of the great difficulties encountered in photographing the solar corona during total solar eclipses (writes Mr. C. P. Butler in "Knowledge") is caused by the very great range in intensity of the object; in most cases it is necessary to expose many different plates for carefully arranged times of graduated duration, so that we may obtain records of all parts, from the intense inner corona to the delicate tracery of the outer streamers. If a photograph exposed for any considerable time is developed normally the inner corona is generally so dense by the time the outer details are brought out that it is unprintable.

Numerous suggestions have been brought forward for getting over this difficulty, the most successful hitherto being that of Burckhalter, who arranged a carefully calculated series of rotating screens over his photographic plates during exposure, so that the outer regions received more than the inner parts. These were partly successful in that all parts of the corona could be obtained of printing density



on the same negative, but the artificial lines produced by the occulting screens were objectionable. Recently a method has been proposed by Mr. T. Thorpe, which appears to give promise of success. Instead of developing the negative in the ordinary way, it may be mounted on a turntable, and centred so that the centre of the corona is coincident with the axis of rotation. Then by means of a small funnel or pipette mounted on a radial arm also working on the same centre as the plate, begin the development by allowing the developer to fall near the edges of the plate; afterwards gradually approach the stream of developer from the funnel towards the centre, restraining the developer also if found necessary, as it approaches the over-exposed parts of the inner corona. The centrifugal action due to the rotation of the photographic plate will, of course, prevent any of the developer getting nearer the centre than is desired.

### TACT IN LETTER WRITING.

CONVINCING letters being now part of the machinery of almost every business, the art of writing the right kind of letter is one which men of business must cultivate if they cannot afford to employ a professional for the purpose. It may be to the advantage of some readers if we give a few hints from the current issue of the "Business Man's Magazine," which reaches us for review filled with a series of articles treating of many diverse business themes:—

A good letter makes a sharp impression at the right place and at the right time. A bad letter lessens the impression which may have been created by a first and stronger one. Two weak letters following one strong one will make no impression whatever.

This is what Mr. Cody says:

"Write a long letter to

"A farmer.

"A woman.

"A customer who has asked you a question.

"A customer who is angry and needs quieting down, and will be made only more angry if you seem to slight him.

"A man who is interested but must be convinced before he will buy your goods.

"Write a short letter to

"A busy business man.

"An indifferent man on whom you want to make a sharp impression.

"A person who has written you about a trivial matter for which he cares little.

"A man who wants only a record of a piece of information.

"A person who needs only the slightest reminder of something he has forgotten or overlooked."

### FORTHCOMING EXHIBITIONS.

March 31 to April 10.—Salon of the Photo Club of Nice. Address the Secrétaire-Général, 20, Rue St. Francois de Paule, Nice.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 2 to 7.—Photographic Society of Ireland. Secretary, W. F. Cooper, 194, Clonliffe Road, Drumcondra, Dublin.

April 16-21.—Redcar Photographic Society. Entries close April 9. Secretaries, W. H. Taylor, Esplanade, and J. M. B. James, 4, Elton Street, Redcar.

April 18 to 20.—Southend-on-Sea exhibition. Hon. Sec., J. Archer, 24, Ashburnham Road.

April 18 to 21.—Bolton Amateur Photographic Society. Secretary, T. W. Cross, 27, Latham Street, Bolton.

April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevanthen, Ashcroft, Bushey Hall Road, Watford.

April 27-May 27.—Northern Exhibition (Manchester). Sec., G. M. Morris, 9, Chandos Road, Chelton-cum-Hardy, Manchester.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

## Exhibitions.

### WORTHING CAMERA CLUB.

THE Worthing Camera Club held their first annual exhibition on March 27 and 28, at the Bedford Hall, Worthing, the event proving a greater success than could have been anticipated. Members in particular showed up well, both in regard to number of exhibits and quality of the work: There were upwards of 300 exhibits in all classes. In the open classes eighty-three were frames, and amongst the chief exhibitors were the following:—V. E. Morris, Fred Judge, W. Clayden, Miss Sylvia Cardwell, T. R. Somerford, F. J. Phillips, A. R. Sargeant, Miss K. Smith, W. Farren, Colonel Johnstone, W. W. Palmer, W. A. Walburn, S. G. Kimber, Graystone-Bird, and H. Wormleighton. Fred Judge was represented by three landscapes, all of remarkably good quality, and must have run the winners very close. He took first award for slides. W. Clayden showed his two well-known exhibits, "A Glean of Light," and "Tugging Home," and the former took a bronze plaque. S. G. Kimber was represented by five or six frames, and took chief award—a silver plaque—for one of his well-known architectural studies, and also an hon. mention for his "Riverside Reeds." A. R. Sargeant was represented by two seascapes, both of which have been hung at the Royal. He obtained a bronze plaque for "A Calm Evening." William Farren had both prints and slides of his natural history work. In the Members' Classes Mr. H. Swain took a bronze plaque with the print entitled "The Anglers." No. 132, "Summer," by Mr. W. A. White, was a very nice little woodland scene which was distinctly meritorious in every way, with the plains receding well, and the distance well expressed. This secured the second award. A bronze medal went to Mr. R. Long for No. 114, "When the Sun is Low," a special feature of which was the remarkably soft sky and the true tone value. Mr. Woodward took a medal for "The Breaking Waves Dashed High," No. 120. No. 229, "Mother's Sunshine," by Mr. E. F. H. Crouch, was of purely domestic interest. It, however, represented a child in a very engaging attitude, and the technique was decidedly good. Very different from the one with which Mr. Walter Gardiner gained an award was his No. 225, "Happy Moments," which was an artistic rendering of an old man's head, capably lit, and quite convincing. Mr. W. A. White was awarded the silver plaque for the best three exhibits in the members' class. The loan section was also well represented. Three well-known pictures by A. Horsley Hinton, two by Charles Job, and another by the late H. P. Robinson standing out in prominence. An interesting feature in connection with the exhibition was the excellent illustrated lectures, "Winchester Cathedral," by S. G. Kimber; "Homelife in Birdland," by O. G. Pike, and "Morocco," by A. H. White who also gave practical demonstrations with the aerograph each day.

### WEST SURREY PHOTOGRAPHIC SOCIETY.

THE eighteenth annual exhibition of this Society was held from March 28 to 31 last. The hanging of the pictures had been carried out with much taste and judgment under the direction of Messrs. W. Calder Marshall and H. Creighton Beckett, of the "South London," and a good deal of original and striking work was to be seen. The judge was Mr. A. Horsley Hinton, who made the following awards:—Silver plaque for best picture in exhibition, "A Drifting Mist," by W. G. Rouse. Class I. (pictures by members who have received awards at this Society's exhibitions during the last three years):—Bronze plaque, "Chrysanthemums," by W. H. Goy; bronze plaque, "Old Westminster," by A. Lockett; honourable mention, Mrs. W. H. Goy, V. Nichols, and Dr. H. Pelham Webb. Class II. (pictures by all other members):—Bronze plaque, "When the Day is Done," by B. Gilbert; bronze plaque, "The Bridge," by W. H. Wilshire; honourable mention, F. J. Toms, R. H. Baskett, B. Gilbert, and F. J. White. Lantern slides:—Bronze plaque, "Tugging Out," by F. G. Tryhorn; honourable mention, C. A. Clear, G. W. Coleman, W. H. Goy, and A. H. Butterworth.

## PHOTOGRAPHIC SOCIETY OF IRELAND.

THE annual exhibition was opened on Monday, April 2. The hon. secretary, Mr. Cooper, is to be congratulated on securing a good show. The "Werner" medal is carried off by Mr. Harold Jacob for his "Cathedral Door," a very broad, soft picture, with a good effect of sunshine. The same print also takes the silver medal in the landscape class. Mrs. Mahony takes a bronze medal for a "City Highway," a picturesque view of the Liffey and Custom House. The Rev. E. Vernon Hanson has several dainty landscapes and seascapes, but the titles of the prints in bright white letters on dark mounts are rather distracting. "The Lovers' Walk" is commended.

The Portrait Class is rather weak, as the negatives must not be taken in a professional studio. The silver medal is awarded to Mrs. Mahony for "Hurry and Leisure," a little boy digging in the sand, while a train puffs away in the distance. Mr. A. Ponton takes the bronze medal for a pretty portrait of a "Dutch Fisher Girl."

The Architecture Class is not large, but there is some good work in it, especially Mr. J. B. Anderson's "The Old Pulpit, Lichfield Cathedral," which would, however, be improved by being a little more vigorous.

In the Still Life Class, which is rather a small one, Mrs. Frank Perry takes the bronze medal for a very good photograph of "Poppies," but a great mistake is made in printing in a dull, unpleasant green. It is strange how many good negatives are spoiled by printing in unsuitable colours.

In the Open Class the gold medal was withheld as there were less than one hundred entries. Mr. Arthur Marshall's "Dusty Day" well deserves the silver medal it receives. Mr. Fred Judge secures the bronze for a strong cloud effect over a picturesque church tower, entitled "October." "Through a Courtway," a very bright, delicate street view by A. W. Walburn, receives an extra bronze medal. "Sunshine," by Mr. Thomas Clarke, is commended. It is a capital rendering of sunshine glinting down a rough, whitewashed wall, but it would be greatly improved by reducing the strength of the cast shadow of the little girl standing in the roadway. The best architectural work was shown in the Lantern Slide Class.

The Society would be able to make even a better exhibition if some of the other good workers would support the Hon. Secretary in his efforts to secure a really representative show of Irish work. This year the Society tried the experiment of having only one judge, Mr. Harold Baker. The following is the award list:—

LIST OF AWARDS (Members' Classes).—Class 1.—Landscapes, etc.—Silver, Harold Jacob, No. 2; bronze, Mrs. Mahony, No. 28; Commended, Rev. E. Vernon Hanson, No. 32; Werner medal, Harold Jacob, No. 2. Class 2—Portraits, etc.—Silver, Mrs. Mahony, No. 64; bronze, A. Ponton, No. 65; commended, Mrs. F. Perry, No. 63. Class 3—Architecture.—Silver, J. B. Anderson, No. 101; bronze, T. K. Hackett, No. 97. Class 4—Still Life, etc.—Bronze, Mrs. F. Perry, No. 110. Class 5a—Lantern Slides.—Silver, J. B. Anderson; bronze, H. Pollock. Class 5b—Lantern Slides.—Silver, H. Pollock; bronze, J. B. Anderson. Class 6.—Bronze, Mrs. Sutherland, No. 121. Class 8—Open.—Silver, A. Marshall, No. 162; bronze, Fred. Judge, No. 148; bronze (extra), A. W. Walburn, No. 137; commended, Wm. Clayden, No. 160; commended, Thos. Clarke, No. 139. Class 9—Open.—Silver, W. F. Caldwell, No. 170; bronze, R. Douglas Percival, No. 193. Class 10—Open. Lantern Slides.—Silver, F. G. Tryhorn; bronze, Fred. Judge.

CHEMISTRY in Germany.—Not content with their handsomely endowed schools of chemistry, the Germans are proposing an Imperial Chemical Institute. A large number of representatives of chemical science and of the chemical industry met recently in Berlin to discuss its formation and organization. The chair was taken by Professor Fischer, of Berlin University, who explained how urgently an Imperial Chemical Institute was needed, for neither individuals, nor the University laboratories, nor the laboratories attached to chemical factories were able to solve the great questions that had arisen in the ever-extending field occupied by chemistry. It is estimated that the initial cost of such an Imperial Chemical Institute would be between £100,000 and £150,000, and the annual expenses about £20,000. It is hoped to get financial aid for the project from the Imperial funds.

## Photo-Mechanical Notes.

## Photographing Chinese and Process Whites.

IN the "Photo-Engravers' Monthly" for April, there is an article dealing with this subject, and reproductions showing the difficulty met with by blockmakers when having to handle originals with unsuitable whites. The remedy is pointed out, and consists in the use of a filter of 10 per cent. quinine sulphate. This is stated to make the exposure on ordinary wet plate with enclosed arc lamps three times as long, some enclosed arcs we should imagine may require more, but with open type arc lamps we have found the exposure required to be not more than twice normal. If a dry filter is required, instead of the liquid quinine sulphate, it may be made in the same way as a gelatine colour filter is usually made, taking a saturated solution of Aesculin for the dye, in which the gelatine coated plate is bathed. This will increase the exposure slightly more than the quinine sulphate.

## Process Advertising.

Other firms are following the example set by one or two of the bigger concerns in sending printed matter direct to customers. The Marshall Engraving Company are sending out a large post card containing portraits of the proprietors and the principal men of their staff. The small blocks are effective enough, but the arrangement of the type matter is just a little distracting, and smooth-surfaced cards of the character used are very liable to be damaged in the post.

## Etching Plates.

According to Patent No. 4,764, 1905, the object of a new invention is to etch zinc or other metal plates expeditiously, and so as to produce the maximum sharpness and clearness of the design—further, to subject the plate to a scouring action during etching, and also so as to allow of the inspection of the progress of the work. The plate is placed face upwards, and the etching fluid is allowed to fall on to the face in the form of a rain. Fig. 1 shows a suitable apparatus in

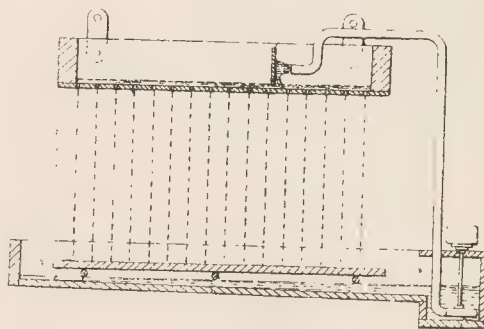


Fig. 1.

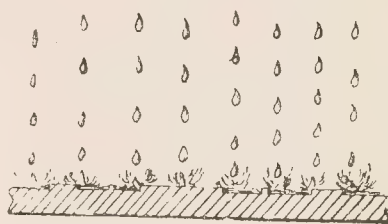


Fig. 2.

which the etching fluid is in the tank at the top, and the plate in the trough at the bottom. The etching fluid can be pumped from the trough to the tank if necessary. Fig. 2 is the enlarged vertical



section of a part of the plate showing the action of the fluid in striking the same. The drops strike the plate with such force and velocity that the deposits formed by the etching fluid are dislodged by the impact of the fluid and the splashing and scouring action due to the rebound completes the separation of the fluid and washes it away. The invention is said to etch all parts equally, and to involve less danger of over-etching small details or lines. William Gardner Thorpe, 30, South Broadway, Los Angeles, California, U.S.A.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between March 19 and 24:—

**CINEMATOPHGRAPHS.**—No. 6,625. An improved device effecting a greater efficiency of light in relation to the periods of rest and movement in changing cinematographic views mechanically. George Robson, "Oowana," Stour Road, Bournemouth.

**COLOUR-PHOTOGRAPHY.**—No. 6,825. Improvements in diffraction colour-photographs and mode of making same. Herbert Eugene Ives, 47, Lincoln's Inn Fields, London. [Date applied for under Patents Act, 1901, 19th October, 1905, being date of application in United States.]

**OPTICAL SCREENS.**—No. 6,881. Improvements in optical screens for photographic and printing purposes. John Henry Smith, 65, Chancery Lane. [Date applied for under Patents Act, 1901, 23rd March, 1905, being date of application in Germany.]

**CHANGING FILMS, ETC.**—No. 6,291. Improvements in the method and apparatus for changing films, plates, or the like, in photographic cameras. Optische Anstalt C. P. Goerz Akt. Ges., 31, Bedford Street, Strand, London. [Dated applied for under Patents Act, 1901, 27th March, 1905, being date of application in Germany.]

**LOCATING DEVICE.**—No. 6,970. A device for finding the location of objects and places on photographs, views, and other pictorial representations without defacing the same. Reginald William Giliard, 22, Redcliff Street, Bristol.

**DEVELOPING APPARATUS.**—No. 7,012. Improvements in photographic developing apparatus. William Albert Edwards and Houghton's Limited, 88, High Holborn, London.

**POSTAL WRAPPER.**—No. 7,019. An improved postal wrapper for photographs and the like. Louis Canesi, 9, Warwick Court, Gray's Inn, London.

**WASHING APPARATUS.**—No. 7,057. Improved apparatus for washing photographic prints, papers, films, and the like. Edgar Marsh Chapman, 56, Ludgate Hill, London.

**CAMERAS.**—No. 7,099. Improvements connected with photographic cameras. William James Lancaster, 11, Burlington Chambers, New Street, Birmingham.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**REDUCERS.**—No. 6,276, 1905. The invention relates to reducing agents with selective action. The claim is for a photographic reducing agent, the use of salts containing cobalt, the nitrite radicle group ( $\text{NO}_2$ ), and potassium, sodium, ammonium or other metals, with or without other acid radicles, in conjunction with an acid such as sulphuric acid. A modified-form of the reducing agent wherein potassium nitrite, sodium nitrite or the like, and a cobalt salt, with or without a salt of ammonium or the like, are used in conjunction with an acid. The use, in conjunction with a cobaltic reducing agent of the type hereinbefore set forth, of a bath of dilute ammonia for the purpose of preventing discolouration or change of colour of the image after the reduction. Harry Edmund Smith, 3, Ezra Buildings, Columbia Road, London.

## New Books.

"Die Photographische Kunst in Jahre," 1905. Halle. W. Knapp, M. 8.

This yearly review of pictorial photography continues to appear, under the editorship of F. Matthies Masuren, whose policy we can heartily approve, in so far as he does not inflict criticism of the photographs upon us, but does his best in the way of reproduction and leaves us to take the work for what it seems worth. Naturally German and Austrian work occupy a large place in its pages, but not sufficiently so to rob the volume of its claim to be international. Practically all schools and countries are represented, either by half-tone reproduction in the text or separate plate illustrations. Such men as Kühn, Henneberg, Dr. Spitzer, Dürhkoop, and Eckhardt figure largely, but the pictorial photography outside Germany is very amply shown by Demachy, Coburn, George Davison, Fredk. H. Evans, Mrs. Coltani, and a number of others. The text is composed of several essays on art topics, an appreciation of some exponents of British pictorial photography, by E. O. Hoppe, and notes on the exhibitions, English and foreign, of the year. The pictorial portion, however, is the *raison d'être* of the volume, and in selection and execution is a work on which the author may be warmly congratulated.

"Vorlesungen über Photographische Optik." By Dr. Alexander Gleichen. Leipzig: G. I. Göschen. Price, 9 m.

This work is practically a series of lectures delivered by the author at the Technical High School of Charlottenburg. Starting with purely elementary definitions, the formation of images is considered, and then the various aberrations discussed: all the mathematical formulæ which enable them to be corrected being given. Some brief historical notes of the details of construction, such as radii of curvature and separation of some lenses, are also included, and the book concludes with some examples of lens calculations.

An invaluable volume to the prospective resident in London has been published by the Homeland Association, Ltd. It is "Where to Live Round London," and describes ninety residential districts to the south and west of London, giving in each case particulars of local rates, price of gas, educational, recreative and railway facilities, and other data which should guide not only the home-seeker but those who contemplate establishing themselves in a district for business purposes. The price of the volume is 1s., and it is to be followed in a few weeks by a companion work dealing with the northern side of the metropolis.

The literary series of the "Practical Photographer," which reaches its thirtieth number with the March issue, is to be published in future at intervals, to be subsequently announced. Its regular monthly appearance is to be replaced by that of what is virtually a new periodical, "The Practical and Pictorial Photographer." This latest form of the "Practical" is to be double the superficial size of the Library Series, and to cost the same—viz., 1s.

We have received the latest handbook of the Homeland Association, which is a guide to the beautiful and interesting county town of Dorset, immortalized by Mr. Thomas Hardy as "Casterbridge," and the centre of the country in which the scenes of many of Hardy's novels are laid. The guide treats fully of the Literary and Archaeological Association of Dorchester.

**EMOLLIENT for the Hands.**—A writer to the "Pharmaceutical Journal" recommends the following preparation for leaving the hands neither sticky nor greasy. It is made in two solutions:—1. Agar-agar, 80 grains; distilled water, 8 fl. ounces; solution of hamamelis, 12 fl. ounces. Allow to stand a few days, with occasional stirring until dissolved, then strain through muslin. 2. Stearin, 360 grains; oil of theobroma, 360 grains; sodium carbonate, 240 grains; distilled water, 12 fl. ounces. Heat these together in a water-bath, stir until chemical action ceases, then transfer into a large jar, and whip up thoroughly with No. 1 solution with an egg-whisk, or in an emulsion machine, until a white, foamy product, and the whole is incorporated. Add perfume *q.s.* Allow to stand fourteen days for air-bubbles to subside, then bottle in wide-mouth screw-cap bottles.

## New Apparatus, &c.

A NEW electric dark-room lamp has been placed on the market by Messrs. A. E. Staley and Co., 19, Thavies Inn, E.C., fitted with the silk light-filters of Dr. Miethe, which we were recently able to review favourably in these columns. The lamp is of square build and carries a light filter in front and on each side, the series providing ruby, yellow, and orange lights, each and all of which can be perfectly shut off by a metal shutter. The lantern is fitted with two incandescent lamps, one inside and one out, and by the movement of a switch on the top of the body the light is transferred from one to the other. White light at will being always a convenience in the dark-room, this accessory should enhance the value of what is apart from it a very convenient and efficient lantern for all kinds of work. The price complete, with three silk filters and ground glass screens, 8 x 6 inches, two lamps, and flexible connection, is £22s.

THE "Renaud" Quick Bromide Printer, made by Messrs. Marion and Co., and recently noticed in these columns on its first introduction, is now issued in two larger sizes, viz., to print from 12 x 10 negatives downwards, price 60s., and from 15 x 12 negatives downwards, 70s. The details of these large size printers are the same save that they are fitted for two incandescent electric lamps instead of one.

A NEW pattern of postcard album reaches our table from Messrs. John Walker and Company, Ltd., Warwick Lane, London, E.C. It consists of a single stout board enclosed in a cover. To each side of the board are attached 13 gummed slips, each of which secures one postcard in place on the moistened edge of the card being pressed upon it. The effect of this arrangement is that the 26 cards occupy the superficial space of four, and yet each is most easily accessible. The album is a highly convenient one, not only for postcard collectors, but for professional photographers desiring to keep at hand specimen sets of their series of cards. The albums, which are attractive in appearance, sell retail at 6d. each.

### CATALOGUES AND TRADE NOTICES.

A SALE is being held by J. J. Griffin and Sons, Limited, at 20-26, Sardinia Street, Lincoln's Inn Fields, prior to their removal to their new building in Kingsway. They have determined to dispose of the whole of their camera and accessories stock, much of which is of 1905 pattern, at very large reductions on the original prices, and for those who like to take advantage of the chance, they are offering special inducements in the shape of the following offers:—Any amateur depositing with them the value of the instrument will receive the same carriage paid, on sale or return for three days. If then he is dissatisfied with his purchase the camera may be returned and the money will be refunded. Any amateur making the necessary application can examine any camera he may select at the local dealer's. All that is necessary in this case is to write to Messrs. Griffin stating what camera is chosen, and the name of the usual dealer, when the camera will be sent down without any charge for carriage. A list of the goods may be obtained upon application, and it is a chance which will be welcomed by many.

MRS. H. P. Ashman, of Bath, advises us that after the 31st inst. her business will be taken over by Mr. Percy Hooper Jones, who will trade as W. Middleton Ashman and Co.

MESSRS. Salmon and Sons, the enlargers, announce their removal from High Street, Acton, to premises at 52, Mattock Lane, Ealing, W., capable of accommodating their increased staff. Messrs. Salmon also submit to us a selection of enlargements representing their regular work, and representing it, we find, to very good advantage. We must especially commend the sepia-toned bromides, which are exceedingly rich in depth and colour.

A SPRING sale which should offer exceptional opportunities for the purchase of apparatus is that of the Stereoscopic Company, which is selling out its stock at 34, Cheapside, to make room for structural alterations of the premises. A line to them will bring the catalogue of the sale.

PROFESSIONAL photographers and photographic dealers who set a proper value on effective window display should make a point of examining the collection of prints on Paget papers which occupies one of Messrs. Houghton's windows in Holborn. Apart from the excellence of the prints, which may be taken for granted, their display is worth study. They are arranged on a four-fold screen of blue-grey arras cloth mounted as a panel in dark wood framing, which is suitably decorated and inscribed. The whole production, which we learn was the work of Messrs. Rogers and Webster, cannot cost very much, and is handsome without appearing gaudy, or in bad taste.

MESSRS. B. J. Edwards and Co. advise us that Mr. J. B. Pettet will in future represent them in the South of England below Northampton.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

April.	Name of Society.	Subject.
6.....	Aberdeen Amat. Photo. Assn.	{ Last Season's Holiday Pictures (Lantern).
6.....	Sutton Photographic Club .....	{ "Enlarging on Bromide." Mr. C. Thwaites.
7.....	North Middlesex Photo. Soc. ...	{ Trip to Hoddesdon.
7.....	Chelsea and District Ph. Soc. ...	{ Excursion to Ruislip.
9.....	Derby Photographic Society ....	{ "Stereoscopic Work." Mr. W. Wilkinson.
9.....	Cripplegate Photo. Society .....	{ "Retouching" (Members' Night.) Mr. H. G. Stollard.
9.....	Oxford Camera Club .....	{ "The Management of Photographic Chemicals."
9.....	Southampton Camera Club .....	{ "Zigo" and Carbon Processes." T. Illingworth & Co.
10.....	Royal Photographic Soc. ....	{ "A New Method of Calculating the Times of Development at Various Temperatures." Mr. W. B. Ferguson K.C., M.A., F.R.P.S.
10.....	Hackney Photographic Society	{ "Some New Photographic Apparatus."
10.....	Warrington Photo. Soc. ....	{ Sale by Auction.
10.....	Sheffield Photographic Society	{ "Apparatus, and its Use." Mr. J. Gilbert Jackson, M.P.S.
10.....	Cardiff Windsor Amat. Ph. Soc.	{ Wellington & Ward's S.C.P. Paper.
10.....	Darlington Camera Club .....	{ "Practical Photography." Mr. S. E. Versé.
10.....	Leeds Photographic Society ...	{ "A Naturalist's Ramble with his Camera." Mr. Riley Fortune, F.Z.S.
10.....	Holmfirth Photographic Soc. ....	{ Annual Meeting.
10.....	Leicester Lit. and P. Society.....	{ Exhibition Evening.
10.....	St. Helens Camera Club .....	{ "Carbon Printing." Mr. L. Williams.
10.....	Birmingham Photo. Society ...	{ Exhibition of Novelties in Apparatus.
10.....	Rotherham Photo. Society .....	{ "The Elements of Architectural Photography." Mr. J. R. Wigfull.
11.....	Leeds Camera Club.....	{ "A.R.I.B.A." Demonstrated. Mr. J. Mackenzie.
11.....	Cricklewood Photo. Society.....	{ "Velox, &c." Demonstrated. Mr. A. W. Green.
11.....	G.E.R. Mechanics' Institution...	{ Lectures by Members.
11.....	North Middlesex Photo. Soc. ...	{ "Flower and Fruit Photography." Mr. E. Seymour.
11.....	Acton Photographic Society ...	{ Lantern Evening.
11.....	South Essex Camera Club .....	{ "The Honey Bee." Illustrated. Mr. T. Michell.
11.....	Huddersfield Nat. and Ph. Soc.	{ Members' Evening.
12.....	Richmond Camera Club .....	{ "Ober Ammergau." Mr. A. H. Etherington.
12.....	Liverpool Amateur Ph. Assn.....	{ "Photographic Dodges." Discussion.
12.....	Darwen Photographic Assn.....	{ "What Can be Done with a Hand Camera." (Goerz Lecture).

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held March 3, the president, Major-General Waterhouse, in the chair. A demonstration of three-colour printing on the auto-type trichrome tissues was given by Messrs. H. J. Burton and A. C. Braham, of the Autotype Company. Mr. Braham, in accompaniment of Mr. Burton's demonstrative share in the proceedings, said that the process of building up three-colour prints by the process could not be called rapid, but to those who were accustomed to the double transfer process it was not difficult. As temporary support the company preferred a good post paper with the usual lac coating and waxed. It was better than celluloid, although not so transparent, as there was no need to squeegee the tissue to it, and therefore the chances of distortion were much less. They found that



when wetted the tissue expanded equally, and gave no trouble as regards registration. For the final support they used the ordinary single transfer paper. In printing, the use of the usual actinometer was not advised. The light was best tested with a rapid actinometer, and the exposures given in accordance with previous experience and in reference to the colour of the tissue. It would be found that the yellow image was plainly visible, the blue slightly so, and the red not at all. The demonstrators gave the necessary formulae for transferring and washing, in place of repeating which we may refer our readers to the description of the process by Mr. Burton in the "B.J." of February 9 last. The operations involved in the process were each shown by Mr. Burton, and the whole series of stages in the making of the carbon trichrome demonstrated by starting afresh on prints prepared beforehand. The demonstration was thus the model of what such an event should be.

Major-General Waterhouse, in proposing a vote of thanks to Messrs. Burton and Braham and to the Autotype Company, alluded to the progress in three-colour photography as evidenced in the recent exhibition at THE BRITISH JOURNAL OF PHOTOGRAPHY and compared the modern practice with his early efforts of thirty years ago.

**BOWES PARK PHOTOGRAPHIC SOCIETY.**—On Monday evening, 2nd inst., Mr. John H. Avery lectured on "Toning Bromide Prints." Speaking of exposing bromide paper, Mr. Avery advocated that printing should be done by candle light, as it was always constant, and when once the correct exposure was found, results could be duplicated with certainty. It is advisable to have a board marked off in divisions of one inch, a candle is placed at one end, and the printing-frame is placed at a distance equivalent to the length of the plate, e.g., for 5 x 4.5 inches, 10 x 8.10 inches, and so on. Mr. Avery said that in his opinion amidol was undoubtedly the best developer for bromide paper, and it was most simple in formula. An amidol developer should never be made up in the dark room, as particles of the dry chemical would float about in the air, and probably cause black spots on the developed print. In using a sulphide toning bath it is always better to boil the sulphide before making the bath, to get rid of any iron, which would eventually cause spots on the toned print. Prints should always be immersed in the toning bath in a dry condition, as the resulting tone is then richer. Mr. Avery also recommended the sulphide bath for toning lantern slides, and stated that by using different developers for the slides, so as to get various grades of black, and altering the amount of bromide of potassium in the toning bath, one can get a variety of tones in the finished slide ranging from dark brown to brilliant red. With a slide developed with pyro-ammonia and developed to a green-black, the result would be a bright red, if the amount of bromide in the toning bath be increased to 2,000 grains in 10 oz. of water. Mr. Avery concluded his lecture by showing an excellent collection of his "Morocco" slides.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At the meeting on the 29th ult. (Mr. Teape in the chair), Mr. W. R. Stretton delivered a lecture, which he entitled "Photographic Sketching." He said:—My own idea when I took up photography was to use the camera for sketching, pure and simple, an idea greatly modified upon finding that before results would even approximate to my requirements, the study of many regulating conditions was necessary. Mr. Stretton showed a series of excellent slides illustrating the use of the camera from the sketching point of view; the series including byways and nooks in the country, river, and coast scenes; and during his remarks he alluded to the indiscriminate use of morning and evening sky effects, and said that it seemed to be the idea that any sort of sky would do, irrespective of direction or attitude of the sun, and a complete disregard seemed to be made of the fact that the light of the heavens dominated the earth, and it was simply preposterous to produce pictures that showed the contrary. He preferred to use a narrow angle of view. He used lenses of 6 and 9-inch focal length on a quarter-plate, and 9, 12, or 18-inch on a half-plate, but most of the exposures were made with lenses of 9 inches and upwards.

**NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.**—On March 28, Mr. J. C. S. Mummery, F.R.P.S., gave a lecture and demonstration of gum bichromate. There was a very large audience of members and friends, which would seem to prove that the interest taken in this

process is greatly on the increase. Mr. Mummery mentioned that the process was a very old one, having been originated in 1858 by Mr. Pouncy, of Dorchester, but though Mr. Pouncy was able to produce some very fair results, many of those who tried it at that time failed hopelessly, and in a short time it fell into disuse. It was only about 1894 that it was unearthed, and since then, as its great possibilities for pictorial work have become realised, it has come into increasing and general use. The lecturer explained that there were two methods of working the process—single coating and multiple coating, but he said that, in the hands of skilful workers, there was little to choose between them, though in the single-coating method it was more essential to have a good negative, with just the correct scale of tones. The lecturer proceeded to demonstrate practically the multiple-coating method. He showed how the paper was coated, using a mixture of 54 grains ivory black, 1 ounce 40 per cent gum solution, and 1 ounce saturated bichromate of potash solution. He then developed, by means of a spray diffuser, a print in which the result aimed at was obtained in two coatings. For the purposes of demonstration, two prints of the same subject were used. One showed the result of the first printing, and the other the second printing. In practical work, of course, after the first printing had been developed, the same piece of paper would be recoated and printed on again, in accurate register with the previous printing. Mr. Mummery showed samples of several papers suitable for the process. A good deal of his own work was done on the O.W. Paper and Arts Co.'s machine-made paper. Readers of the B.J. who would like to join the North Middlesex will be cordially welcomed at any of their meetings, which are held every Wednesday, at 8.15, at Hanley Hall, Sparsholt Road, Crouch Hill.

**AT CLEVELAND LITERARY AND PHILOSOPHICAL SOCIETY** at Middlesbrough last week, Mr. Harold Hood delivered an interesting and instructive lecture on the subject of "Photography Applied to Journalism."

**TUNSTALL AND DISTRICT PHOTOGRAPHIC SOCIETY.**—On March 28 Messrs. E. B. Wain and J. R. Capey demonstrated to their fellow members the new "Page Croft Pigment Paper." The simplicity of working and beauty of results caused much comment. The delicate detail obtainable at will was much admired, and contrasted greatly with some of the splodges previously known as gum prints.

**WATFORD CAMERA CLUB.**—At a meeting on March 22, Mr. E. Seymour gave a lecture on the subject of "Printing Processes." He specially dealt with the subject of gaslight or slow bromide papers, which, as is well known, he largely uses in the production of the exquisite flower studies for which he is justly famous. He demonstrated on the lecture table, by means of Marion's "Quick Print" gaslight paper, the ease with which it was possible to obtain hard or soft results from a given negative as required. To produce soft results with this paper he used a very strong metol-hydroquinone developer, and when it was just possible to see all detail in the print he quickly transferred it to a water bath to which had been added a trace of old oxidised developer. When sufficient density had been obtained the print was fixed in an ordinary hypo bath to which had been added a 10 per cent. solution of chrome alum in the proportion of 1 oz. of the latter to a pint of hypo. All the members present were kindly presented by the lecturer with a copy of his study of "White Currants," which has obtained many awards, as a souvenir of the occasion.

**"THE St. Louis and Canadian Photographer."**—We are glad to see that the new editor, Mr. Tony O. Babb, has now swept his columns clean of hints on cookery, beauty culture, and notes of domestic interest. The March issue before us shows us that he is able to make a magazine with a thoroughly good programme of articles for professional photographers. But he ought to punish the draughtsman who designed the horrible design around a very pleasing half-tone on the cover.

**EDMONTON and District Photographic Society.**—A change of secretary has taken place by the appointment to this office of Mr. A. E. Warfolk, Main Avenue, Bush Hill Park, Enfield.

## Commercial & Legal Intelligence.

... Ltd., the registration of which was announced some ... has had its board strengthened by the accession of ... Holmes, who for a considerable period held the position of Librarian at Windsor Castle, from which he recently ... The progress of this undertaking will probably be watched ... little interest in circles where the names and achievements of ... Shepherd and Mr. James Cadett have been long and ... known. The programme is understood to include both ... and the highest class of art work.

**WESS Case.**—Judge Bacon, at Bloomsbury last week, had ... the claim of Messrs. Bale, Son, and Daniellson, printers, ... Titchfield Street, against Miss Gertrude Leutner, a vocalist, ... professional name is Miss Gertrude Lonsdale, of Kensington ... dens, for £10 5s., alleged to be due in respect of some ... phic posters prepared to her order. A jury had been sum- ... his Honour having been informed that the accuracy of ... ges was questioned, asked why eight gentlemen should be ... give an opinion on such a matter. Mr. Mould, barrister, ... plaintiffs, said that defendant ordered some posters to be ... from a photograph, and when showed the proof she said ... was a squint in one of the eyes. It was pointed out that ... be rectified, and another proof could be prepared. Defen- ... ever, said there was no time, as the posters—600 in ... had to be sent off the following day. The alteration was ... the order executed. One of the posters was then fastened ... all of the court by the side of the witness-box and in full ... the jury, who, after a brief deliberation, came to the ... that the posters did not constitute a good likeness of the ... and his honour gave judgment for her, with costs.

### NEW COMPANIES.

**re's.**—£3,000, in £1 shares. Chemists, druggists, manu- ... of photographic apparatus, etc. No initial public issue. ... **M AND Co., LTD.**—Capital £10,000, in £1 shares. Ob- ... acquire the business of mount and album manufacturers, ... rried on by Fordham and Co., at Lensden Place, Golden ... i, and at Euston Buildings, London, and to carry on ... and the business of manufacturers of and dealers in photo- ... materials, and lenses, optical, scientific, and other ... s, etc. No initial public issue. Registered office, 9, Lens- ... Golden Lane, E.C.

**rs. and Wainwright.**—£10,000 (£1). To take over the busi- ... nographic dry-plate and material makers and dealers carried ... L. Wratten at 75 and 78, Canterbury Road, Croydon, as ... and Wainwright. No initial public issue. First directors ... two nor more than five): F. C. L. Wratten, S. H. ... and C. E. K. Mees all permanent, subject to holding £500 ... n). Qualification of ordinary directors, £10.

### THE BOLT COURT SCHOOL.

of the L.C.C. School of Photo-Engraving and Lithography ... 19th has been published, the delay in issuing the handsome ... ng due to the endeavour of the School to print so many ... plemental illustrations on the premises. We will find ... report of the Principal, Mr. A. J. Newton, and defer a ... the plates, which are of the greatest possible technical ... process people, until a later issue.

th session, which commenced on September 26, 1904, closed ... June 30, 1905. The total number of individual students ... has been 488 as compared with 398 last session. This ... remarkable, as the limited accommodation afforded for ... classes is more than ever noticeable, and, as I stated ... the crowded state of the classes naturally reacts somewhat ... upon our numbers and attendances.

tion of the students can be classified as follows:—

... ..	288
... ..	147
... ..	5
... ..	48
... ..	488

age was 21.5 years.

The following summary shows how the activities of the students have been distributed:—

Individual students entering only for photo-engraving classes...	257
Individual students entering only for art classes ... ..	153
Individual students entering only for lithographic classes ...	32
Individual students entering for both photo-engraving and art classes ... ..	31
Individual students entering for both lithographic and art classes ... ..	13
Individual students entering for both lithographic and photo-engraving classes ... ..	2

488

The return of attendances has already been submitted, and on the whole is slightly better than last year, which is gratifying, when it is remembered that the character of our trade makes overtime a frequent necessity.

In the photo-engraving classes the work has been very good, and many blocks have been made by the students for the prospectuses of the Council's educational institutions and the Horniman Museum. Instruction in the making of tri-colour photo-engravings has been much in demand, and more finished work has been done than ever before, the installation of the power-platen press being of great advantage in enabling students to see the results of their work. Some of the examples lent us by the Board of Education, South Kensington, and reproduced by this method, it is hoped may be of use for art examples. In the day process classes we have had larger entries than ever before.

In the lithographic classes the work has been good. Mr. Baxter finds that instruction in colour work is most in demand, and sixty-five subjects have been reproduced in from two to eleven colours, on the whole satisfactorily, considering the difficulty of doing it in artificial light, besides thirty-five in one colour only. The total number of stones drawn has been 378. Mr. Howard's map and plan class has been considerably larger than ever before, and the work shows a great improvement.

In the design class Mr. Turbayne reports good results, and less poor work than in any previous session.

In the drawing classes Mr. Rea reports that the attendance and progress made by the students are quite satisfactory. We have had a large number of new young students, many of whom have done creditably and will do good work in future. The success of the pictorial and decorative composition class under Mr. Seymour has proved fully up to expectation. The Sketch Club has again been a feature of this year's work, and many distinguished artists have favoured us with their criticisms. Mr. Nelson Dawson has designed a silver badge, and Mr. George Frampton, R.A., who has always shown the greatest interest in the school, has presented, for the next ten years, a replica to become the property of the student doing the best work in the drawing classes and Sketch Club."

**THE International Exhibition of Photography.**—By a decree of the President of the French Republic, the buildings of the International Exhibition, which is to be held in the Grand Palais des Champs, Elysées, are made a customs house, and all exhibits will be sent direct there without examination at the frontiers. The office of the Commissariat of the exhibition is situated at 13, Avenue de la Motte-Picquet, Paris.

**ROYAL Institution.**—The following are lecture arrangements at the Royal Institution, after Easter:—Professor G. Baldwin Brown, two lectures on Greek Classical Dress in Life and in Art; Professor William Stirling, three lectures on Glands and their Products; Rev. J. P. Mahaffy, two lectures on (i) The Expansion of Old Green Literature by Recent Discoveries, (ii) The Influence of Ptolemaic Egypt on Græco-Roman Civilisation; Professor William J. Sollas, three lectures on Man and the Glacial Period; Professor Charles Waldstein, three lectures on English Furniture in the Eighteenth Century; Professor Sir James Dewar, two lectures on The Old and the New Chemistry. The Friday evening meetings will be resumed on April 27, when Professor John W. Gregory will discourse on Ore Deposits and their Distribution in Depth. Succeeding discourses will probably be given by the Hon. Charles A. Parsons, Professor J. H. Poynting, Professor Arthur Schuster, Mr. Leonard Hill, Professor H. Moissan, and Professor Sir James Dewar, and other gentlemen.



## Correspondence.

\*.\* Correspondents should never write on both sides of the paper.

No notice is taken of communications unless the names and addresses of the writers are given.

\*.\* We do not undertake responsibility for the opinions expressed by our correspondents.

### ELECTRICAL ILLUMINATION IN THE STUDIO.

To the Editors.

Gentlemen,—In the article, entitled "A New Artificial Light Studio," which you published in the current issue, attention is drawn to the use of flaming sunlight arcs, which are now so popular for street illumination, for photographic use. A similar idea has been in my mind for some time, and I have been longing for an opportunity of trying the effect of using four such lamps for studio lighting, because I think that by using orthochromatic plates in the yellowish light given by these lamps, a high sensitiveness, and approximately correct colour rendering, would be obtained.

The important matter of cost is one of interest, and I was delighted to find that four "Excello" arc lamps, each taking six amperes and forty-four volts, may be run in series at a total cost of 1d. per lamp per hour. This is the actual cost at Newcastle-on-Tyne, and as each lamp is said to be of 1,600 candle-power, the total cost for a light of 6,400 candle-power is 4d. per hour. The illuminating power of ordinary arc lamps consuming the same quantity of current is said to be 475 candle-power.

More powerful illumination may be obtained by using four 12 ampère "Excello" arc lamps, working at forty-seven volts, in series, which give 4,500 candle-power per lamp against 1,365 candle-power obtained by using the ordinary arc lamps consuming the same current.

I appreciate the value of the violet rays obtained from the ordinary, or enclosed, arc lamps, for photographic purposes, but they do not help the photographer to obtain correct colour rendering, and it is a question that can only be settled by experiment whether the use of open or enclosed arcs with ordinary carbons and ordinary plates is more economical, and gives better results, than using flaming sunlight arcs and orthochromatic plates. To be of value the result of such an experiment should be published with full data.—Yours truly,

ARTHUR PAYNE.

Newcastle-on-Tyne, April 2, 1906.

### THREE-COLOUR PORTRAITURE.

To the Editors.

Gentlemen,—In the report of my lecture entitled the "Possibility of Portraiture in Colour," published in the B.J., the following paragraph occurs:—"The most serious drawback to the use of this or any other 'colour' process for portraiture is the long exposure necessary, three minutes being about the minimum, and five minutes the average time required, even under the best conditions of lighting, and with a lens aperture of  $f/3$ ."

I quoted three minutes as being my minimum, but all my colour-negatives were taken during the winter months, between two and three o'clock in the afternoon.

Within the last month Messrs. Sanger Shepherd have introduced new light filters and plates that decrease the exposure by about one-half.

Taking into consideration the increased power of the light at this time of the year, and the quicker plates and filters, it should be possible to reduce the time necessary for the three exposures to quite within one minute.—I am, yours, etc.,

S. ELWIN NEAME.

Coverdale Road, Shepherd's Bush, London.

April 3, 1906.

### MEASURING SHUTTER SPEEDS.

To the Editors.

Gentlemen,—In your remarks following my letter of March 26, you say your formula would not be correct for so wide an angle as 40 degs., as it only holds good for small angles.

This is, of course, hypothetically the case—that is to say, the acceleration of a pendulum with a small angular movement more nearly approaches the true harmonic motion than when the angular movement is great. But for all that, the error with an angle of 40 degs. would be so slight that the formula, if of any value at all, should work out the figures somewhat approximating correctness, and yet, as I pointed out last week, it does not appear to come within 50 per cent. of the results by the other three methods. However, if you would like to put your formula to a test more suited to its requirements, I will, with pleasure, expose a plate with a shutter test under the desired conditions.

You say you fail to see how the constant  $\frac{2}{\pi}$  in my formula makes

the necessary correction for the harmonic motion of the pendulum. It is based on the law that in such a motion the velocity in the middle of the swing is equal to eleven times the length of the swing, divided by the periodic time.

I see Mr. Douglas Carnegie—who, I am sorry to see, enters the discussion in rather an unfriendly spirit—writes from Blackheath. If he would call on me I should have pleasure in showing him my apparatus, and could give the reasoning by which the fraction  $\frac{18}{79}$  the

(not  $\frac{17}{79}$ th, as printed) is arrived at.—Yours obediently,

Bala Lodge, Blackheath, S.E.

ARTHUR A. WATKINS.

April 3, 1906.

### HOW TO SOLVE THE PROOF PROBLEM.

To the Editors.

Gentlemen,—As bearing out what has been said regarding the toning of proofs, I had sent to me recently some proofs forwarded to my customer from Mr. D. D'Arcy's studio, Dublin, with the request that I should tone them. On the back of each proof was stamped, "Proofs to be returned, with the number required marked on the back." I noticed that there were two whole-plate and three cabinet proofs (five positions). All had been carefully retouched. I considered that Mr. D'Arcy was entitled to some reward for his work, and replied to my lady customer:—"Dear Madam, I am sorry I cannot tone these proofs as it is against the rule. Besides, they are stamped with what looks like indelible ink, which is sometimes done for the photographer's protection, the proofs being returnable."—Yours faithfully,

HERBERT SPACKMAN.

Park Close Studio, Corsham, Wilts.

### COPYRIGHT IN NORWAY.

To the Editors.

Gentlemen,—Having concluded to lay before the Storting a new law for copyright of photographs, we want to collect everything of value that will make it fully clear to the members how the law now acts, and its faults and advantages.

There is one point we seem not to have clear, viz., Does the Berne Convention protect a photographer (fully protected here) in England, and vice versa? If so, can you tell me where a copy of such law is to be had?

According to our laws of March 12, 1877 (Sect. 2), each photograph must be marked with "Einberettiget," the year and photographer's name.

Sect. 8 says that by mutual consent between two countries the copyright can be extended to foreign photographers, but if Sect. 2 is suspended it requires the King's sanction. I have your Almanac of 1906 before me, and have read with interest all about copyright.—Respectfully yours,

A. B. WILSE.

Christiania.

[We may say to our correspondent that the text of the Berne Convention is issued in this country by the Government printers, Messrs. Eyre and Spottiswoode, of New Street, Fleet Street, London, E.C., although presumably, as Norway subscribed to the Convention in 1889, the Norwegian Government printers would issue it in Norwegian in that year. As we understand the Convention, it is necessary for a photographer in the country of origin, that is to say an Englishman in Great Britain, to comply with the formalities of his country, and he then obtains in the foreign countries subscribing

Convention a protection granted to natives of those countries. registration is enforced in Great Britain, but not the marking of copies. It follows from this that an English photograph of its way into Norway cannot be copied with impunity even if not the marking "Einberettiget."

As far as we can gather the law in Norway of 1877 only applies relations as regards copyright between Norway and countries do not subscribe to the Convention. At the present time there is a similar arrangement between Great Britain and the United States, is a non-convention country.—Eds., B.J.P.]

## THE KEEPING QUALITIES OF GELATINE NEGATIVES.

To the Editors.

Gentlemen,—Much as have been written respecting the keeping qualities of gelatine negatives versus collodion, and also their discolouration or not varnished by printing. I am enclosing you a few for your information and comment. I am not sure that these markings have referred to before. It would be instructive to know their causes. The plate stains, clearly not the result of hypo. or silver printing plates, showing stains only where retouching medium covers the usually considered some protection against the stain from printing: looked at from the back, it has some of the appearance of half-plate stains. The fourth plate is notably free of stain from the printing paper came, but round where it has been exposed to the atmosphere, charged probably with gas and sulphur, it has become darkened. These are but samples of several I have met in going over a lot. The fourth negative is an exceptional one and hence its outer edges got exposed more than usual, but it nevertheless indicates that gelatine negatives need protection beyond printing paper, and that they deteriorate from other causes than hypo may or may not be in the power of the user of the plate to prevent.

The stains visible on the quarter-plates in this case, you will see are on plate not varnished, but are not confined to such, hence evidently the medium has something to do with this. Perhaps you will be able to throw some light on it, as it is a serious matter to have a lot of good negatives and find them ruined. Thanking you for your participation, I am, yours,  
CERAMIC.

March 26, 1906.

With regard to the stain on the half-plate negative, this is certainly to some extent due to the plate not being thoroughly freed from hypo, as the characteristic taste can be at once detected. Two of the quarter-plates, which have been retouched, show distinctly that the medium has been applied, a slight increase in density, and is very easily explainable on the ground that the resinous substance in the medium has become oxidised and darkened. Both these also show on the back brilliant colours due to thin films, and in the case the complementary colours are distinctly seen by transmitted light. This looks as though the retouching medium had penetrated the gelatine and formed a thin film between the same and the glass. The third quarter-plate negative certainly shows the action of the air, and possibly also some action from fingers not very clean. This serves as a warning to all, to varnish their negatives, and considering that now, excellent cold varnishes can be obtained commercially, which can be applied in a minute or two with a brush, there is no reason why varnishing should not be as easily performed as fixing.—Eds., B.J.P.]

## ARTISTIC LENSES.

To the Editors.

Gentlemen,—I have been extremely interested in the information at the anachromatic lenses of MM. Puyo and de Pulligny you have supplied to us lately. There is one important point, however, in the use of these lenses, about which I have failed to find any mention, and that is the question of exposure. It would be interesting to know the relative increase in the exposure necessary to record green, yellow, and red fringes of the image, for in the latter case the exposure must be very prolonged. It may, of course, be shortened by using colour-sensitive plates. Perhaps someone who has been experimenting with this type of lens may be willing to publish this information.—Yours truly,  
ARTHUR PAYNE.

Newcastle-on-Tyne.

## Answers to Correspondents.

\*. All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\*. Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\*. Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

\*. For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

S. Porter, 11, Marshfield Road, Chippenham. Photograph of the Employees of Sazby & Farmer, Ltd., Chippenham.

F. A. Crook, Sandlea Villa, Datchet, Bucks. Photograph of the Plough Inn, Datchet.

F. Melton, 116, Castle Road, Scarborough. Photograph of a Storm at Scarborough.

W. F. Foster, 110, King Street, Southsea, Hampshire. Photograph of Threes White Mice as carried on British Submarines.

Black & Cross, 15, Park Road, Scarborough. Photograph of a Wave on the North Bay, Scarborough, entitled "The Giant Wave."

P. Entwistle, 4, Windham Street, Blackburn. Photograph of a Dog on a Table entitled "Little Jim III."

VARIOUS.—Please tell me the maker of the "Diamond" brand collodio-chloride papers, also "Minerva," and the respective agents in this country. Second, are there any disadvantages in using a 1.1 lens for smaller work, presuming the studio is long enough?—DIAMOND.

1. Trapp and Munch. Agents, L. Trapp and Co., 89, Chiswell Street, London, E.C. 2. None, except that the sides of the bellows are more illuminated by the large lens, and a diaphragm in the camera may be advisable.

STRIPPING ALBUMEN PICTURES.—I shall be glad of information as to the following:—Is it possible to use a plain albumenised paper (of course not sensitised with silver), render it sensitive with bichromate, and use it as a transfer paper in a similar way to carbon tissue? What I want to know is, will the albumen emulsion leave the paper the same as gelatine will? I particularly require an albumen emulsion for transfer to metal, but up to the present I have found coating the metal a failure, as in developing the whole film washes off. A gum arabic film would do if it is possible to transfer that in any way as in carbon. Gelatine or fish glue is of no use whatever.—A. S. This subject is dealt with in "Ex Cathedra."

PATENT PLATE.—In reading the answer to correspondents about the three-colour in your issue for March 23, page 159, you advise the use of thin white patent plates to your readers. I cannot procure the plates, as I have written to several firms. They all say they do not keep or manufacture them. Can you recommend me to some firms who would supply for certain?—R. T.

We are surprised that you have any difficulty, as patent plate is a regular article of commerce, and is stocked by such houses as Fallowfield, Houghton, Penrose and Griffin, etc. It is usually made in four thicknesses—No. 1 about 1-16, No. 2 about 1-12, No. 3 about 1-10, and No. 4 about  $\frac{1}{8}$  inch thick. Any of the above firms would supply you.

J. HITCHINS.—We have no hesitation in saying that what you call pinholes are due to air bells clinging to the gelatine during



development. Pass a tuft of clean cotton wool on the tips of the fingers over the plates immediately after pouring on the developer.

**STARCH MOUNTANT.**—In a recipe for the above, it is stated, to be mixed with salicylic acid—i.e., two drams to 5 oz. water—is the acid added as a preservative, and would it have any effect upon C.C. prints?—OLD CROW.

Salicylic acid is used as a preservative only, and is not likely to have any effect upon the silver image when used in small quantities. We may point out that as the solubility of this acid is only 1 in 500 of cold water—that is practically a grain per ounce—there would be about 115 grains of undissolved acid in 5 oz., and we are not prepared to say that this would not attack the image.

**SOLVENTS FOR CELLULOSE.**—Will you inform me what solvents there are for celluloid other than amyl acetate and acetone? Is there anything of an oily nature?—A. R.

Celluloid is soluble in wood naphtha, propyl and butyl alcohols, and also glacial acetic acid. We do not know any oily solvent. It might be possible to dissolve in glacial acetic acid, and then add castor oil, but being ignorant of what the solution is for we cannot say whether this would be suitable.

**THIOCARBAMIDE.**—In "Work" of November 25, 1905, page 322, in an article on "Chemical Compounds Used in Photography," there is a statement that amm. sulpho-cyanide when heated undergoes a change to thiocarbamide, and also that the latter used in a developer causes reversal of image (positive from positive and vice versa). 1. Are these statements correct? 2. If so, is it anythink like easy to produce the change on a small scale, say an ounce or two, because thiocarbamide is unobtainable or, at least, not listed in catalogues, in N.Z.? 3. What is the correct proportion for use in developer as above?—GEO. T. R.

1. Yes. 2. The following is the method of preparing thiocarbamide from ammonium sulpho-cyanide:—About 500 grains of well-dried amm. sulpho-cyanide are placed in a flask, a thermometer inserted, and the whole then placed in an oil bath and heated to 170 degs. C. for two hours. It is allowed to cool down, and when it is 100 degs. C. is treated with its own weight of warm water (80 degs. C.). When the whole has dissolved the solution is filtered at once through a small plug of cotton, for the purpose of separating a black substance always formed in small quantity, and then left to crystallise. After some hours the liquid yields an abundant crop of long silky crystals, which are drained off and pressed between blotters and again crystallised from as small a quantity as possible of boiling water. Several crystallisations are needed to get the thiocarbamide perfectly pure, and it must not be dried by heat, but in vacuo over sulphuric acid. 3. The developer recommended by Major-General Waterhouse, who worked out the process, is:—Eikonogen, 1 part; sodium sulphite, 1 part; lithium carbonate, 1 part; water, 10 parts, to which is added a few drops of a solution of thiocarbamide and ammonium bromide, or of a compound of 4 parts thiocarbamide and 1 part ammonium bromide.

**FLASHLIGHT.**—Through your correspondence column I should like to learn, is there any really smokeless, instantaneous flash-powder to be obtained anywhere. I have used powder from several makers, all giving off dense smoke, and sometimes with a very loud report that was exceedingly objectionable. Can you advise where to obtain formulæ of various mixtures with which I could experiment, and possibly find a mixture that I could myself vary, so as to give a quicker or slower flash according to need. I would like a quick, comparatively silent, flash, with say 4 oz. powder, and little smoke.—F. E. G.

We know of no flashpowder which is perfectly smokeless, although recent powders, such as the Agfa, Krebs, and that supplied by Houghtons for their ideal lamp, are a good deal better than older products. You will find a large number of formulæ in the "Almanac" on pages 749-750.

**PERSULPHATE.**—I should feel obliged to you to let me know how to use the persulphate of ammonia and carbonate of soda as hypo-eliminator (B.J.A. formula). Should I put the plate in the persulphate directly after taking it out of the hypo and before

washing, or should I wash the plate first? How long is the plate to be left in the persulphate?—P. LAÛROIX.

The plate should be washed for about half-a-minute and immersed in the solution for about five minutes.

**RETOUCHING** (Reply to H. E. D.).—1. As a retoucher you are very inexperienced, but have made fair progress for the few months that you have devoted to the art. Your touch is too spotty and disconnected, and requires a bolder grain for a head of this size. Better blending and gradation of tones would improve the effect. You preserve the likeness, but your modelling is very faulty. Increase the high lights and clear up the shadows. Under the skilled guidance you should finally make a good retoucher. 2. We do not care to suggest the wages you could ask, as you are at present a very weak worker, and the mention of low rates in these columns may be injurious to more skilled employees.

**RETOUCHING** (Reply to L. M. E.).—1. Your work is lacking in brightness and style. Smoothing up faces is only part of the retoucher's duties. Modelling must be strictly attended to, the high-lights generally slightly increased; the half-tones fully respected, and the shadows not unduly removed. Excessive lights such as on the lips of the young woman should be knife-cut. Preservation of the likeness is your best quality. Space will not permit instruction in retouching in these columns—we can only criticise. Consult our advertisements for improving lessons. 2. Refer to reply to H. E. D.

**STRAITFORD.**—We are not aware of any such photographic appointments being filled by open examination. You had better apply to the Photographic School, Polytechnic, Regent Street, London, W.

**PHOTOGRAPHIC RECORD.**—A quaint antiquarian ceremony was observed last week, when Sir Benjamin Stone, M.P., and several other members of the National Photographic Record Society were admitted to the "freedom" of Highgate according to the ancient rites. The ceremony took place at the Old Gate House Hotel, when Mr. Potter, a local antiquary, who acted as "father" to the new freemen, administered the oath, which was sworn on a pair of stag's horns, which were mounted on a pole. The oath ran:—"Take notice what I now say to you, for that is the first word of your oath—mind that! You must acknowledge me to be your adopted father, I must acknowledge you to be my adopted son. If you do not call me father you forfeit a bottle of wine; if I do not call you son, I forfeit the same. And now, my good son, if you are travelling through this village of Highgate, and you have money in your pocket, go call for a bottle of wine at any house you may think proper to go into, and book it to your father's score. If you have any friends with you, you may treat them as well but, if you have money of your own, you must pay for it yourself. You must not eat brown bread while you can get white, except you like the brown the best. You must not drink small beer while you can get strong, except you like the small best. You must not kiss the maid while you can kiss the mistress, except you like the maid the best or have the chance to kiss them both." Each visitor then kissed the horns, signed a register, and received a certificate of freedom.

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## SUMMARY.

Exhibition of portraiture by Herr Dührkoop, Hamburg, opens at B.J. offices on Tuesday next, April 17.

The use of the anachromatic lenses a variety of effects is obtainable according to the make-up of the lenses supplied in special sets. (P. 285.)

Filters made from permanganate, chromium, etc., are the subject of further notes by T. Thorne Baker. (P. 284.)

Reaction of pyro compared with other developers as regards the gelatine film has been studied by MM. Lumière. P. 285.)

Producing postcards in quantity W. Foster Brigham calls attention to time-saving methods and devices in printing, development, and drying. (P. 287.)

Technical history of engraving, read before the Edinburgh Photographic Society by George M. Aillman, appears on P. 288.

A satisfactory report of the Eastman Kodak Company has led to a notable rise of Kodak shares on the Stock Exchange. (P. 291.)

Dyes for red-sensitiveness and a midget repeating back are the subject of the week. (P. 292.)

## EX CATHEDRA.

### An Exhibition of Portraiture.

We are pleased to be able to announce that an exhibition of portraiture by a very accomplished and versatile professional photographer, Herr R. Dührkoop, of Hamburg, will be opened at the offices of the BRITISH JOURNAL OF PHOTOGRAPHY on Tuesday next, and will be available for inspection by the public daily between 10.30 and 4.30 (Saturdays, 10.30 to 12.30). Herr Dührkoop has shown but little of his work in England, although the few pictures on the walls of the "Royal" and "Salon" have suggested the strength and variety of his photography in portraiture and figure studies. His twenty exhibits at Birmingham convinced us, when we visited the gallery of the British Artists, that we had in Dührkoop a wielder of the camera of an exceptional order. The present exhibition is the outcome of that impression and of a visit to Hamburg, where, by Herr Dührkoop's courtesy, we were able to collect the examples of his work which fill the small gallery set apart for exhibition purposes at our offices.

\* \* \*

### To Assistants and Others.

It has come to our knowledge—indirectly, not from the complainants themselves—that the hours during which the recent exhibition of colour photography was open, and during which, also, the present collection of Herr Dührkoop will be accessible, were such as to prevent a great many who are in business during the day from paying a visit. We confess to some surprise that requests for an evening opening were not addressed directly to us, for we hope we may assume the belief among all classes of our readers that our desire is to leave no stone unturned in contributing to the progress and elevation of photography and the advancement of photographers' varied interests. Therefore, we desire it to be known that we are prepared to open the present exhibition for one evening in every week, and we beg those belonging to the large class who are occupied during the entire day to advise us by postcard of the night most suitable. We shall then be assisted in fixing an evening for opening, and will make further announcement next week.

\* \* \*

### Filtering Developing Solutions.

The exclusion of air during the process of removing undissolved matter from developing liquids by filtration has received the attention of a German inventor, by whom a self-contained apparatus for the purpose has been patented. It consists of two bottles fitted airtight on either side of a stopper. The stopper has two holes passing through two tubes, the upper end of one tube being flush with the upper side and the lower end of the other tube flush with the lower side of the



stopper. One tube is packed with glass wool or similar filtering medium. A rough sketch will show the reader that on one bottle being filled (with the liquid to be filtered) connected to its companion, and the whole then inverted, the liquid flows through the filter from one bottle to the other.

\* \* \*

### The Northern Exhibition.

The time draws near when the doors of the Manchester Athenæum are to admit the public to the Northern Exhibition. The opening ceremony and *conversazione* takes place on April 27, and during the nine days that the exhibition remains open there is a programme of accessory attractions in the way of lantern lectures which, we hope, will prove additional incentives to a large attendance. The lecturers include S. G. Kimber, Fred W. Saxby, Dr. Wm. Murray Cairns, Dr. John W. Ellis, Godfrey Bingley, and W. A. Clark. Our readers in the North should bear in mind this succession of opportunities, and couple with it the fact that a season ticket to the exhibition is obtainable for half a crown. The judges at this year's Northern are Archibald Cochrane, Ernest Marriage, F.R.P.S., and Frank M. Sutcliffe.

\* \* \*

**A Classic of Photography.** It may interest students of the history of photography to learn that among the recent additions to the technical public library of the Patent Office in Southampton Buildings is a copy of the rare and important work by Victor Fouqué, "La Vérité sur l'Invention de la Photographie." This volume, as we have had occasion to point out when correcting the errors of hasty writers on the evolution of photography, contains a large number of the papers and letters of Nicéphore Niepce, whose work in detail did not become public until the issue of Fouqué's memoir. The admitted aim of the writer is to assign to Niepce the sole honour of the discovery which became known as Daguerreotype, and in its pursuit several natural conclusions are ignored or laboured. Nevertheless, the work is one which everyone desiring to study photography in its embryonic stages must consult, and we would wish that the Patent Office or some other library in London would acquire also the "Historique de la Découverte de la Photographie," written by Niepce's son Isidore, no copy of which, so far as we have been able to discover, is accessible in London.

\* \* \*

### The Value of Miniatures.

At Christie's auction rooms, last week, there was a sale of the collection of miniatures, snuff-boxes, and other objects of vertu, formed by the late Lady Currie, and some very high prices were realised for the miniatures, of which there were about sixty. One of them, painted on a playing-card, was a portrait of Henry, Prince of Wales, eldest son of King James I., by Isaac Oliver. This picture was knocked down for no less a sum than £924. Another miniature—a portrait of a gentleman—by the same artist fetched £210. One by Hilliard made £357, and one by Conway, initialled "R. C.," 1787, £315. At the present time there seems to be a strong revival of miniature painting which photography practically killed many years ago. In the early days of photography a considerable business was done in Daguerreotypes, and paper portraits for brooches, and lockets, many of which were coloured by the old miniature painters, and very good they were—the majority of them. Then the fashion changed and portrait brooches were no longer seen. Now the fashion has changed again, and miniatures are once more in vogue, and very excellent are those on ivory, many of which are coloured on a carbon

base. Yet it is surprising that the genuine miniature can withstand the depreciation of its value in public estimation by the many and various cheap forms with which the market is deluged. We are aware there is a remunerative demand for these cheap miniatures, and for that reason we may offer our *apologia* for printing last week some notes on their production. Yet it is nevertheless a matter of surprise to observe the cheap aniline tinted portrait appended to—we can scarcely say adorning—the garments of many persons of apparent pretensions to be fashionable. The traveller in London can see that the coloured photo-miniature is not confined to Brixton and Upper Tooting.

\* \* \*

### Posters at the R. P. S.

There is now on view at the premises of the Royal Photographic Society a collection of the posters submitted in the recent open competition organised by the society. The awards have been made by the editor of the "Studio" in collaboration with the Council, and the first place is taken by a very bold but simple design—the work of Thos. Cook. The subject is a conventional Eastern figure posed beside a camera (also conventional), and the only colouring in the composition is the big patches of orange which give the massed lighting effect on one side of the face. The poster, if not weighted with typographical additions, should be a bold advertisement for the autumn exhibition. And it is worth noting that in comparison with others submitted it is inexpensive to produce. We should say that for the limited edition which will be needed, the aerograph-stencil method of colouring would be economical and capable of giving the necessary vivid colouring which the design requires. On the other posters shown it is not possible for us to comment at length, but we may commend a Dutch figure subject by B. Fielder, and draw the attention of this and other exhibitors to the fact that a design for a poster and therefore for display by "sandwich men" should be upright in its position on the allotted space. A good many artists, we see, have made their composition "landscape way." The posters will remain on view at Russell Square until April 21, and no doubt some of the unsuccessful ones will find customers from makers of apparatus or materials. There are a good many which would make admirable and original showcards.

\* \* \*

### The Bleach-out Colour Process.

According to a Zürich daily paper, Drs. J. H. Smith and Merckens have so far improved the bleaching-out process of colour photography that prints can now be obtained under a coloured original with half an hour's exposure to sunshine, and the editor states that the results which he saw were extraordinarily true and brilliant in colouring. It is also stated, on the authority of the above-named workers, that there is a reasonable hope that within a short time the sensitiveness of the paper may be so increased that direct prints in colours may be taken in the camera.

\* \* \*

### The Paris Photographic Salon.

The eleventh salon arranged by the Photo Club de Paris will be opened on June 9 in the Palais au Glace, Champs-Élysées, and will remain open daily from 10 to 6 until July 1. Although the fact is not paraded in the prospectus issued by the Photo Club, the Salon is international in its exhibition of photographs possessing pictorial quality, and prints, framed or unframed, will be accepted up to May 15 at the premises of the Photo Club, 44, Rue des Mathurins. The entry forms relating to the pictures

ould reach Paris by May 1. There is no charge for  
age, but the cost of carriage to and fro must, of course,  
borne by the exhibitor. In all probability work by the  
achromatic lenses of MM. Puyo and de Pulligny, to  
which we refer this week in continuation of the recent  
articles on the subject, will be largely in evidence, and  
those who can contrive a day or two in Paris during the  
month when the Bois and the boulevards are at their best  
could be doubly repaid for the journey.

### ARTISTIC LENSES.

another part of this issue we briefly review one of the  
newly introduced anachromatic lenses, of which a good deal  
has been heard at present, and which are to be represented  
by a number of photographs in the autumn exhibition of  
the Royal Photographic Society. The properties of the  
lenses being largely novel to many of those who have inter-  
ested themselves in them, it seems incumbent upon us to  
consider their behaviour in some detail, and so to answer  
the numerous questions in regard to them which have been  
addressed to us. It will be understood that we write of the  
lenses comprising single glasses and doublet lenses of various  
characters, the separate glasses fitting a single mount, the  
back portion of which is employed for making the chromatic  
correction.

There is no difficulty whatever in making this correction.  
The mount is, in the first instance, racked out until a line  
marked O coincides with back edge of opening in outer  
jacket. Sharp visual focus is then secured by the focussing  
adjustments of the camera, and when the picture plane  
has thus been adjusted to the focus for yellow rays, it is  
then adjusted to the focus for violet rays by racking in the  
mount until a scale mark representing the distance of the  
object is brought to the back edge of the opening in the  
outer jacket of the mounting.

The four objectives that the set is intended to make up  
are as follows:—A plano-convex lens in the front cell of the  
mount, with convex side towards the subject and the stops  
in front. This is intended especially for portrait studies of  
heads and shoulders, or half-length portraits against plain  
backgrounds with no accessories. With this arrangement  
the lens spherical aberration is reduced to a minimum in  
the centre of the plate, while at the margins aberrations  
of all kinds are very conspicuous. The full aperture is  $f/5$ ,  
 $f/8$  is the aperture advised. We found the definition in  
the centre to be fairly good, but no amount of stopping down  
effects much improvement in the marginal definition,  
hence the advice to use a plain background with no access-  
ories is certainly to be commended. For the particular  
work for which it is intended this lens is probably of great  
value.

The second arrangement is with the plano-convex in the  
back cell of the mount, with the plane side towards sub-  
ject and with the stops in front. The spherical aberration  
is then much increased, and small stops are necessary,  
being over  $f/10$  being admissible, while  $f/12$  or  $f/18$  are  
preferable. This arrangement of the lens is said to be of  
great value for figure studies, and more especially for landscape  
work, but it is not strongly advocated by the inventors, and  
our trials seem to indicate that it is in most cases much  
inferior to the next alternative, which is a single meniscus  
lens in the back cell, the whole arrangement being

similar to that of the ordinary single landscape lens. This  
is recommended to be used for small figures with acces-  
sories at an aperture of  $f/10$ . This aperture being some-  
what small for indoor work, it appears to us that the lens  
would probably be of greater service for landscape work.  
Most workers will, however, prefer the fourth arrangement,  
which seems from our tests to be capable of producing  
somewhat remarkable results.

This last modification is a symmetrical doublet with back  
and front meniscus lenses and a full aperture of  $f/5.5$ .  
Stopped down to  $f/8$  this covers a half-plate with a degree  
of definition that we did not expect. The field is very  
nearly flat, and at this aperture the definition on the  
focussing screen is very good right up to the corners of the  
plate. At  $f/5.5$  the central definition is markedly inferior,  
while coma puts in an appearance. The inventors recom-  
mend  $f/6$  to  $f/6.5$  for the production of what they call  
"synthesis," by which we understand them to mean detail  
softened by chromatic aberration. We tried the lens for  
copying a test diagram at  $f/11$ , and the definition on the  
screen left little to be desired, though very slight curvature  
was apparent. This symmetrical arrangement of the ob-  
jective, and the first one with plano convex lens in front  
cell, seem to us to be the most valuable combinations.

When focussed on a distance the extension of the camera  
from screen to flange is 10 inches with the symmetrical  
doublet. With plano lens in front cell the extension is  
only about  $7\frac{1}{2}$  inches, while with a lens in the back cell it  
is about  $12\frac{3}{4}$  inches. As before stated, all combinations  
give the same focal length, but considering the short exten-  
sion needed with the plano lens, and the advantages of long  
focus in the work for which it is specially intended, it  
appears to us that this lens might well be of greater focal  
length. This would reduce its aperture (which is now  $f/5$   
and would bear reduction to, say,  $f/6.5$ ), and necessitate a  
second scale for correction, for which there is plenty of  
room on the mount.

It should be noted that the lenses are all uncorrected,  
but selected and designed to give minimum aberrations.  
The doublet being of symmetrical construction shows no  
evident distortion, and very little coma at full aperture,  
and this last defect disappears at a smaller aperture, leav-  
ing barely appreciable astigmatism. This result is due in  
part to the wide separation of the lenses and their thinness,  
and to the narrow angle of view employed.

The plano lens in front of stop has no semblance of  
correction, its effectiveness depending entirely on the fact  
that such a lens with curved side towards object gives only  
a minimum amount of aberration in the centre of the field,  
and the centre of the field is practically the only part in-  
tended to be used.

The single lenses behind the stops are, of course, in a  
disadvantageous position, and small stops are necessary.  
We are inclined to think that these arrangements might be  
ignored, as the symmetrical doublet and the single plano  
will apparently do all that is necessary.

The single meniscus is not of the same form as the lenses  
used in the doublet. The former has a concave radius  
equal to its focal length, and in the latter the concave  
radius is about two-thirds of the focal length. Each lens  
is designed specially for a particular purpose.

Altogether we consider these new instruments to be a  
most interesting set of lenses, and of a kind which the  
portrait photographer will probably find to be of great  
value. A study of the book of MM. Puyo and de Pulligny  
shows that the design has been worked out on a very  
scientific basis, and, though uncorrected, these objectives  
are a long way in advance of the too common haphazard  
combinations of any cheap available lens fixed at any  
convenient distance from a stop.



# THE THEORY AND PRACTICE OF INTENSIFICATION.

## II.

WE now come to the precipitation of metallic compounds on the reduced silver image, the most successful case, perhaps, being that of chromium. A solution of a chromate rendered acid with hydrochloric acid will convert the image into a yellowish-looking picture, and the "bleached" image after washing may be redeveloped with an alkaline-reducing solution, when certain chromium compounds are precipitated upon the original silver and sub-haloid image, thus giving very considerable intensification to the negative, sometimes accompanied by slightly brownish coloration.

A H. and D. strip was read off before and after intensification, and the following were the results:—

	Fog Portion.	1st.	2nd.	3rd	4th.	5th.
Original .....	1.2	3.5	6.8	10.3	12.5	—
Intensified .....	1.9	5.5	9.9	15.3	19.8	—

If we compare the first portion with the third, we find in the first case:—

$$IN = \frac{5.5}{3.5} \text{ or } 1.57,$$

whilst in the second case:—

$$IN = \frac{15.3}{10.3} \text{ or } 1.49.$$

Evidently, then, intensification was slightly greater in the under-exposed portions than in the well exposed. This result was fully confirmed on intensifying a negative taken on a process plate, the details in the shadows coming up wonderfully clearly. It is interesting to note that both the original and the intensified strips gave approximately the same H. and D. speed number, and also that reversal commenced at the same time in each negative.

### The Chromium Intensifier.

In order to, if possible, accelerate the action of the chromate, I used a less stable compound than the potassium salt, employing instead calcium chromate. A solution of this (made acid with HCl) was prepared as follows:—

Calcium chromate .....	1.5 gms.
Water .....	100 ccs.
Hydrochloric acid .....	1.5 ccs.

About three minutes' immersion in this will suffice; the negative is then thoroughly washed and developed with a mixture of equal parts of the following developer:—

A. Hydroquinone .....	1 gm.
Pot. metabisulphite .....	1 gm.
Water .....	200 ccs.
B. Caustic soda .....	2 gms.
Water .....	200 ccs.

The redeveloper quickly decomposes the precipitated chromate, with the result that oxides of chromium adhere to the silver particles, and cause the intensification. A few minutes' washing is necessary after redeveloper.

On examining films before and after intensification with a high-power microscope, so that a magnification of 1,200 diameters was obtained, it was apparent that very small, if any, interaction takes place between the chromium oxides and the reduced silver particles. What seems to have taken place during intensification is the precipitation of the chromium

oxides in between the granules of silver, which therefore seem to incite precipitation.

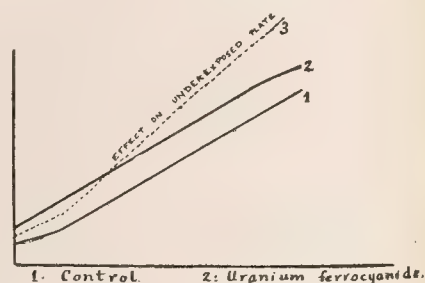
### Uranium Intensification.

Uranium should be an extremely useful metal to us, but, unfortunately, it causes such a distinct coloration to the film, and, owing to the fact that it intensifies the shadows of low tones more proportionately than the high-lights or deep tones, the fog on the plate is much accentuated. The most powerful intensification is effected when using a bath containing an excess of uranium nitrate. The compound then precipitated on the image has, according to Otterberg, the formula  $(\text{UO}_2)_3, \text{K}_2(\text{FeCy}_6)_2, 6\text{H}_2\text{O}$ . Intensification is very rapid, and bright reddish coloration is imparted to the film, but it is possible that if the bath be prepared with an excess of ferricyanide and given a sufficient time to work, about as great intensification might be obtained as with the other.

The solution, when once mixed, does not keep well, and two solutions should therefore be prepared, as follows:—

A. Uranium nitrate .....	2 gms.
Acetic acid (B.P.) .....	5 ccs.
Water .....	100 ccs.
B Potassium ferricyanide .....	2 gms.
Water .....	100 ccs.

Three parts of A mixed with two of B give a powerful intensifier; two of A with four of B give a less powerful intensifier, which is more suitable for under-exposed negatives. The first-named solution was tested as regards its effect on gradation, and the result is shown in Fig. 1.



When intensifying with uranium it is essential to remove all traces of hypo from the film, and for this purpose a hypo eliminator is very useful. The deposit of ferrocyanide formed is removable by long washing, and also by aqueous solution of sulphites, so that it is not difficult to cope with cases of over-intensification. It is possible to avoid this loss of density by washing the plate in water containing a small percentage of acetic acid.

A noticeable feature with uranium intensification is that the gelatine itself becomes discoloured. Often very much so. The simplest way to remove the yellowness from the film is to soak the plate for a minute or two in a 5 per cent. solution of ammonium sulphocyanide previously to the final washing.

In the figure we see two characteristic effects of uranium intensification: the dotted curve shows the effect of intensification with negative of ordinary character; but should the plate be all over-exposed, we at once get intensification like 2, where the shadows receive more comparatively than the high-lights.

### The Permanganate Intensifier.

Text in importance comes the permanganate intensifier. It gives excellent results, and very great intensification can be obtained with it, the image being black. With a weak acid solution of potassium permanganate the image turns pinkish-brown, and after washing and redeveloping with hydroquinone or metol-hydroquinone the "bleached" image again becomes black, and regains density. Thus a strip before and after treatment with a weak bath gave the following results, from which it will be seen that at the conclusion of the operation "negative" was practically the same as before:—

	Fog Portion.	1st.	2nd.	3rd.	4th.	5th.
Before .....	1.5	1.9	3.2	6.2	11.5	18.5
After .....	1.5	1.9	3.3	6.3	11.7	18.7

When, however, we use a more concentrated solution of permanganate much greater intensification is obtained.\* Thus the following table shows the increments of density in a strip after treatment with a strong bath:—

	Fog Portion.	1st.	2nd.	3rd.	4th.	5th.
Before .....	1.5	1.9	3.2	6.2	11.5	18.5
After .....	1.5	2.1	3.7	7.3	13.0	21.2

Therefore recommend for intensifying with permanganate the following solution:—

Potass. permanganate .....	1 gm.
Water .....	100 ccs.
Con. hydrochloric acid .....	.25 cc.

The great density obtained by intensifying an actual negative with permanganate is apparently more difficult to obtain with the strip.

It need hardly be said that the negative should be entirely freed from hypo; when thoroughly washed it is placed in the above solution until it appears a bright red by transmitted light. It is then washed until the last wash-water does not appear crimson, *i.e.*, until all free permanganate is removed from the film. Finally it is redeveloped with an alkaline developer, such as hydroquinone and caustic soda or metol-hydroquinone. From curves of H. and D. strips plotted before and after treatment, and from actual negatives intensified, it is evident that the permanganate method wonderfully increases the shadow-details and under-exposed portions.

### Bismuth, Molybdenum, and Other Intensifiers.

Hydrogen peroxide in ethereal solution has at present failed to give any directly measureable results in my hands. A 1 per cent. solution of bismuth trinitrate acidified with nitric acid combines to a small extent with the image of a negative, and subsequent treatment with weak ammonium sulphide solution causes intensification; the method promises well, but at present it is difficult to avoid the slight production of universal fog.

A solution of ammonium molybdate and potassium ferricyanide, acidified with acetic acid, also produces alteration of the image, but the slight increase in density obtained is not in favour of its use.

On the whole, after experimenting with mercury, lead, copper, uranium, chromium, and manganese, one is disposed to give mercury the first place as an all-round intensifying agent, but I would again draw attention to the promising nature of the permanganate method, which, for reasons at present not clear, works better with an actual negative than with an actinometer strip.

In the third and concluding article I propose giving a reference list of modern intensifiers.

T. THORNE BAKER, F.C.S.

## THE TANNING OF GELATINE DURING DEVELOPMENT, ESPECIALLY WITH PYRO.

[There are several processes which require the use of a developer which does not tan the gelatine, and it has always been assumed that pyro was the only developing agent that exerted this action. In our issue for March 30, p. 245, a brief abstract was given of MM. Lumière and Seyewetz's article, which is sufficiently interesting to bear a full translation.—  
—B.J.P.]

Two developers, according to present ideas, alone possess the property of rendering gelatine insoluble during development. This insolubilisation, as is well known, is scarcely noticeable in the transparent parts of the negative, but is complete in those parts which contain a sufficient quantity of reduced silver.

In the present researches the authors have investigated two questions, the first as to whether the tanning is due to the actions which take place during development, and, secondly, whether it occurs when there is no silver. It has also been determined what part the pyro plays, and whether other developing agents exert the same action. In order to determine whether the actual operation of development was necessary to produce the tanning of the gelatine, sheets of gelatine were immersed in the following solution:—

Anhydrous sodium sulphite .....	30 parts.
Pyro .....	10 parts.
Sodium carbonate .....	30 parts.
Water .....	1000 parts.

It was found that the gelatine did not become markedly more insoluble whilst immersed for the ordinary time of development—ten minutes. It did not become more insoluble even if immersed in the above for an hour. When, instead of using sheet gelatine, negatives developed by other developers which do not tan were immersed in the above solution, no tanning action, even in the densest parts of the negative, could be detected. The presence of the silver alone cannot therefore be said to be a cause of the tanning action.

When, however, the sheet gelatine or negatives of the previous experiment were immersed in the pyro solution for several days with the access of air, it was found that the pure gelatine as well as that which contained silver became insoluble.

This experiment proved that the tanning action can take place without development, but that the latter action considerably accelerates the tanning. In order to explain these phenomena the action was tested in the absence of silver, and the following solutions were made up:—

1.—1 per cent. solution of pyrogallol.



2.—1 per cent. solution of pyrogallol plus 3 per cent. anhydrous sodium carbonate.

3.—1 per cent. solution of pyrogallol plus 3 per cent. anhydrous sodium carbonate and sulphite.

Sheets of gelatine were digested in wide-mouthed bottles half filled with the above solutions.

Solution No. 2 made the gelatine, after two days contact, absolutely insoluble.

Solution No. 3 gave the same result only after four days. Solution No. 1 produced no marked insolubilisation, even after a month.

It was seen that No. 2 solution, which produced the tanning most quickly, was that which turned brown most quickly by absorption of oxygen. No. 3 turned brown more slowly than the other, but it was deeply coloured when complete insolubility was reached. Solution No. 1 became only faintly coloured in the course of time.

These results led to the assumption that the atmospheric oxygen played some part in the tanning. In order to test this the experiments were repeated in closed bottles, with exclusion of the air. Under these conditions the above-mentioned solutions exerted no tanning action even in a month, a fact which appears to substantiate this hypothesis.

As the results obtained showed the necessity of oxidation of the developer for a tanning action to take place, it was thought that the same result could be obtained with other developers if the oxidation of the same was hastened. In order to prove this hypothesis, the experiments were repeated with the principal developers; that is, comparative trials were made with and without access of air.

Every day a piece of gelatine was taken out of the bottles and tried in boiling water. The result is shown in the following table:—

Developer.	1% Aqueous Solution.		1% Aqueous Solution + 3% Anhydrous Sodium Carbonate.		1% Aqueous Solution + 3% Anhydrous Sodium Carbonate + 3% Anhydrous Sulphite.	
	With access of air.	With exclusion of air.	With access of air.	With exclusion of air.	With access of air.	With exclusion of air.
Pyrogallol .....	The gelatine melts easily after 1 month	The gelatine melts easily after 1 month	Insol. after 1½ days	The gelatine melts easily after 1 month	Gel. insol. after 3½ days	The gelatine melts easily after 1 month
Hydroquinone .....	"	"	after 1 day	"	Melts easily after 1 month	"
Pyrocatechine .....	"	"	after 2 days	"	" "	"
Paramidophenol (base)...	"	"	Partly insol. after 1 month	"	" "	"
Amidol .....	"	"	after 1 day	"	Insol. after 3 days	"
Diamidoresorcin .....	"	"	after 1 day	"	Insol. after 1½ days	"
" hydrochlor...	"	"	after 2 days	"	" "	"
Metokinaosa .....	"	"	after 2 days	"	Melts easily after 1 month	"
Adurol .....	"	"	after 2 days	"	" "	"
Paraphenylenediamine ..	"	"	Gelatine melts after 1 month	"	" "	"
Eikonogen .....	"	"	insol. after 6 days	"	" "	"
Metol .....	"	"	insol. after 3 days	"	" "	"
Glycin .....	"	"	melts after 1 month	"	" "	"

In order to test whether it was the oxidation product and not the development that produced the tanning, the action of a well-known oxidation product, namely, quinone, was tested. This substance, which is formed by the oxidation of hydroquinone, is, as is well known, formed in development.

It was found that a cold saturated solution of quinone, 0.5 per cent., made gelatine, even with exclusion of air, quite insoluble, whilst hydroquinone is without action on the

gelatine. If this solution of quinone is added to a suitable quantity of gelatine solution it mixes well, but when the gelatine sets it becomes quite insoluble in boiling water. Twenty parts of a 0.5 per cent. solution of quinone make 100 parts of a 10 per cent. solution of gelatine insoluble. The tanning action is very similar to that by chrome alum formaline.

Finally, with a 0.5 per cent. solution of quinone a gelatine negative can be hardened as well as with formaline.

The above experiments prove conclusively that when there is no tanning action with other developers as with pyro, the reason is that other developers only very slowly absorb atmospheric oxygen in the presence of sulphite. As soon as they come under conditions which favour their oxidation tanning occurs.

It is worth while noting that under no conditions is complete tanning obtained with paramidophenol, and that the hydrochlorate of diamidophenol with an alkaline carbonate tans the gelatine more quickly with than without sulphite. The peculiar behaviour of paramidophenol may perhaps be explained by the fact that the oxidation product is insoluble in water, and only slightly soluble in solution of sodium sulphite. With amidol it is also seen that without sulphite the oxidation product forms a precipitate, but that in the presence of an alkaline carbonate and sulphite it does not do so. If there is sulphite used it oxidises more slowly, but still absorbs enough oxygen to produce tanning.

It is easy to grasp, from the above experiments, the mechanism of the tanning of gelatine when developing with pyro, and the reason why the tanning is more complete where the silver is reduced by the developer.

It may be assumed that the pyro is oxidised by the action of the bromine from the silver bromide, and that this oxidation

product, which is formed in the presence of sulphite, makes the gelatine insoluble, exactly in the same way as the quinone used in the free state did.

As regards the other developers, in that they do not produce the insolubility of the gelatine when used under normal conditions, it is probable that their oxidation products formed during development are decomposed by the sulphite.

A. AND L. LUMIERE.

THE official guide to Great Yarmouth, fully illustrated and descriptive of the pictorial and recreative features of the popular East-Coast resort, reaches us from the publishers on behalf of the corporation,

Messrs. Jarrold and Sons, Ltd., King Street, Great Yarmouth, by whom we believe it will be sent gratuitously to any applicant.

## THE RAPID PRINTING OF POSTCARDS.

The following article, from the current issue of "Photographic Scraps," deals with certain minor difficulties in postcard production such a way that we may well reprint it, with a reminder to our readers of the monetary importance of the postcard in many a photographic business.—Ebs. B.J.P.]

Dealing with a hurried order for postcards recently, our first difficulty was with our negative, which was steep in gradation and of a wall-like density. Evidently this would only produce soot and wash effects on bromide, and even with special treatment a unsatisfactory portrait would result.

### Negatives for Bromide Printing.

A new negative had therefore to be made. As a thin but "cony" negative, full of detail, was necessary to reduce exposure, a transparency was made on an Ilford ordinary plate, developed with diluted pyro-soda. This plate was fixed and quickly washed under tap for five minutes; absolute freedom from hypo not being essential in the transparency. It was then dried on both sides with a flannel cloth, and placed for three minutes in methylated spirit, for a few seconds' exposure to the air sufficed to evaporate.

The transparency was carefully retouched so that the resulting negative might be quite clean and free from spots. The name of the photographer and title of subject were written with liquid Indian ink in the ordinary way (not reversed) on the film side of the transparency with a pen. Of course the result on the card was reversed. Two negatives were produced from the transparency by contact, these being washed and dried in the same way.

The negatives were thin and "contrasty," but full of detail, quite fit for bromide printing, but as we only stock a few postcards the necessary quantity had to be procured from the local dealer. Luckily at the Ilford bromide cards we wanted, and on our expressing surprise at his being able to supply us off-hand with six gross of one make, he assured us that he stocked more Ilford cards than others combined, and was sure of a quick sale.

We had been using the standard Ilford metol-hydroquinone bromide formula for our enlargements, but in postcard-printing the margin of error is so small that we decided on the following developer, cheaper, and use hydroquinone is so much less expensive than metol.

No. 1.	No. 2.		
Hydroquinone ... ..	200 grs.	Potassium carbonate...	4 ozs.
Metol ... ..	120 "	Water up to ... ..	80 "
Sulphite of Soda ... ..	4 ozs.		
Water up to ... ..	80 "		

Used in equal parts.

### Printing Borders.

We proceeded to make a mask for printing the cards with a white border, which not only made them look and sell better, but also rendered any trimming at the edges unnecessary. When once they are properly arranged, bordered cards are as easily printed as plain. The mask was made by laying a post card on a piece of black wrapping paper on old 5 x 4 film, and then running round the card with a pencil a distance from this line equal to the width that the white border was intended to be, pencil-lines were ruled inside of and parallel to the lines first made. The centre-piece was then cut out with a sharp knife, care being taken to get the corners clean.

We next cut some thin strips from an old postcard about a quarter of an inch in width. Two strips were taken, one, a short one, being stuck on to the mask with its edge coinciding with the pencil-line round the original card, but on the side opposite to that from which the centre had been removed. A piece of card, rather longer than the other, was then stuck to the mask at right angles to the first piece, and again coinciding with the pencil line first made, and on the side of the line opposite to that from which the centre had been cut out. These two pieces of card were now so placed that when the sensitive card was pushed close up to them the white border round the card would be quite equal.

The mask being now stuck to the negative to be printed from and in the right position, all that was necessary to get that part of the card which was to appear on the card with a correctly proportioned white line, was to place each card to be printed with the top edge touching, but not overlapping, the two guides. These guides

were thick enough to enable one to easily and rapidly place the sensitive card in position but not thick enough to interfere with the pressure on the card of the printing-frame back, which might have caused loss of sharpness.

### A Time-Saving Printing Frame.

To print in the ordinary way would evidently have taken far too long, so that we devised a quick-printing frame quite simple and effective, but not, we believe, before used. The springs were removed from an ordinary half-plate frame, the hinged back placed in position, and two hinges screwed to the bottom half of the back and parallel to the pair of hinges already in position. The two hinged halves would have fallen back out of the frame, but were, of course, fixed to it. The frame was screwed up in the dark room one foot from a No. 5 Bray's burner, and the negative and mask, in position, fixed into the frame with gummed paper.

A light-tight box with exposed and unexposed divisions was obtained and sensitive cards unloaded into it. Without such a box quick production is impossible, the cards must not be kept wrapped up, or in envelopes, if speed is to be attained. The ordinary yellow light was placed so as to shine on the back of the printing-frame and negative, showing up the white guides, the naked gas being turned low.

A card was taken out of the unexposed division, placed sensitive side to the negative, and corner up to the guides. The card was held in position at the top, the lower half of the back was raised and pressed against the lower part of the card, this being sufficient to secure it. The hand could then be removed from the top of the card, the upper half of the back be raised and placed in contact with the postcard. The two halves were kept in contact with the card and negative by pressing with the hand. The frame being screwed up did not move. The gas was manipulated with the free hand and the exposure given. In the case referred to it was five seconds.

### Wholesale Development.

This may seem a complicated and elaborate method, but a dozen cards can be printed in the time it has taken to describe it. When the full number of cards were printed, development was started, the following dishes being used. One large one full of clean water for the preliminary soak, one 15 x 12 dish for developing, one full of water for washing after developing, and two fixing dishes full of hypo, three ozs. in twenty.

About a hundred cards were placed in the clean water, each one being put in separately, and care being taken to avoid air-bells. Forty ounces of developer were placed in the dish and about twelve cards were slipped singly into the solution. Here again air-bells had at all costs to be avoided, as the present prices of photographic cards do not allow for spotting.

As the cards were developed far enough they were rinsed in clean water. A rather longer time in development would not have greatly mattered, as the exposure was so timed that the end of the light action and the limit of the developing power of the reducing agent were reached simultaneously. When developing batches of cards in this way the operator must not run any risk of contaminating his developer, or staining the prints by putting his hands into hypo. An assistant should remove the cards from the water used for washing after development, and place them and keep them moving in the hypo. When about a hundred are in the one dish, the time when the last card of the batch was put into the hypo is noted, and a quarter of an hour's fixing from that time given. Meanwhile the other hypo dish is used.

When the first batch has been fixed the prints are put into clean water and the hypo used again, while the second batch fixes, and so on. With two persons working in this way, one of whom may be unskilled, a big batch is soon developed, and we managed ours in ninety minutes, changing the developer only four times.



### Washing and Drying.

As running water is useless for thick material like postcards the batch had to be hand-washed. Half a dozen changes were given, the cards being transferred from one large trough to another. Working at top speed each transfer to clean water took ten minutes.

An even more monotonous and tedious operation was yet to come, that of transferring the cards to the drying-racks. These racks had been made by a joiner while printing, developing and washing were in progress. With large batches they are a necessity, as a saleable card must be quite flat. To ensure this the flat-ruler system is almost valueless, and does not tend to improve the surface.

The racks were made by screwing  $\frac{1}{2}$  in.  $\times$   $\frac{1}{2}$  in. laths on flat boards, having the laths parallel to one another and  $\frac{1}{2}$  inches apart, or one inch less than the length of a postcard.

The cards, after any excess of water had been removed by blotting, were placed between the parallel laths film side up. To get them in, the cards had to be arched, and were so allowed to dry, thus counteracting the pull of the gelatine. A little curving when they were removed from the rack and about fifteen minutes under a heavy weight left the cards sufficiently flat.

The whole time taken for the batch of about a thousand, irrespective of the time taken to procure cards, fix frames, and make developer, was six hours. The drying was done spontaneously during the night.

I may mention that of the entire number of Ilford cards not one was rejected owing to defects in manufacture. This contrasted favourably with some cards I have used, which were plentifully supplied with metallic markings and spots of some foreign substance in the emulsion.

W. FOSTER BRIGHAM.

## A SKETCH HISTORY OF ENGRAVING.

A Paper read at the Sixth General Meeting of the Edinburgh Photographic Society.

### 1. Wood or Relief Engraving.

THE art or practice of representing things by incised lines on metal, stone, or other hard surface is of very ancient origin indeed. The great antiquity of carved documents is shown in the Bible. The divine commands were issued on tables of stone, and among primitive nations this seems to have been considered the most appropriate and durable method of perpetuating records. In such cases the letters were evidently cut with a sharp instrument of iron or perhaps prepared copper. Job says, "Oh, that my words were written, that they were graven with an iron pen and lead in the rock for ever." Here we have a foreshadowing of the afterwards famous niello work, from which might be said to have sprung the practice of printing from an engraved metal plate.

It is my intention to deal with engraving as one of the fine arts principally employed in translating the works of painters for dissemination by the press. In speaking of engraving generally, we are accustomed to infer an impression printed on paper from an original in the printing-press, so that in making a beginning it may be quite enough to start with the date when this important movement took place.

Broadly put, there are two great divisions in the art, viz., relief engraving and intaglio engraving.

In relief engraving the lines which are to make an impression on the paper are raised up on the original, while the spaces between them which are to appear white are cut away.

In intaglio engraving, on the contrary, the lines to appear black on the paper are sunk below the surface on the original, and the parts to appear white are raised up.

Wood engraving represents the first, and in inking this relief picture for printing a roller well-impregnated with ink is used, which, of course, only touches the raised parts.

Copperplate engraving represents the second, and in preparing it the ink is dabbed into the sunken lines and then the smooth bare parts are wiped perfectly clean by the use of a cloth and also the palm of the hand. Although in importance wood engraving does not come before copperplate engraving, still historically it undoubtedly does so. As a pictorial art, wood engraving in Europe goes back to the first quarter of the fifteenth century.

Germany has the distinction of having produced the first authentic and dated print. This print represents St. Christopher carrying the Infant Christ across a river, and was discovered in one of the oldest convents in Germany, the Chartreus of Buxheim, near Memmingen, and bears the date 1423. It is now in the possession of Earl Spencer. This illustration is in one of the very earliest block-books known, that is a book whose whole text was carved or engraved on wood, and the impressions taken by rubbing on the back of the paper instead of the steady pressure of the printing-press.

From the time of the St. Christopher till 1440, when Gutenberg popularised the printing process by his invention of movable types, engravers and those who drew for them were very circumscribed. It

was long before the engravers in Germany acquired anything like the skill of the printers trained by Gutenberg.

In Holland, however, the early printers seem not to have made such progress as the engravers. In Gutenberg's publications spaces were left in the printing for the capital letters, and were afterwards filled in with brush or pen, possibly in colour. As time went on this difficulty was overcome, and wooden blocks with the larger letters and illuminations or illustrations were printed from, so doing away with the illuminators' craft. Wood engraving continued to make progress particularly in Germany, but it was not till 1466, when an anonymous artist, known as the master of 1466, produced work of a high standard, that the art might truly be called an art. Following him was Martin Schongauer, an able artist whose influence was productive of a number of enthusiastic disciples who followed the teaching of their master with great success.

In 1476, Caxton, in England, published "The Game and the Play of the Chess," illustrated by woodcuts. The art of printing Caxton learned while trading in Holland during the reign of Edward IV. This seems to have been the earliest wood engraving printed in England.

It was not till the production of works by Albert Durer, the great promoter of the art, about the beginning of the sixteenth century, that a complete revolution in the art took place.

This great artist was not as the earlier men were, tied down to the rules of their teachers. His merits were entirely his own. Although Durer was himself a skilful copperplate engraver, the bulk of his compositions are woodcuts.

As wood engraving, or to speak more correctly, wood cutting, had been extensively practised already in Germany, these productions of his were executed on wood by skilful workmen, who had mastered the practice then followed of cutting with a knife instead of using a graver. There is little wonder that a man of Durer's great mental power and artistic genius should advance the art in which he was so interested.

While he lived, Durer was one of the greatest artists in Europe, being acknowledged so by such a dissimilar master as Raphael himself, with whom he was on terms of friendly correspondence.

Of Durer it might be truly said that he was a German in his art to the last, for although he had travelled during his youth in Italy at a time when the great artists, with Raphael at their head, were producing works influenced by the antique, we can find no evidence of their influence on the work of Durer.

The next outstanding name in the art is that of Hans Holbein, also a German. This great artist is historically interesting to Englishmen by the fact of having resided in London during the reign of Henry VIII., and been the first court painter we have of any artistic ability. Like his countryman Durer, Holbein was an artist of great versatility, designing decorations, painting portraits, and drawing book illustrations. As an engraver, his fame as the origi-

of the series of cuts known as "The Dance of Death" is world-famous. These masterpieces were engraved by one Lützelburger of Nuremberg, and were first published in Lyons in 1538, and consist of 150 cuts.

This series of engravings may be said to have closed the period of engraving which had gone on in Germany from the beginning of the fifteenth century.

Until the time of Holbein wood engraving was more conventional and it is now, it so circumscribed and limited itself in practice that it expressed what it had in hand with greater power, and his life closes the era of a school of engraving which has never been surpassed in its own way.

For the actual process of wood engraving, a description of the material and the tools used may be given.

All these early engravings were cut with a knife instead of a graver. It was necessitated by the work being done on wood blocks cut long way of the fibre, so that the workman had to cut sometimes across the fibre, and at other times along with it. To represent four lines no less than thirty-two or more cuts would be required in order to leave them clear on the surface. This was a slow and tedious process, requiring for fine work a neatness of hand very difficult to attain. Possibly this technical condition was the main cause of the artists, who drew for reproduction, suiting their lining drawing to the limitations of the craftsman's art.

From the time of Holbein onwards, for long wood engraving was in a stagnant state, probably on account of no great artist interesting himself in the art. About the middle of the eighteenth century the French revolution in wood engraving took place, the honour falling in England in the person of Thomas Bewick, born in 1753 near Newbottle-on-Tyne. This man, a copperplate engraver by profession, directed his attention to wood engraving, and produced work which went far beyond what had previously been seen. His practice was to get his effects by the simplest possible means, discarding the elaborate system of shading by laboriously crossing black lines, so common with the earlier men. Bewick never did so, but on the contrary crossed white lines on a black ground. This white line was his own invention, and has had far-reaching consequences on the history of wood-engraving.

It is generally considered that it was at this time that the new era of preparing the wood block came about, which consisted in lining the log of boxwood through crossways and executing the shading on the upstanding fibre, so that there was no trouble from the stringy fibre as in the earlier method. Coupled with this improvement was the substitution of the graver for the knife, greatly extending the field of possibilities and facilitating the execution of the work.

One of the great virtues of Bewick's work is due to the fact that he not only made the original drawings himself, but also executed the engravings.

He was all along a keen naturalist, and in 1798 published a "History of British Quadrupeds," and "British Birds," 1804. In both works a greater number of the illustrations are drawn and engraved by himself. These works are also remarkable for a series of vignettes and tailpieces, displaying an infinite amount of humour and pathos. Bewick had no teaching in his art, and his work was the outcome of his intense love of nature and the spark of genius which certainly shone in his. This white line of Bewick's made it possible for the wood engraver to become in his work imitative of any surface or texture, and will be shown later. Since the time of Bewick the black line has, however, been continued in this country, and been very highly developed.

The "Illustrated London News," established in 1842, familiarised the public to the beauties of wood engraving. In this periodical appeared the spirited drawings of Sir John Gilbert and the refined escape work of Birket Foster, both of whom might be said to have popularised book illustrations. At the same time were Millais, Pre-Raphaelites, and Fred. Walker, the first of whom drew a series of illustrations to the Parables which appeared in "Good Words," and which have since appeared in a separate volume.

The above-mentioned artists drew direct on the prepared block with pencil or pen and ink, and were careful to execute the shading in a way that the possibilities of the process of engraving would not be over-taxed. Many a pencil drawing, however, when printed, appeared in lines which were throughout darker than pencil work

could be. An instance of this were the political cartoons by Sir John Tenniel in "Punch."

The last phase of the wood engraver's art was entered on a number of years ago, when the American workers turned their attention to developing the possibilities of Bewick's practice. These men set themselves to facsimile any kind of original given them to engrave. The subject for reproduction might be an oil-painting, a water-colour, a charcoal or pencil drawing. They had it by means of photography printed on to the block; they turned out the work in such a manner that it seemed the original over again in monochrome.

This close mimicry was in turn hard pressed and perhaps overtaken by the photo process engraving, of which we have not yet possibly seen the full development.

## II. Intaglio or Copperplate Engraving.

As has already been pointed out, intaglio engraving is exactly the reverse in practice of wood engraving. The metals most commonly used are, or rather were (for it is almost a thing of the past), copper and steel, the former being the easiest to work, while the latter is the more durable.

These plates were very carefully prepared; to improve their quality in the earlier days the copperplates were hammered out upon metal tables, this giving them a closer grain and toughness than the rolling between heavy steel rollers practised later. The face was highly burnished, and on it the engraver started his laborious work, the method of proceeding being as follows:—A careful outline drawing in lead pencil was made on paper of the picture or design to be reproduced, the scale of reduction being arranged to suit the size of plate used. This sheet of paper was moistened between sheets of damp blotting-paper, and when sufficiently limp was removed, and laid face down on the burnished surface of the sheet of metal; the two together were then passed through a copperplate printing-press, when it was seen that the pencil lines had been transferred to the metal plate, of course giving a reversed drawing.

Now the engraver had a very delicate task before him, for while he had to make sure of the transferred drawing by tracing it over with a sharp needle, he had also to be very careful not to lose any part of the pencilling in the course of the operation. This done he would start with the graver to work out the picture in all its gradations and tones—a work involving much time and great patience.

This method of engraving had its origin, like wood engraving, in the fifteenth century; that is, the first impression on paper from an engraved plate can be traced to that time. This discovery is said to have been made by one Maso Finiguerra, a goldsmith and niello worker of Florence.

Towards the middle of the fifteenth century niello work was much practised in Italy, and especially in Florence. These *niellatori* were in the habit of engraving decorations on reliquaries, chalices, and other church properties. As the name will show, the designs were, when engraved, filled in with a black pigment which set with a black lustrous surface—hence the name. Finiguerra, it seems, was in the habit of filling in his designs with a soft mixture of oil and soot, so as to see correctly the effect his finished work would have before finally running in the permanent black enamel.

The story goes that Finiguerra laid one of those temporarily blackened pieces of work aside, and that someone carelessly laid a bundle of wet clothes on the top of it, only to find on removing them that the undermost article had taken an impression from the engraved work—possibly it was washing day. This is said to have suggested to Finiguerra the idea of doing as much with moistened paper. Be this as it may, that he did take impressions from his engraved work is proven by the discovery in the Paris Library in 1797 of a proof from a pax engraved by him and bearing the date 1452. Finiguerra seems not to have seen any further possibilities in the discovery than aided him in his work as a *niellatore*, and for twenty years after his discovery no engravings on paper were produced in Italy.

The first great Italian artist to dignify the art was Mantegna. He was certainly the most skilful and powerful of the Italian artists who at that time touched the graver. He worked with broad masses of shadow instead of remaining content with the somewhat outline work of that time. Other names might be mentioned, but perhaps it will be sufficient to single out those which mark a decided step forward in the history of the practice of the art.

The great art epochs might truly be said to have produced great



engravings, and this is certainly so in the case of Italy, for during the lifetime of Raphael the incomparable line engravings of Marc Antonio Raimondi were produced, just as in Germany those after Dürer were executed under his personal care; while much later in England the time of Reynolds might fittingly be styled the Augustan age of English engraving (in mezzotint).

Marc Antonio was a silver engraver, just as Finiguerra had been. This man is generally considered to have had his attention turned to picture engraving by seeing several prints by Dürer exposed for sale in Venice. Some he purchased, and to gain practical experience in the work he deliberately reproduced them line for line on metal. Having done so, he, unfortunately for his own good name, sold prints from his own plates. This forgery was detected by German merchants resident in Venice, who communicated on the matter with Dürer himself, who in turn raised a law action against them. This is said to have been the immediate cause of his leaving for Rome, where he attracted the attention of Raphael, himself an enthusiastic admirer of German engravers, having specimens of their work even of a date prior to Dürer, hanging in his atelier. Needless to say, Marc Antonio was employed by Raphael during his lifetime as his favourite engraver.

Great praise has been bestowed upon Antonio for the purity of taste and execution, together with the nobility of feeling apparent in his works, but we must remember that he was under the guiding eye of the great master himself, who is said to have furnished him with black and white drawings of the work he wished reproduced for his use during the actual engraving of the plate. Consequently, Antonio was not perplexed by the mysteries of colour and the intricacies of light and shade or tone. I am inclined to think that we have to thank Raphael in greater measure for these plates than Antonio who executed the work.

For a long time after his death the spirit and style of Antonio's work was the pattern, and was followed in all parts of Europe by line engravers. While the peculiar character of Antonio's work, which under the influence of Raphael was a linking of the antique with the living reality or of the form of the antique and the Christian in sentiment, the Dutch had gone on developing the style of their own countryman, Lucas van Leyden, which aimed at fulness of tone and close attention to light and shade, never going beyond its own immediate surrounding in search of types.

The next progressive move took place during the time of Rubens. This great artist, knowing the value and importance of engraving in increasing his fame and wealth, set himself to have his works published in engraved form. As models of style he seems to have looked to the Dutch on the one hand and to Antonio on the other. He employed the most skilful engravers he could find, and these he supervised as Raphael had done Antonio. This practice he continued during his life, and the result was a magnificent set of plates from his own works. The result of Rubens' influence on engraving was that careful modelling was fully developed, and instead of the minute detail of the German school, breadth was substituted, with greater attention to tone and colour than Antonio aimed at.

Vandyke, the pupil of Rubens, produced many very fine plates, principally portraits. These he executed himself. These works of Vandyke were not the work of the graver, but were produced by etching the entire work by means of an acid.

In this manner of work the procedure is as follows:—The sheet of burnished copper is coated with an acid-resisting coating called a ground, to which the pencil outline is transferred as in the case of an engraving. These lines are then scratched over, and the shading proceeded with in the same way by means of a needle set in a long handle, and used as one might use a pen or pencil. Of course these scratches lay bare the copper, and when the work is far enough advanced, the plate is subjected to the action of an acid, when the bare lines are eaten deeply into the metal. On removing the ground, the plate can be printed from just as an engraving is done. This process does not require the same practical skill so necessary to produce a good line engraving.

Heading this school of etching stands Rembrandt. He gave the full range of tone, and the full force of high light and intense shadow. Enough has been said of the Continental men; let us now turn our attention nearer home.

In England the earliest engraving of any historical value might be said to be the portrait of Queen Elizabeth engraved by William Rogers

from a portrait by Isaac Oliver. The first influence, however, left in England, was that of Rubens and Vandyke. Possibly this is to be accounted for by the fact of both having resided in England and been so handsomely treated by Charles I. Despite all the court patronage which Vandyke received, he is said to have been so sore pressed for money that he is declared to have consulted some soothsayer or magician.

It was during this reign that Faithorne produced a series of engraved portraits, considered to be the first really artistic native production. He as a Royalist fled to France, where he made good use of his time by studying the works of able engravers there, who were working in the spirit of the school of Rubens.

We all know the story of how mezzotint engraving was suggested to Prince Rupert, the nephew of Charles I., by seeing a soldier cleaning his rusted gun. This, no doubt, is a fable, but there can be no doubt that he has the honour of introducing the process into England. The credit of the invention of the process is generally assigned to Ludwig von Siegen, a lieutenant-colonel in the service of the Landgrave of Hesse-Cassel, who used the method in executing a portrait dated 1642; but of this latter. It was not, however, till the reign of George II. that native genius showed a real interest in the art of line engraving.

William Hogarth, whose name is of world-wide celebrity, engraved his own picture in a firm, clear style, similar to that practised then in France. His satires on the life of his time are familiar to all, from such series of engravings as the *Marriage à la Mode* and the *Rake's Progress*.

The pre-eminent names, however, among English line engravers are Sir Robert Strange and William Woollett. These men, by the great excellence of their work, placed England on an equal with Continental schools.

Strange was a native of Orkney, born in 1721, and learned his art in Edinburgh with one Cooper. On the outbreak of the '45 Rebellion he joined the ranks of the Pretender, and after Culloden he fled to France, where he, so to speak, relearned engraving by studying the works of men there who were carrying on the traditions of the school of Rubens. On returning to England, his talent was soon recognised, and he was largely patronised. Strange confined himself to figure work, principally of classical subjects, and during a visit to Italy, produced some of his finest plates after Raphael, Titian, and other masters.

Woollett, on the contrary, took up the branches of landscape and history. His skilful and intelligent labour brought him renown not only in England but on the Continent. Among his most celebrated plates are "The Fishery," "The Battle of La Hogue," and "The Death of General Wolfe." Woollett lived in London all his days, in a house in the neighbourhood of Rathbone Place, where, when he had finished a plate, he celebrated the event by firing a cannon from the roof of his house. There is a tablet to his memory in Westminster Abbey.

In the early years of the nineteenth century much fine work was produced in England by such men as James Heath, Anker Smith, Sherwin, and lastly the unfortunate Ryland, who ended an eventful life by being hanged for forging two bills on the East India Company.

Later on were John Landseer, father of the famous animal painter, Bromley, the two Cooks, John Burnet, celebrated as an art author, Charles Heath, and others.

The close of the eighteenth and opening of the nineteenth century witnessed what might be called the rise of a series of landscape engravers. This was the time when Scott by his poems and novels had drawn attention to the beauties of landscape, but it was the time of J. M. W. Turner, perhaps the greatest of all landscape painters. To engrave the reproductions of the latter called for a long line of names, not the least among them being our townsman Quaker Millar, for whose style Turner had a decided partiality. Often replying to publishers' inquiries as to whom he would advise to execute the work, "Oh, send it to the old Edinburgh Quaker."

Leaving line work now to deal with that of mezzotint, we come upon a manner of work which, if not so difficult and severe, is nevertheless more peculiarly national and popular, having been with but very few exceptions confined to England. In this style the engraver starts by working from black or dark to light. The forming of the grained surface on which to work is effected by means of a tool known as a rocker—a steel tool about two inches broad resembling a stump

el, one of its faces being grooved, and the cutting edge being red. This instrument is rocked or wriggled repeatedly over the face of the plate, until the entire surface appears covered by a red-like roughness. This surface is blackened with printer's ink, and the design scraped out by the engraver in all its variations of tone, the high lights being burnished. This department of engraving found its highest development during the reign of George

James McArdell, a native of Dublin, was one of the early men of the century who developed the artistic possibilities of mezzotint by excellent plates after Sir J. Reynolds, whose broad treatment of subjects made his pictures exceptionally suitable for this method of interpretation. Of McArdell Reynolds is declared to have remarked that even if the colours of his pictures faded his fame would be preserved by McArdell's engravings. This man introduced the practice of using vigorous etching to heighten the effect of mezzotint. Among his successors were R. Houston, John Greenwood, Edward Carter, John Spilsbury, Valentine Green, Jones Raphael Smith, and a host of others, the greatest, however, being Richard Earlom, who engraved after various masters, ancient and modern, and by the wide range of the subjects he undertook showed the wide resources of the mezzotint.

It was during this time that the Boydells had established their own firm, and a great proportion of the best prints of this period were the address of these famous publishers and engravers.

Other important mezzotint engravers of this period are Charles Turner and Samuel William Reynolds. The latter is reported to have been offered an important office in the court of George III., at a salary of £900 a year, but the offer was refused. The two names which close this great period of mezzotint engraving are David Lucas and Samuel Cousin.

He formerly engraved a series of landscapes after Constable which were justly renowned. One of the series, Salisbury Cathedral, was engraved at Constable's expense, and published by Hodgson, Graves, & Co., for the painter, 1837. After his sudden death in the same year it was sold at Foster's, and bought in for eighty guineas, hardly the price of two proofs at the present time. Last year, at Christie's, a set of Lucas' mezzotints after Constable's picture, "The Lock," brought ninety-two guineas, and a line engraving by Valentine Green of the same subject, namely, £237 5s., showing clearly how this vanished art is appreciated at the present day.

Cousin's figure work is familiar still, particularly his reproductions of Reynolds, but coming, as he did, after a long line of men who had done so much to develop and exalt the art, he to some extent repeats a repetition.

GEORGE M. AILLMAN.

## P.O.P.

### A PHOTO-ROMANTIC EPISODE.

By courtesy of the Editor of "Punch," we reproduce a contribution which appears in the current issue of our contemporary, and which may be commended for holiday reading. "Punch" for many years has shown itself alive to the fun which can be made from the technical operations and the "shop" expressions of photography. A few days ago we chanced to turn up the "Dark Room Soliloquy," and we all of us remember, we suppose, Du Maurier's skit on a suburban photographer, who begs the damsel of Eaton Square to think of "im."—Eds., B.J.P.]

They met at the conversazione of the local amateur photographic society.

"How delightful to be by your side again!" he murmured. "I have been trying to get you within my focal range all the evening, and have only just succeeded."

"That's the worst of those cheap lenses!" she retorted playfully, "they veiled her own brilliant orbs with her Thornton-Pickard-like lids. Do not trifle with me!" he exclaimed wildly. "Since our last meeting I have been stretched on the drying rack. I cannot eat. I have had my plates away from the exposure table untouched, and I have forgotten my actinometer number. There are films before my eyes, and I am hopelessly fogged, and my progress is merely a succession of black slides."

"But there! I have no desire to enlarge on my feelings, nor have

I the necessary apparatus at hand. Let us form ourselves into a group and retire behind this isochromatic screen. Here we can sit in camera, out of the range of the most brilliant view-finder."

"Miss Hypo, I have a positive declaration to make. For many months your latent image has been imprinted on my heart, and now the alkali of your sweet presence has accelerated its development."

"Oh, Mr. Pyro!" she exclaimed. "Did the image flash out rapidly?"

"No," he answered softly; "first the high lights, then the half tones, and finally the shadows."

"I am so glad you do not wear your heart on your sleeve," she whispered, "or it might have been over-exposed."

"Ah," he said, "it was almost a snap-shot, for do you not remember at our first brief meeting I had but time to take my cap off and put it on again?"

During this conversation they had been gradually approaching nearer to each other, with an almost imperceptible rack-and-pinion movement.

At length he murmured, in intensified tones, "Miss Hypo—Veloxia, if I may call you so, let me be your head-rest."

She blushed like a ruby lamp, and then gracefully reclined in profile against his rising and falling shirt front, looking like a delicate red chalk carbon print mounted on best white Bristol board.

"Oh, Mr. Pyro—George," she murmured sweetly, "mind my frilling."

"Frilling," he repeatedly dreamily, as though quoting from a text-book. "A ten-per-cent. solution of alum will prevent any frilling."

Then as his arm stole round her swing-back he asked her tenderly, "What useful photographic accessory do you resemble now, dearest?"

"A squeegee, George, dear," she answered, guessing right the very first time.

Suddenly, like a flash light, it was borne in upon Miss Hypo that Mr. Pyro was about to P. O. P. the question, and she remembered that it is not advisable to delay fixation unduly, so when, after thinking out the correct formula, George flung himself down at her feet on the lower joints of his bipod, her answer came in dulcet tones, like the trickling of gold chloride from a graduated measure. And it was not a negative.

## THE EASTMAN KODAK COMPANY.

### A YEAR OF INCREASED PROFITS.

THE annual report of the Eastman Kodak Company has been published, and shows the earnings of the Company to have advanced very considerably above the figure for the preceding twelve months. Following on the publication of the report, a sensational rise of twenty-two points took place on the Stock Exchange last week in the Ordinary shares of the Company.

The Ordinary shares, of which there are 250,000, have a nominal value of 100 dollars, or £20. They now stand at 210 dollars, or £42, and although nominally they are worth £5,000,000, their market value is £10,500,000.

The reason for the rise was the extraordinary success which has attended the Company during 1905.

The net profit for the year is £827,610. Of this £75,302 is used to pay 6 per cent. on the Preference shares, £483,085 to pay 12 per cent. on the Ordinary shares, and £268,144 added to the surplus account balance, which at December 31 last stood at £712,729.

An extra dividend of 2½ per cent. on the Common stock of the Company will be paid during the present month.

The annual earnings for the last eleven years show a record of steady progress on the part of the Company. They are:—

1895 .....	£49,656	1901 .....	£517,347
1896 .....	122,676	1902 .....	564,455
1897 .....	185,232	1903 .....	606,740
1898 .....	243,232	1904 .....	688,484
1899 .....	335,919	1905 .....	827,610
1900 .....	465,816		

Lord Kelvin and Sir James Pender represent the English shareholders on the board of directors.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between March 26 to 31 :—

REPRODUCING PATTERNS.—No. 7,250. Apparatus for the production of picture patterns by a photographic method. Neu Graphic Act-Ges, 18, Southampton Buildings, London, E.C.

APPARATUS.—No. 7,295. Improvements in photographic apparatus. Cesar Motti, 46, Lincoln's Inn Fields, London, E.C.

SHUTTERS.—No. 7,314. Improvements in photographic shutters. William James Bulgin and Arthur Edward William James, 60, Grange Road, Ashton-on-Mersey, Cheshire.

CINEMATOGRAPHS.—No. 7,403. Improvements in cinematographs. Ernest Reginald Law, 31, Bedford Street, Strand, London, W.C.

PHOTOGRAPHIC LENSES.—No. 7,661. Improvements in certain photographic lenses. Harold Dennis Taylor, Buckingham Works, Bishophill, York.

PRINTING APPARATUS.—No. 7,737. Improved photographic printing apparatus. Aaron Henry Howell, 38, Chancery Lane, London, W.C.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

REPEATING BACK.—No. 9,729. 1905. The invention consists in an improved repeating back for taking midget and stamp photographs, and is to enable a number of such small photographs to be taken upon a single plate in a short space of time and in such a manner that the various pictures shall be correctly placed upon the plate so that no overlapping can occur in the adjustment of the plate to the various positions in which it is exposed. An ordinary camera is employed, which comprises at its back vertical guides for the reception of a sliding framing which is adapted to receive in horizontal guides the dark slide and carries beneath the latter a focussing screen, so that by moving the frame up in its guides the screen is brought opposite the exposure aperture in the camera back, and by sliding the dark slide in the horizontal guides a fresh portion of the plate is brought into position for exposure. There is provided in connection with the camera, a reversible dark slide so fitted that a number of pictures can be taken upon different portions of the same plate, and not two only as heretofore; also an automatic mechanism for accurately adjusting the dark slide and for indicating to how many of its possible positions the dark slide has been adjusted, so that it is impossible to make a mistake in the counting of the number of exposures even when working very quickly. Upon the back board *a*, which may be of such dimensions as to fit in the back of a camera of any desired size, a carrier or adapter *b* is mounted by means of the circular guide and guide way *c*, in order to allow, in the well known manner, of securing pictures either in the upright or horizontal positions. This rotatable adapter *b* is fitted with guides *d* along its vertical edges, such guides being preferably constituted by L shaped metal strips as shown. Between the guides *d* is introduced the sliding frame or dark slide carrier *e* in such a manner as to be slidable up and down in the guides *d*, the carrier *e* being fitted with horizontal guides *f* for the dark slide *g* to move in. A sensitised plate *h* is placed in the dark slide *g*. Along each edge of the dark slide *g* is formed a number of inclined notches *j*, preferably by fitting strips of brass *k*, having the notches already formed in them, to the said edges. The dark slide *g* is formed so that it can be inserted into the guides with either of these edges uppermost. A driving pawl *l* is adapted to engage with one of the inclined notches *j* during each upward sliding movement of the carrier *e*, and to then move the dark slide in the guides *f* a distance equal to the distance separating one notch *j* from the next, such distance being equal to the width of the desired pic-

ture, thus an exposed portion of the sensitised plate is automatically moved away from the exposed aperture and a fresh portion of the plate is brought opposite such aperture. The automatic movement may be effected by carrying the pawl *l* upon a spindle *m* rotatably mounted in a block *n* slidable in a guiding frame *o*.

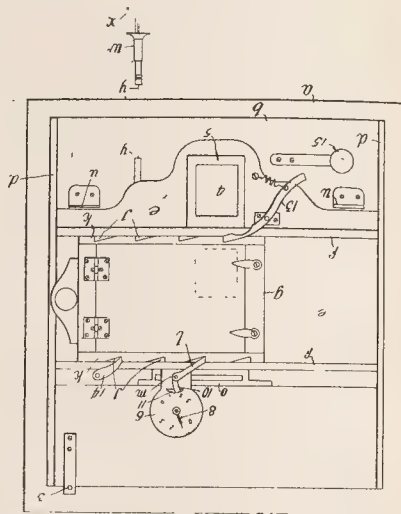


Fig. 1.

To the spindle *m* is fixedly connected a lever *p* which is fulcrumed at *q* to the adapter *b*. It will thus be seen that as the carrier *e* is moved upwards from the position shown in the drawings, the lever *p* will be turned about its fulcrum *q* and will move the block *n* from the right hand end of the guide *o*, in

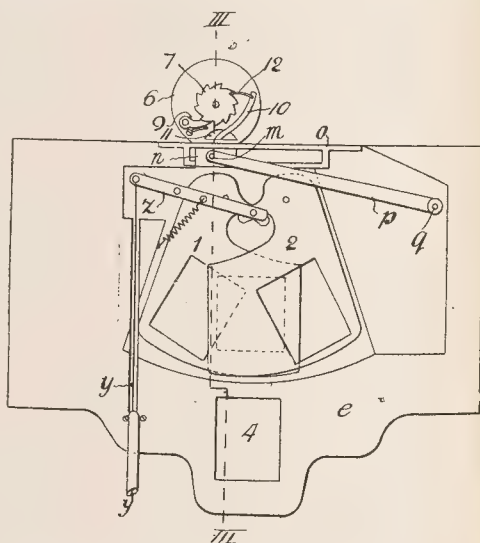


Fig. 2.

which position it is seen in Fig. 1, to the left-hand end of the guide, Fig. 1, thus the pawl *l*, being in engagement with the second notch from the left-hand end of the dark slide *g* moves the latter to the left and upon the next descent of the carrier the block *n* and pawl *l* will be moved to the right and the pawl

will move into the third notch. An exposure aperture *r* in the back board *a*, a similar aperture *s* in the adapter *b*, and a similar aperture *t* in the carrier *e* are in alignment when the carrier *e* is in its uppermost position, that is to say when it rests against the stops *u*. In this position an exposure can be made by drawing back the cover *v* of the dark slide and by pressing together the knobs *w*, *x*, which later movement imparts a pull to the wire *y* causing the lever *z* to turn and to oscillate the wings 1, 2, of the shutter in the well known manner. The operation is as follows:—The focussing having been accomplished and the carrier *e* having been moved down to the position shown in Fig. 2, the cover *v* is drawn out and the shutter operated so that an exposure is made upon that portion of the plate shown in dotted lines in Fig. 1. The cover *v* is then pushed home again, and the thumb being applied to release the spring detent 13 the carrier *e* is moved upwards in its guides *d* until arrested by the catch 3. During this upward movement the lever *p* has caused the pawl *l* to move the dark slide to the left hand, Fig. 1, to the extent of the distance between two adjacent notches. The focussing screen 4 may now be observed, and when the fresh adjustments have been made the carrier *e* is moved downwards into contact with the stops *u*, the pawl *l* being meanwhile oscillated in the manner described so that the pointer 8 moves on from the numeral "1" on the disc to the numeral "2" when the fresh portion of the plate can be exposed. If now a horizontal or so called "landscape" picture is desired in place of the ordinary upright picture, a suitable clamp or catch 15 may be released and the adapter *b* be revolved upon the back board *a* by means of the circular guide and guide away *c*. After the third picture has been taken upon this half of the plate, the dark slide *g* is taken out of its guides *f* and is re-inserted in an inverted position, that is to say, so that the half of the plate now seen uppermost in Fig. 1, will be brought to the lower position and into alignment with the exposure apertures and the pointer 8 then points to the lower set of numerals upon the disc 6, and when the numeral 3 in such lower set is reached it is at once seen that the whole of the plate has been exposed. George Thomas Bayley, 3, Union Street, Stonehouse, Devon.

**SENSITISERS.**—No. 16,227, 1905. The claims are: (1) For the manufacture of blue colouring matters of quinoline group by the action of an alkali, in presence of formaldehyde (or of a substance yielding formaldehyde) on a salt of an alkyl-quinolindinium base, either alone or mixed with a salt of an alkyl-quinolinium base, and (2) for photographic emulsions sensitised with these dyes. As an example of the mode of production, the following is given by the patentees. Thirty parts of quinaldine-etho-iodide may be dissolved in 150 parts of hot pyridine, and 10 parts of formaldehyde of 40 per cent. strength and 10–15 parts of soda-lye of 16 per cent. strength are added; the whole may then be heated to boiling for some minutes. When cold the product separates partly as crystals of metallic lustre, and may be completely precipitated by addition of about 500 parts of water. It may be washed with water and recrystallised from alcohol or methyl alcohol. The colouring matter is dissolved by alcohol to a blue solution and its properties correspond with those previously described. The invention includes the use as raw materials of salts of the homologous and substituted alkyl-quinolindinium and alkyl-quinolinium bases as well as the salts of the simple alkyl-quinolinium and alkyl-quinolindinium bases. The colouring matters obtained are also blue, green-blue to blue-green, and have the same properties as those described above. For the formaldehyde may be substituted such compounds as either readily yield formaldehyde or may be easily transformed into formaldehyde, for instance, anhydro-formaldehyde aniline and its homologues, besides methylal, ethylal, and the like. The process is not essentially changed when these are used. The colouring matters prepared as described above from alkylhalides are themselves halides and may be treated with salts of metals forming insoluble halides, such as silver salts, in order to convert them into salts in which other acid radicles take the place of the halogen, thus for instance, with silver nitrate the easily soluble nitrate may be obtained. The chief application of these colouring matters is in photography, as they render silver halide emulsions manufactured in any known manner, highly sensitive to red light. O. Imray for Farwerke, vormals Meister Lucius and Brünig, Hoechst a/Maine, Germany.

The following complete specifications are open to public inspection before acceptance under the Patents Act, 1901:—

**SCREENS.**—No. 6,881, 1906. Optical screens for photographic and printing purposes. Smith.

**PRODUCING PATTERNS.**—No. 7,250, 1906. Apparatus for the production of pictures, patterns, etc., by a photographic process. Neu Graphic Act. Ges.

**CINEMATOGRAPHS.**—No. 7,403, 1906. Cinematographic apparatus. Law.

## Photo-Mechanical Notes.

### The Reproduction of Chinese Whites.

In the paragraph on this subject last week the filter requisite to enable Chinese whites to be photographed satisfactorily was stated to be 10 per cent. quinine sulphate. This was a printer's error. The amount should be 1 (one) per cent. only.

### The Bolt Court School Report.

There are thirty-three plates accompanying this report, five photogravures, eight lithographs, one collotype in colour, and the rest line, half-tone, and three-colour blocks. The latter seem to be of steadily improving quality. The photogravures are also good, some excellent subjects being reproduced. We suppose the block work is quite up to the average, but many of the subjects are not striking, and there is an absence of any particularly educational or experimental ones, except perhaps in the case of two plates reproducing sketches for book-bindings. These are effective enough. Many of the reproductions are from originals by students in the design or art classes, some of the designs for book decoration being decidedly good.

### Photography and Map Reproduction.

When a section of a map has been required to be reproduced on an enlarged scale it has usually been the custom to do it by means of the pantograph. But map makers are finding that it is more expeditious and more economical to photograph the original map, then enlarge on to bromide paper (generally a gaslight paper) and then trace over the enlargement. Plan reproduction establishments often employ girls to do tracing, as they find them reliable, and their labour not so expensive as men's.

### Retouching Screen Negatives.

Provided the half-tone negatives are not varnished, the dots may be strengthened by blacklead. If only a small portion is required then a soft pencil is used, if a large area such as a sky, the lead may be rubbed on by means of a pledget of cotton wool or a stump. The lead will be found to adhere to the tops and sides of the dots only, and if done correctly will not touch the centre of the spaces between the dots. One would think it unnecessary to resort to this practice at all, nevertheless it is the rule at one large Continental establishment, and almost every negative is so retouched.

**EDUCATION by Photograph.**—By courtesy of the Board of Education there is now on exhibition, at the Bootle Museum, a series of choice photographs of Westminster Abbey. The pictures, which are exceptionally fine examples of the photographer's art, number sixty-eight, and are comprised in some thirty-four frames. The collection will remain on view until the middle of June next, and may be inspected by the public free of charge.

**A COMBINED Outing of Societies.**—Messrs. Walter D. Welford (president) and T. Mitchell (hon. sec.) of the South Essex Camera Club, have issued a letter to the societies that attended last year's event. They are anxious to hear from some society willing to organise the outing for 1906, and with a view to this, for opinions as to date and promises of support, they ask the hon. secs. or a representative to attend an outdoor meeting, or hon. secs. outing, at Wanstead Park on Saturday afternoon, April 21. Meet at Pavilion at 3.30 p.m.



## New Books.

**Die Retusche von Photographien.** By Grashoff-Loescher. Berlin: Gustav Schmidt. Price, 2s. 6d.

This work, originally written by Grashoff, has been revised by Herr Fritz Loescher. It is hardly necessary to say much about it, as it has reached its tenth edition—a fairly conclusive proof that its teachings are satisfactory. The chief alterations, however, from the previous edition are that the chapters on negative and print retouching are practically re-written, and a new chapter on the working up of landscape negatives and the making and working up of enlarged negatives for gum printing has been added.

**Die Farben-Photographie.** By Dr. E. König. Berlin: Gustav Schmidt. Price, 2s. 6d.

Since the first edition of Dr. König's work was written in 1904, considerable advances have been made in the sensitising of plates, and this has entailed practically an entirely new chapter on this subject. Other new matter has been added in the shape of full working instructions for most of the direct methods of colour photography, including the Lumière, Sanger-Shepherd, Selle, Pinatype, and Pinachrome processes. This last, we note, is stated not to give permanent results, and therefore is no longer in practice. There is, however, no mention of any photo-mechanical process, the book being a practical treatise on the processes, examples such as were shown at the recent exhibition held in our offices.

The direct processes such as Lippmann's and Becquerel's are briefly treated of, and a very complete section deals with the additive methods by optical synthesis, and the making of a chromoscope.

**Photographisches Unterhaltungsbuch.** By A. Parzer-Mühlbacher. Berlin: Gustav Schmidt. Price, 3s. 6d.

This is the second edition of a work which can be best described as a reference book for amateurs, for in its 237 pages will be found a brief description of almost every branch of photography from the making of spurious ghosts, caricatures and silhouettes, to X-ray work and colour photography. Considering that there are no less than seventy-six subjects treated of, it is obvious that the information given is in no case complete, still there is something to be found on most subjects, and here and there one does find references given to complete monographs on the subjects. The book is very fully illustrated with half tones, mostly from actual specimens of the processes made by the author.

## New Apparatus, &c.

**Anachromatic Lenses.** Made by L. Turillon (late Darlot), 99, Rue la Fayette, Paris.

Since the appearance of the contributions by MM. Puyo and de Pulligny, dealing with these new lenses of their design, we have been in receipt of several of the actual lenses constructed by M. Turillon, and we shall probably be consulting the wishes of many of our readers in placing before them a description of the instruments. This we do here, after the optical examination of one example of M. Turillon's manufacture, but the optical properties of the lenses demand a more extended consideration than can be given them in this place, and we discuss them in an article on another page. The anachromat outfit, of which we are writing, is supplied as a set of four lenses, all fitting the same mount and giving objectives of identical focal length suited for different purposes. The set gives lenses of 12 inches focal length put forward for use on a 7 x 5 plate, each glass is of large diameter, about 2½ inches, and each is a single uncorrected lens of crown glass. The mount is of the ordinary rack and pinion portrait type, but, unlike the ordinary portrait lens, the rack is not used for focussing, but for the chromatic correction of the objective. The diaphragm scale on the mount is marked with the numbers 1, 2, 4, 8, 16, and 32, representing the relative exposures. No. 1 is  $f/5.5$  with the doublet,  $f/5$  with the plano lens of the set in front of the stop, and  $f/6$  with either the plano or meniscus

lens behind the stop. The whole lens weighs 2 lbs. 6 oz., and has a 3¼-inch flange, hence a camera of strong build, and with large bellows is necessary, but a very great extension is not called for. The double extension square bellows camera of "studio" pattern is suitable for the purpose.

The mount bears the well-known name of Darlot, which is a sufficient guarantee of excellent workmanship and finish. One or two small matters are, however, worth drawing attention to. The stop marks now come under the jacket and are invisible when the lens is adjusted for focussing. If marked on the other side of the diaphragm slot this trouble would disappear. Again, the book on "Artistic Lenses" continually suggests the use of such apertures as  $f/6$ ,  $f/6.3$ ,  $f/6.5$ ,  $f/7$ , etc., but the two largest stops provided have exposure values of 1 to 2 only, and no intermediate stops are given. We suggest that an additional mark representing an exposure value of 1½ would be an advantage. This would correspond to a stop of from  $f/6$  to about  $f/7.3$ , with the different combinations, and would be distinctly useful in attempting to follow the advice given in the book.

The whole outfit is sent out in leather case and costs 85 francs. The lenses, however, can be obtained of suitable sizes to fit any focussing portrait mount, and thus the whole can be obtained at a low figure, although the price of the complete set cannot be called excessive.

**A New Developing Dish.** Made by Taylor, Tunncliffe and Co., Ltd., Eastwood, Hanley, Staffs.

The makers of this new pattern of dish recommend it primarily on the ground that the plate can be developed, fixed, and washed in it film downwards. We are not entirely of their view in regard to the alleged advantages of this facility, though we have convinced ourselves in several ways that gelatine plates can be so handled in the dish with impunity. The inverted position is possible owing to the special construction of the bottom of the dish. It is formed of four slightly raised inclines leading from the centres of the sides of the dish, and meeting in the centre of the dish. As a result the plate rests on four points, and it is the easiest matter to remove it from the developer, pressure on one corner raising that opposite and thus permitting the operator to withdraw it with the finger. As we have said, we have proved to our own satisfaction the absolute practicability of working with the plate-film down, (1) by developing an exposed plate; (2) by fixing an unexposed and undeveloped plate, and (3) by bleaching a negative. In each case we found the action to take place uniformly over the entire surface, the four-minute points of contact of film and dish being noticeable only in the case of the fixation experiment by the slightly longer time necessary to remove the last traces of silver bromide from these parts. This, however, may be regarded as a kind of signal that the whole of the plate is perfectly fixed. The advantages on which the makers dwell are: Economy of developer, facility of control by observing the back of the negative, and protection of gelatine surface from dust; but we believe that these points are quite minor ones, and that the convenience of the dish for the manipulation of the plate in the usual way supplies quite sufficient reason for drawing prominent attention to the new introduction.

## CATALOGUES AND TRADE NOTICES.

A new list of Messrs. Staley's is descriptive of the many patterns of hand and hand-stand cameras supplied by this house. It calls for mention as a well-illustrated catalogue, and for the fact that Messrs. Staley make a specialty of fitting genuine Bausch and Lomb shutters to all kinds of cameras. The list is sent from 19, Thavies Inn, London, E.C., on receipt of a penny stamp.

MESSRS. Wellington and Ward have issued a new and enlarged edition of their booklet, "Notes on the Wellington Specialties," a guide in brief to the use of the various well-known "Wellington" manufactures. The new edition is brought up to date by notes on light filters for field and dark-room use on the employment of "Iso Speedy" plates, and by the addition of some very useful notes on chemicals, a study of which would prove the solution of many alleged mysterious problems. The booklet is offered free to any bona fide user of photographic materials.

## New Materials.

**Goldona** (Self-Toning Paper). Made by John J. Griffin and Sons, Ltd., Kingsway, London, W.C.

The new brand of self-toning paper is happily named, inasmuch as it expresses in a word Messrs. Griffin's contention that in their new product it is the gold which actually does the toning, and that this characteristic, among others, of the paper should mark it out for a favourable reception. As regards manipulation there is a gratifying simplicity of information to be given. The printing is done a shade deeper than usual, and the copies are then placed in a hypo. bath of 2 or 4 oz. per pint, the stronger bath being employed for darker tones. If preferred, the prints may be washed before passing to the tone-fixing bath, a practice which is to be recommended on a score of permanency, and one which, in our not very lengthy experience of the paper, yields prints of a tone one or two shades warmer than those made under identical conditions but without the preliminary wash. In these respects "Goldona" has all the merits of papers of its class. Like them it is the embodiment of necessary simplification reduced to its simplest terms. The paper also possesses a very noteworthy feature that the range of tones obtainable in a print is a very wide one, with the result that we have deep shadows free from the choked-up appearance which a less perfect product would exhibit. For this reason, in particular, "Goldona" is likely to be esteemed among printing papers. The variety of tone produced by the single fixing operation is good, and in all of them, as we find, the retention of the finer half-tones is one conspicuous virtue of the paper. We understand that Messrs. Griffin have launched a scheme of free distribution of samples to amateurs, but, doubtless, any inquiries addressed to them at Kingsway, London, by professional photographers will receive every attention.

**Bromona** (Bromide) Papers. Made by Ilford, Ltd., Ilford, London, E.

In addition to their series of bromide papers, the Ilford Company have provided photographers with three distinct varieties of paper suitable to the usual development and toning processes. These varieties of "Bromona" are:—

- Grey Medium—Brand G.
- Cream Rough—Brand C.
- Aquamarine Canvas—Brand A.

This selection is one which has particularly interested us in offering new facilities to photographers in the rapid, certain, and economical production of prints from both landscape and portrait negatives. The papers bear, so far as our observations go, a bromide resemblance of the usual kind; it is in the support that the differences are, and the novel character of the results obtainable is observable, especially in the case of the "Grey Medium" and "Aquamarine Canvas" brands of Bromona. Both these are tinted papers, the former being a pale bluish grey, exceeding to a minute extent what should consider neutral. The tone in our eyes has appreciably more colour in it than can be fittingly described as "grey" simply. The surface of the two papers is very different. Brand G ("Grey Medium") is not a smooth paper, but the coarseness of its surface is not at all pronounced. We should not consider it by any means too rough for prints of normal subjects no larger than 5 x 4. The Aquamarine, however, the "Aquamarine Canvas," possesses a pronounced "pebbly" texture, and is not advanced, we naturally assume, for attempts to be closely scrutinised. For larger work, whole-plate and upwards, prints made upon this paper present a very agreeable appearance, and the user of this and the "Grey Medium" paper will be long before he discovers that he has in them the power to employ negatives for enlargements which otherwise he would be compelled to reject, except by resort to methods involving series of micro-gymnastics out of the question in practical photography for commercial purposes. The tinted ground of the paper of itself substitutes contrasts to an extent which only requires to be seen by comparison with a print from the same negative on ordinary white or cream paper. Moreover, in the case of the A paper, the "pebbly" irregularities of the surface break up masses of black shadow in a way which immensely ameliorates deficiencies of the negative. As regards the C or "Rough Cream" brand of "Bromona," we

have these same opportunities for imparting a tone to the photograph, but the character of the paper in this instance makes for brightness and brilliancy rather than for the more subdued effects to which the two previous varieties lend themselves. The grain of the C paper, however, is coarse enough to remedy detailless masses of shadow up to a reasonable degree, and for this reason should be a popular paper for enlargements of considerable size. In conjunction with the sulphide toning process, to which we find it to be agreeably amenable, it should be capable of giving extremely rich and handsome effects.

The impression left on the mind after a considerable batch of prints on these new papers had been completed was that in placing them on the market Messrs. Ilford, Ltd., are adhering to the policy, as evidenced recently in the "Amauto" plate, of substituting for the haphazard methods of the dark room the provision of materials by which results are obtainable with a tithe of the trouble and with certainty of repetition. In place of tinkering with a bromide print by complex solutions to diminish the excessive contrasts, you accept the facilities which such papers as these offer, facilities which are standardised through the large way in which they are produced and which must inevitably pay the photographer better than the old-fashioned recipes for doing the same thing by a roundabout process.

We have only to add that the prices of "Bromona" are based on 1s. for twenty-four quarter-plate pieces.

Under the name of Tylo a new developing agent has been submitted to us by Mr. A. Leblanc, representing a French firm of chemical manufacturers. "Tylo" belongs to the rapid phenolic class like metol, to which it bears considerable resemblance in action. Using the general formula as given on page 953 of the Almanac, 1906, we find that the image makes its appearance very rapidly, and that density is easily obtained with prolonged development. Colour of the image is black, and bromide has but little influence on it. With potassium in the place of sodium carbonate, the developer seems yet more energetic. It may be combined with either hydroquinone or pyro, and for the former the following is the proportion suggested:—

Tylo .....	3 parts.
Hydroquinone .....	7 parts.
Sodium sulphite .....	100 parts.
Potassium carbonate .....	60 parts.
Water .....	1000 parts.

This is a very energetic developer, giving full contrast and great density in the high-lights with prolonged development. It can also be used for bromide paper, with the addition of potassium bromide, and gives clean whites and good blacks. From a brief comparison with metol in plain aqueous and sulphite solution, Tylo seems to possess rather better keeping properties, for in an open dish there was markedly less colouration in a given time.

### FORTHCOMING EXHIBITIONS.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 16-21.—Redcar Photographic Society. Entries close April 9. Secretaries, W. H. Taylor, Esplanade, and J. M. B. James, 4, Elton Street, Redcar.

April 18 to 20.—Southend-on-Sea exhibition. Hon. Sec., J. Archer, 24, Ashburnham Road.

April 18 to 21.—Bolton Amateur Photographic Society. Secretary, T. W. Cross, 27, Latham Street, Bolton.

April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

April 27-May 27.—Northern Exhibition (Manchester). Sec., G. M. Morris, 9, Chandos Road, Chilton-cum-Hardy, Manchester.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

April.	Name of Society.	Subject.
13.....	Aberdeen Amat. Photo. Assn.	"Printing Papers" Mr. Anderson.
16.....	Stafford Photographic Society...	Annual General Meeting.
16.....	Catford & Forest Hill Ph. Soc.	"Peeps at the Peak." Mr. W. D. Dawes.
16.....	North Middlesex Photo. Soc. ....	Excursion to Rochester and Aylesford.
16.....	Oxford Camera Club .....	Photography Prize Slides.
16.....	Wandsworth Camera Club .....	"Architectural Photography."
17.....	Bristol Photographic Club .....	Amateur Photographer Prize Slides.
17.....	St. Helens Camera Club .....	"Hand Camera Work." Mr. K. F. Bishop.
17.....	Darlington Camera Club .....	"Titles and Titling." Mr. R. W. Chapman.
17.....	Warrington Photo. Soc. ....	"Trimming and Mounting." Mr. D. S. Birrell.
17.....	Hackney Photographic Society	"The Page Croft Pigment Paper."
17.....	Blaigowrie and Dis. Ph. Assn.	"A Night with the Federation Portfolio."
17.....	Cardiff Windsor Amat. Ph. Soc.	Competition Night.
18.....	Redhill and District Cam. Club	"A Chat on Photography in Natural Colours." E. E. and C. Robinson.
18.....	Everton Camera Club .....	Members' New Lantern Slides.
18.....	South London Photo. Society .....	"Marine Photography." Mr. F. J. Mortimer, F.R.P.S.
18.....	Redcar and Coatham Ph. Soc.	Yorkshire Photographic Union Portfolio.
18.....	North Middlesex Photo. Soc. ....	"Bromide Enlargements." Mr. H. W. Fincham.
18.....	Cricklewood Photo. Society.....	"Birds and Beasts of Prey." Mr. R. L. Woolcott.
18.....	Tunbridge Wells Ama. Ph. Assn.	Members' Lantern Slides.
19.....	London and Prov. Photo. Assn.	"Matted Paper." Mr. L. Thornton.
19.....	Southport Photographic Soc. ....	Annual General Meeting.
19.....	Burton-on-Trent Nat. Hls. Soc.	Exhibition.
19.....	Darwen Photographic Assn.....	Members' New Slides.
19.....	Liverpool Amateur Ph. Assn.....	Auction Sale.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, April 10. A paper by W. B. Ferguson, K.C., M.A., on "A New Method of Calculating the Times of Development at Various Temperatures," was read by the author. It was a description of a simpler method than that printed in the B.J. March 31, 1905, p. 249. In place of an H. and D. machine, a carefully calibrated graded screen was used, and a quarter-plate exposed to a standard candle, the exposures being thus from 2 to 50 c.m.s. This plate was cut into four strips, and two were developed for five and ten minutes respectively at 8 deg. C. with the H. and D. standard pyro-soda used at half strength. By measurement in the photometer the development factors were obtained, and thence K as the velocity of development, and  $\gamma \propto$  the density-giving power. The other two strips were developed in like manner for 3 min. 18 sec. and 6 min. 36 sec. respectively at 18.5 deg. C., and the above constants also determined in the same way. From the results thus obtained it was easy to calculate the necessary duration of development to produce any development factor at a given temperature, for if the times necessary to produce the same development factor at  $x$  deg. C. apart are known, the temperature coefficient can be obtained by subtracting the logarithm of the lesser time from the logarithm of the greater time and dividing by  $x$ : the result will be  $\log. b$ . Taking, then, the time necessary to produce, with a given plate and developer at a given temperature, a given development factor, it was only necessary to subtract from the logarithm of this time 2  $\log. b$  to obtain a table which would give the necessary times of development at every 2 deg. In conclusion, Mr. Ferguson stated that in practice the above method is not so long as might be thought, and expressed a hope that plate manufacturers would see their way to issue with each batch of emulsion a table of times of development at different temperatures for the particular developer recommended by them.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the meeting on Thursday, the 5th (Mr. W. Hart in the chair), Mr. E. Morgan demonstrated the Richmond Self-Toning paper. It was, he said, his object to try and convince the meeting that it was possible to make a great saving in the time of silver printing, and that without in any way decreasing the permanency of the prints.

P.O.P., he thought, would hold its own in the future as in the past—at least, until we obtained another process that would give the same delicacy. A continuous improvement had gone on during the past few years in plates, cameras, lenses, and developers, but silver printing had been allowed to almost stand still. Makers of silver papers had of recent years tried to do away with separate toning baths by adding gold to the emulsion. As all silver papers contained a free acid, the putting of such papers direct into an hypo bath must produce sulphur toning, and this was without doubt a step backward to the old days when such procedure was common. The Richmond paper did not depend upon its free acid for the toning, as it was recommended to first wash the print for at least five minutes—longer being even better—and then to fix for ten minutes in a bath of 3 oz. hypo to 20 of water, adding thereto 1 drachm of soda bicarbonate. Thus there was not any decomposition of the hypo or sulphur toning. The new medium, agar-agar, of the paper was not liable to crack or curl, it had a high setting point—that of 90 to 98 F.—and it might be worked successfully in a temperature of 150 deg. without any harm. It could be dried by heat—in fact, Mr. Morgan dried prints during his remarks by the aid of a spirit lamp, and one could see the steam arising from them. Blistering or frilling could not for this reason be met with, but the prints could not be squeezed. The tones could be varied at will by the length of time in the fixing bath, and for warm tones the strength of this could be reduced to 2 oz. in 20 oz. Prints after treatment in an acid bath might also be first toned in a platinum bath composed of potass. chloroplatinite 15 gr., water 2 oz. Take 2 drachms stock solution, make up to 10 oz., and tone, wash for not less than fifteen minutes and fix. Upon being placed in the fixing bath the prints at once toned to a good black, and the tones were not obtained at the expense of permanency. Mr. Haddon asked if agar-agar, when kept in solution, was, like gelatine, liable to decomposition. When P.O.P., washed, toned, and fixed in separate baths, afterwards darkened, was the darkening caused by sulphur? Again, the gold in the paper was to tone it when fixed, but what became of the gold in the high lights? Was it dissolved in the hypo bath, or left in the paper. If left in the paper, was it not liable to damage the print afterwards? Mr. Morgan replied that he had not tried the keeping qualities of agar-agar in solution, but he thought that any solution so kept would ferment, hence he thought that it would be dangerous to so keep it, though up to the present they had not found any alteration. With regard to the sulphur left in the prints, he thought that was overcome by making up a new fixing bath for each batch, and so the hypo would not get decomposed and cause sulphur to deposit. His theory as to the gold in the high-lights was that it became insoluble when exposed to light, hence it was soluble in the high-lights and not in the shadows. He thought it was washed away in the first washing. Mr. Haddon proposed, and Mr. Teape seconded a vote of thanks to Mr. Morgan, which was heartily carried.

CROYDON CAMERA CLUB.—The President, Mr. W. H. Smith, last week gave a demonstration on "Odds and Ends," which, if not in its entirety photographic, most certainly lost nothing in interest on that account. First came "Sanzol," the new slow-acting reducer, its properties appearing to lie midway between ferricyanide and hypo, with its tendency to increase relative contrasts, and ammonium persulphate, so apt at times to unduly flatten the image. A negative was successfully reduced before those present. The lecturer next described an ingenious method evolved by him for printing-in cosway borders, and equally useful for other forms of combination printing, which does not admit of condensed description. Minor workshop practice was then dealt with, and the tips and wrinkles imparted were so many and varied that it would require a long list merely to enumerate them. One experiment in the nature of "a pleasant surprise for the children" created some fun, and as it has never been described, is worth mentioning. Mr. Smith showed an empty tin with the lid off, it being, as a matter of fact, a medium-size platinotype tin. In the bottom of the tin a small hole was punched, and about two-thirds up a similar hole had been made in the side. The tin was then inverted over a gas jet, filled with gas, lighted at top, and then placed in a bowl of water, the hole in the side of the tin standing just clear of the water. He then genially said that as the gas burnt away the air

ering through the side aperture would at a certain point form explosive mixture, when *up* would go the tin. On hearing this explanation several members in its immediate vicinity promptly shifted back in order to obtain a better view, and all y attentively watched the dwindling flame; the chief point of interest apparently being not so much the manner in which the might go up, but rather the precise direction in which it would e down. Lower and lower, but very slowly, sank the flame, il it almost disappeared, turned green for a second, then, with a ng, the fin shot up, duly recorded itself on the ceiling, and ingly returned close to the starting point.

**BRISTOL PHOTOGRAPHIC CLUB.**—At the last meeting, Mr. F. Wilkey e a practical demonstration of printing in platinotype, and in scribing the ideal negative required, he stated that the deepest adows should be slightly veiled, in order to avoid "bronzing" in print. Another point emphasised was the influence of sodium hosphate in the developer upon the contrasts, the larger the portion of this salt the greater the contrasts. For normal negaes the following developer was specially recommended, viz., assium oxalate, 16 oz.; sodium bi-phosphate, 4 oz.; water, 112 oz. ile for weak negatives the sodium bi-phosphate could be increased 6 oz.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—At the annual meeting d April 2, 1906, at Collyer Hall, Mr. C. H. Oakden, F.R.P.S., was ected President for the year in place of Mr. J. T. French, whose ar of office had expired. Mr. C. Churchill, F.R.P.S., who for ny years has been the much valued Treasurer of the Society, found elf compelled to resign, and Mr. W. Calder Marshall, F.C.A., s elected in his place. Mr. C. Churchill and Mr. H. Creighton cket were each unanimously elected to the position of Vice- sident of the Society.

**REIDHILL AND DISTRICT CAMERA CLUB.**—At the meeting, on April 4, . G. E. Frisby gave a very interesting lecture on photography as plied to natural history. Mr. Frisby exhibited slides illustrating a life history of insects and their habits, and also specimens of iversal rare forms found in this and other countries. He also showed ographs of fossils, shells, etc., showing the wonderful way in hich their details and peculiarities can be portrayed by the camera.

## Commercial & Legal Intelligence.

**A CARDIFF CANVASSING CASE.**—Last week Edward Kelsey was arged on remand at Cardiff with having, by means of false prences, obtained 9s. from his employer, Mr. Clement Stone, photog- apher, 2, Guildford Crescent. Mr. Samuel, for the prosecution, id prisoner was employed to canvass and collect orders for the largement of photographs. Upon all orders obtained he received er cent. commission, in addition to nominal wages of 10s. a week, hich was passed upon proof that the orders were satisfactory. risoner also received from every customer a shilling deposit. He ve a receipt for the shilling, took down the name and address e customer from whom the order was taken, and also wrote e name and address, together with the necessary particulars for the largement, on the backs of the photos. On Saturday, February 24, went, as usual, to the shop, and handed in five photographs, all hich were found to be fictitious orders. Prisoner was only arged, however, in respect of two of those orders. He succeeded, owever, in obtaining the commission on the two orders. He was nt entitled to the commission until the orders had been proved e satisfactory, but upon his plea that his wife was unwell, and at he himself was recovering from a severe illness, prosecutor was duced to pay the money in advance. Prisoner received 17s. 6d. ogether, which was equal to 10 per cent. on each of the five rders, less the 5s. deposits. For the defence, Mr. Harold Lloyd bjected witness to cross-examination, a large portion of which e may quote, as reported in the "South Wales Daily News." re you the Free Enlargement Company? asked Mr. Harold Lloyd.— o. Have you anything to do with that company?—No. Were ou complainant in a case at Caerphilly Police Court a few weeks go?—Yes, I was. Was it called the free enlargement case?—I don't

know what it was called. Did the man beat you with a free enlarge- ment? That's what you summoned him for? Yes. Why did you say you had nothing to do with "free enlargement"?—I have not. It has nothing to do with the case. I daresay not. Was it the prisoner's duty to go about to various people in the valleys and to take with him a large picture?—Yes. When the pictures were returned to you they were returned for the purpose of being enlarged?—Yes. Well, I will leave out the word "free." I don't sup- pose you do anything free. Is it an enlarging business? Is it the word "free" you object to?—Yes. Your travellers are told to tell the various people that they would have a large photograph free of all cost?—No. I suggest the reason is that in this swindling process a large number of photographs are refused?—No, it is a lie, and I ask you not to use the word "swindle." Mr. Harold Lloyd: I use the word advisedly. Continuing, Mr. Lloyd asked: Is it a fact that a large number of orders are taken by your travellers, and when people come and ask you to carry out the work you refuse to do it?—No. You carry on business in the Rhondda Valley?—Yes. As the American Photograph Company?—Yes. Also in the Rhymney Valley?—No. Not as the Public Benefit Photograph Company?—No. A man pays half the rent of the shop. Do you give instructions to your agents to give different names in different valleys?—Not at all. Further examined, witness said that prisoner's wages ranged from 30s. to 40s. a week. "Sometimes 7s. 6d.?" asked Mr. Lloyd, in insinuating accents. Witness: That was when he was boozing. Prisoner had never swindled him before. Yes, he used to take about a picture as a specimen, and witness expected that picture to be returned—a picture he (witness) bought at a sale in Bridge Street. Mr. Lloyd: On the picture you put your own label over someone else's name?—Yes. Was it that of the "Forget-Me-Not" Portrait Painting Company?—Yes. Why didn't you send around your own picture?—I didn't have one of my own. Continuing, witness said he had sued people in the County Court, not because they refused the pictures, but because their payments were in arrears, and he denied that the County Court judges had ever made observations reflecting upon his pictures. Further examined, witness had never heard that the label was washed off by the rain, exposing the title of the "Forget-Me-Not" Company. When he discovered the fraud which you had perpetrated he said there was no wonder people made complaints?—Nothing of the kind. And then you decided to lock him up?—Not at all. Because he wouldn't close his mouth?—That's your suggestion, not his. Mr. Lloyd: Not a suggestion. It will be a fact presently. Witness denied allegations of making deductions from the man's wages, and said it was not a fact that he owed prisoner a balance of 3s. 10½d. In the course of a later sitting, the prosecutor stated that on February 24 prisoner came to his shop in the Wynd- ham Arcade and handed him five photographs (produced). On the backs were the names of the people who gave the orders for enlarge- ments, and by which the orders could be verified. Witness paid him 9s. commission on two of the photographs because prisoner said his wife was ill. He altogether gave prisoner 27s. 6d., of which 10s. was wages and 17s. 6d. commission, representing 3s. 6d. on each of five orders, two of which constituted the second charge against prisoner of obtaining 7s. from Stone. The evidence of a number of people was heard, to the effect that they had not paid deposits or given orders for enlargements. In further cross-examination of the prosecutor, Mr. Lloyd called for the production of books and wages sheets relating to transactions, but witness said there were no sheets, and he objected to bringing his books, and Kelsey was committed to the Quarter Sessions for trial and admitted to bail.

**ALLEGED POSTCARD FRAUDS.**—The further hearing of the case reported in our issue of February 16 last came before the Somerset Quarter Sessions last week. It will be remembered that Joshua William Humphreys, photographer, was indicted for obtaining by false pretences from Frederick Charles Durbin Hurd the sum of £2 7s. 6d. The case for the prosecution was that the accused, who had a studio at Blandford, took orders from the prosecutor, a sta- tioner, at Shepton Mallet, for the supply of picture postcards, who paid £2 7s. 6d. in advance, but no photos were sent, and he placed the matter in the hands of the police. Similar evidence was given by other witnesses. P.C. Pike said in ten weeks the accused had received orders for 50,000 postcards, and had received £113 15s. Mr. Wethered submitted there was no case to go to the jury, but the Chairman said it must proceed, though in his opinion it was not a



strong case. The accused was called and gave evidence as to his business transactions for the large supplies of P.O. printing on the cards with well-known London houses. He denied that he defrauded prosecutor. It was a real genuine business he was carrying on. In cross-examination the witness said he had had a number of orders for a thousand postcards. He had received the money, but he had not been able to execute the orders. He had received a sentence of four months for false pretences at Stroud in October last, where he pleaded guilty on the advice of the police. At the Wilts Quarter Sessions, on the advice of the Chairman that there was no bill, the indictment was withdrawn. The Chairman summed up strongly in favour of the accused, and told the jury they had to see that the criminal law was not pressed too hard. The jury returned a verdict of "Not guilty," and accused was discharged. In response to Mr. Wethered, the Chairman expressed the opinion that in regard to all the cases mentioned by the prosecution no further proceedings ought to be taken.

MR. ADOLPH LOWENSTEIN, 150, Mansion House Chambers, summoned in the City of London Court last week for the non-payment of £3 9s. due to a printer, was said to be the proprietor of the "Alliance Matrimonial Institute," of the "Smart Syndicate," the Santa Katalina Gold Mining Company, the American Photographic Enlargement Agency, the European Patents, and the Comfort Folding Patents. The defendant said he had nothing to do with any of the companies named, but Judge Lumley Smith said he believed the plaintiff, and the defendant would be committed for ten days, the order to be suspended while he paid £1 a month.

PREMIER Optical Company, Ltd.—Capital, £300, in £1 shares. Objects: To acquire the business of the Swift Optical Company, of 113, Romford Road, E., and to carry on the business of makers and dealers in optical goods, scientific instruments, cameras, lenses, and other photographic goods, etc. No initial public issue. Registered without articles of association. Registered office, 63, Bolton Road, Stratford, E.

PHOTOFILM, Ltd.—Capital, £2,500, in £1 shares. Objects: To carry on the business of manufacturers, importers, and exporters of, and dealers in, films, plates, paper, chemicals, and other materials for photographic purposes.

**LIBEL by Postcard.**—In the Chancery Division last week, before Mr. Justice Warrington, a motion in the case of "Monckton v. R. Dunn and Co." was heard. Mr. Whately appeared for Mrs. Monckton, a well-known actress, whose professional name is Miss Gertie Millar, and he asked for an injunction to restrain the defendants from publishing postcards on the back of which appeared a photograph of that lady, which the defendants represented was a true photograph of her. In one of these she was represented to have been photographed in a nightdress, and in others in different costumes which were not too abundant. As a matter of fact, she had never been taken in such costumes, and they amounted to a serious libel upon a married lady. His Lordship: A pictorial libel? Mr. Whately: Yes, of a gross character. He understood that the photographs complained of were produced in this way: The photograph of the head of Mrs. Monckton was attached to the body of another person who had been taken in the various costumes depicted. Mr. C. C. Scott, who appeared for the defendants, admitted that the photographs were produced as described, but he submitted that they were not libellous. Although the lady had not at present donned such garments, it was quite possible that in the course of her professional career she might have occasion to do so. In one of the photographs the plaintiff was depicted as emerging from the shell of an egg. Surely that was a very innocent suggestion. Now that the attention of the defendants, who had acted perfectly innocently, had been drawn to the matter they were willing to give an undertaking not to publish, etc., any of the photographs complained of until trial or further order. His Lordship, on that undertaking being given, said he would make no order on the motion.

**A LIVERPOOL Bankruptcy.**—At the Liverpool Bankruptcy Court on Friday, Mr. Rudd, on behalf of Thomas Edward Parkin, applied to the Court to vary an order made in February, 1902, suspending the discharge until 10s. in the £ was paid. The failure took place in 1899, when the applicant was in partnership with one Frederick George Fry, and they traded as Parkin and Fry, photographic mate-

rial manufacturers, in Etna Street, Old Swan, Liverpool. The discharge of Fredk. Fry had been refused. Mr. Rudd urged that the bankruptcy had been entirely brought about by the applicant's former partner, and that in the course of a partnership lasting only a few months the applicant had been "done" out of £1,300, all the money he possessed. His Honour granted the discharge, subject to six months' suspension.

**The Affairs of a German Court Photographer.**—Amongst the heaviest financial downfalls in the critical years 1901-2 was the ruin of the world-renowned photographic firm of W. Höffert, of Dresden. This firm had branches in many Germany towns, in Berlin, Hamburg, Cologne, Breslau, Hanover, Leipsic, Constance, etc. It had a splendid business, but as the result of reckless expenditure it got into financial difficulties, which finally resulted in a meeting of the creditors. Enormous amounts had to be paid for stock and usurious interest, and from the books no less than £40,000 was found to have been borrowed. The money was advanced by all classes; bankers, civil servants, small capitalists, veterinary surgeons, and even a clergyman were numbered amongst the creditors. The precarious condition of the latter was hidden for months. The proprietors apparently appeared as well-to-do merchants, and almost up to the financial downfall this world-wide firm was considered firmly established. Appearances, however, were deceptive. Numerous agents were at work to open up new sources of money. Twenty per cent. interest was willingly paid, and small capitalists were only too easily seduced by such a large interest to entrust their savings to the world-wide firm of Höffert. When the firm failed in April, 1902, no less than fifteen hundred creditors bewailed the loss of their money to the amount of several hundred thousand marks. The principal proprietor, W. Höffert, died shortly before the smash; his son, a reserve lieutenant, who managed the branch business in Breslau, Berlin, and Hanover, absconded, and the widow was left behind without means in Dresden. Meanwhile the State Attorney of Dresden had instituted an inquiry against the absconding son and his mother on account of fraud. In order to induce people to advance loans the firm had issued circulars offering high interest, and young Höffert appeared as a "reserve officer" with such world address, that people plainly considered it an honour to be permitted to lend money to the firm. In the summer of 1904, Höffert, junior, returned from Switzerland, where he had absconded, and he and his mother had to defend themselves against a charge of fraud before the Third Court of the Dresden Assizes. Höffert, junior, was sentenced to seven years, and his mother to five years, imprisonment, and both are now undergoing these sentences in the prison at Bautzen. The Supreme Court refused revision, and also a proposal for revival of the suit was thrown out. The widow Höffert now lies very ill in prison, and is hardly likely to leave it alive. Höffert junior has been brought up from the prison at Bautzen before the Dresden Assizes to answer for further frauds. He swindled, immediately before the bankruptcy of his firm, the lately deceased banker Oeser, out of £300, and his wife of £1,350, and a veterinary surgeon, Heerlich, of about £135; in these frauds his mother, who is so ill, participated. His sentence amounts in all to seven years and six months.

## News and Notes.

**ASTRONOMICAL Photography.**—The extent to which the camera enters into the work of the modern observatory is well exemplified in the report of the famous Harvard College Observatory for 1905. With the Draper 11in. and 8in. telescopes over 6,000 photographs were taken, including 1,133 of stellar spectra. The Bruce telescope contributed 523 plates (one resulting in the sensational discovery of Saturn's tenth satellite, and twenty-seven having exposures of four hours each), and the Arequipa branch observatory 2,200. From 1,580 determinations of the magnitude of the minor planet Eunoë a variability of half a magnitude in a period of 3 hrs. 24 min. was ascertained, and many interesting new variable stars were detected during the examinations of the plates of spectra.

**A REQUEST for Photographs.**—Mr. Francis Galton writes to "Nature" from 42, Rutland Gate, London, S.W.:—"I should be

ful to your photographic readers, whether amateur or professional, who would send me, within the next two or three weeks, the photographic portraits, to be cut up, mounted, reduced to a standard scale, and so to be published without names. They are used in considerable numbers to control results at which I have already arrived, relating to resemblance. Family portraits would be particularly acceptable. I make this appeal, finding it extremely desirable, as well as costly, to obtain the needed material in other ways."

**ACETYLENE-FEED Generators.**—It is necessary to notice that the expression "carbide-feed" generators is no longer sufficiently precise to describe those types of carbide-to-water apparatus in which carbide is fed into the water of decomposition by automatic mechanism. In their original forms (says "Acetylene") the introduction of the carbide into the water in these generators was effected about by gravitation or some similar force, the descent of the holder bell to a certain pre-determined position causing a valve to open, unlocking the movable bottom of some receptacle, driving some forwarding gear through the action of a ratchet pawl. Now, however, builders are constructing carbide-to-water generators of the automatic kind in which the feed of the carbide is effected positively by means of some mechanism foreign to the apparatus itself, i.e., by means of a train of wheels actuated by spring or falling weight. In this type, we gather, the descent of the holder bell has nothing to do but to release the mechanism in question, so that the work suddenly thrown on the bell is too little to absorb much of the gas pressure. It has always appeared an objectionable feature in an acetylene generator fitted with a ratchet holder that the bell should suddenly be called upon to do more work other than that of forcing the gas through the service, because the additional work is at all heavy the pressure at the burners is diminished as long as the bell is otherwise engaged, and thus illuminating power and general behaviour of the burners must temporarily suffer. Naturally, if the additional duty thrown on the bell is quite small as compared with what it has to do in forcing the burners, and if the said additional work lasts only for a moment (as in opening a water valve), there is no harm done and causing an instantaneous jump in the light, but even this is not to be welcomed.

## Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

### A MAGNIFICENT OFFER.

To the Editors.

Gentlemen,—You speak pretty often in the B.J.P. about cheap work among photographers and their helps in England. I cannot stop showing you what can be done on the Continent in that line, I do not think it can be easily beaten. I read in a newspaper following advertisement, which I enclose in this letter:—

"Operators, possessing an outfit of 5in. by 7in. sized plates wanted, to travel.—Address, etc."

A matter of curiosity I went to the advertiser, thinking that there must be something behind it. I was well received, and upon my inquiry as to what the work was to be and the salary, I was informed that I was to take photographs while travelling in the West of France, and take views of shops or stores, that I was to pay all travelling expenses, hotels, and dry plates. These plates, which were to be furnished to me and paid by me to the employer, would cost 2s. a dozen (exactly 2 francs 40 centimes). The views, when taken, would be developed by employer, and expected to be good. When I asked what I would be paid for each negative forwarded supposed good, I was informed that I would receive 0.40 centimes each one, or 4d., and, mind you, the plates cost me already 2d. On my astonishment at such low figures I was told that I could

easily earn at that rate the munificent sum of 8s. a day, which means my taking fifty negatives each day, and I had to canvass for finding these fifty customers each day, take the views, and no account was made for a rainy day or days as are common in Normandy. Supposing I would be able to earn these 8s., I was to take out of these my travelling expenses, hotel bills, furnish my own instruments, dress, and if I have a family, let them starve. I forgot also of much use, but it is interesting, only he did not inquire about, and therefore will not put these in line.—Yours very truly,

RENVERSANT.

### MEASURING SHUTTER SPEEDS.

To the Editors.

Gentlemen,—Mr. Watkins is rather unlucky with his formula. I do not know whether the relation he has found between the "swing," the periodic time, and the velocity at lowest point is of much use, but it is interesting, only he has not stated it correctly.

For small arcs the velocity at lowest point is  $\theta \sqrt{g/r}$  ( $r$  = radius of circle and  $\theta$  = angle at centre subtended by half swing). The

swing is  $2r\theta$ , and the time is  $\pi \sqrt{\frac{r}{g}}$

Hence  $\frac{\text{swing}}{\text{time}} = \frac{2}{\pi} \times \theta \sqrt{g/r} = \frac{2}{\pi} V$ , and taking the usual ap-

proximate value  $\pi = \frac{22}{7}$ , we have  $\frac{\text{swing}}{\text{time}} = \frac{7}{11} V$ ,

or  $\frac{11 \times \text{swing}}{\text{time}} = 7V$ , not  $= V$

C. E. F. N.

To the Editors.

Gentlemen,—I have read with some interest the letters from Mr. Watkins on his method of testing shutter speeds. A simple plan, such as the one described, that will give results with approximate accuracy, is much to be desired, and as Mr. Watkins gives the benefit of his invention to all who wish to avail themselves of it, your criticism need not be wholly destructive. Though a nail suspension sounds crude I do not take it to be an essential feature of the apparatus, or to preclude the use of a knife edge or other more delicate form of pivot.

If your formula  $\frac{s-m}{2\theta\sqrt{2L}}$  is worth anything, it should be

accurate over such a small angle as would be described in the 1-50th of a second, say,  $1\frac{1}{2}$  deg. Will you be good enough to give the working on which your formula rests, or to work out the example of which Mr. Watkins gives the data, your readers will then be better able to judge of its utility.

I have recently had my shutter speeds tested by a well-known lens maker, and I see that they state on the test sheet that "the speeds given are practically, though not scientifically, accurate." Probably Mr. Watkins would say the same of his.

Mr. Carnegie may have a better method of testing shutters "of which the underlying principles are dynamically sound," but of that he is the sole judge, and your readers do not benefit thereby until he lays it before them.—I am, dear Sirs, yours faithfully,

C. J. BOSANQUET.

Blackheath, April 3.

[We have an article appearing shortly on the movement of a pendulum, and will postpone further reference to the present controversy until its publication.—Eds. B.J.P.]

### THREE-COLOUR PORTRAITURE.

To the Editors.

Gentlemen,—With reference to the correspondence by your contributor in this week's issue, we would like to state for the edification of Mr. S. Elwin Neame and others, that it is quite easily possible to obtain exposures in the studio with Dr. Koenig's three rapid filters in from 4-5 seconds for the three exposures, so that the drawbacks mentioned by your contributor must only be put down to a want of information on his part.—Yours truly,

FUERST BROS.

17, Philpot Lane, London, E.C.

April 6, 1906.



## Answers to Correspondents.

- \* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- \* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- R. H. Midwinter, 43, Park Street, Bristol. *Photograph of Miss Nellie Carter.*
- E. Wilkinson, The Studio, Hornsea, Yorkshire. *Three Photographs Showing Hornsea Promenade in a Storm.*
- F. V. A. Lloyd, 15, Lord Street, Liverpool. *Two Photographs:—Two Dark and One White Drum Horses and Riders, styled Ladysmith Horses, 18th Hussars. One White Drum Horse and Rider, styled White Willie, 18th Hussars.*
- A. Addington, 23, Lincoln Street, Kingsthorpe, Northampton. *Photograph (Combination) of Nine Different Views of Kingsthorpe.*
- T. M. Paul, 35, Marsh Street, Middlesbrough. *Photograph (Combination) of Mille. Von-Elia.*
- W. Laws, 154, South Eldon Street, South Shields. *Three Photographs of the Official Inauguration of the South Shields Electric Trams.*
- G. A. Dean, 14, High Street, Rugby. *Photograph of the Interior of Men's Ward (The Benn) Hospital of St. Cross, Rugby. Photograph of the Interior of Women's Ward (The Elizabeth), same Hospital.*
- T. K. Frank, 15, The Crescent, Gateshead. *Photograph of "S.S. Greytote Castle."*
- E. E. Corke, 82, High Street, Sidcup. *Two Photographs of the Rev. B. W. Chancellor, M.A.*
- E. Crowe, Thorofare, Harleston, Norfolk. *Photograph of the Screen in the Parish Church at Eye, Suffolk. Photograph of the Interior of Eye Parish Church.*
- C. Smy, 75, High Street, Upper Houghton, Dunstable. *Photograph of the Interior of the Parish Church at Houghton Regis, Dunstable.*
- A. Shaw, 32, Briardale Road, Seacombe, Cheshire. *Photograph of the "S.S. Fearless" with Back Broken, Eyremont.*

OPALINES.—1. I have to mount local prints in contact with glass and affix the glass to push frames for a customer, using P.O.P. (a gelatine paper). I thought it would be sufficient if I squeegeed them on to the warm glass, but they come off in places. I also used glue to affix to the push, but this has faded the prints wherever it has touched in a week or two. Will you kindly tell me the best way to do; it is for sea-side (cut) trade, and so I do not want more expensive proceedings than I can help. I think these are called opalines. 2. In a note to a letter on p. 279 of this week's issue you say: "Excellent cold varnishes can be obtained commercially which can be applied in a minute or two with a brush." Could you give the names of some reliable cold varnishes, as my place of business is at some distance from residence, and I have such a difficulty in hot varnishing, but have never used cold, as I thought they were not good enough to use?—WEDE.

1. If you are using gelatine prints and no alum bath you should have no difficulty in getting the prints to hold. However, a weak tepid solution of gelatine in which they are soaked for five minutes before squeegeeing will cause them to adhere. Glue is not a safe mountant. Use a gelatine mountant, such as the following from the "Almanac":—

Nelson's No. 1 gelatine ..... 4 oz.  
Water ..... 16 oz.

Soften the gelatine in water, liquify by placing the vessel in hot water, and add, a little at a time, and stirring rapidly,  
Methylated spirit ..... 5 oz.  
Glycerine ..... 1 oz.

2. If you state your requirements to any of the large dealers, such as Fallowfield or Marion, they can supply you with a cold varnish.

A. H. MOWERAY.—1 and 2. We regret that we have not directly compared the lenses; it is therefore impossible for us to answer these. 3. Depth of focus is a function of the aperture and focal length.

ANXIOUS, CLAPHAM.—Probably the instrument you want is the neocyclostyle; the address is 83, Gracechurch Street, E.C.

NIGHT PHOTOGRAPHY.—1. Will you tell me if I can get anything of a photograph of a florist's shop at night time with the lights? If so, how shall I have to go about it, for if I can take it they will give me a good order, but I do not want to use any flashlight. 2. Will you please tell me what kind of a coil I shall want to explode some flashlight powder (it is called Bayer flash powder). It does not go off so very well with a light, but if you drop a red-hot cinder into it or touch it with the red-hot poker it will go off very well. I thought of a coil that would make a piece of platinum wire than was in a coil in the heap of powder red-hot. —THOS. DELICATE.

1. If you work at dusk when there is enough light to illuminate details in the scene, you will have no difficulty in getting a very satisfactory photograph with an exposure of a minute or two at a fairly large aperture, such as  $f/6$  or  $f/8$ . You should, of course, use a backed plate. 2. A couple of bichromate cells should answer your purpose. A dealer in electrical goods will supply you.

FOCUS OF LENS.—Can you kindly oblige me with a couple of methods of determining the focus of a single bi-concave (negative) lens?—T. C. S.

The lens is placed in contact with a positive lens of sufficient (known) focal length to give a resultant positive focal length. This latter is measured by any of the usual methods, and the focal length of the negative calculated from the formula  $F = \frac{f_1 \cdot f_2}{f_1 + f_2}$ . Where F is the focal length of combination,  $f_1$   $f_2$  of those of the separate lenses.

STUDIO QUERIES.—Will you kindly answer me the following questions? No. 1. Is it possible to do good all-round work in studio 22ft. x 12ft.? No. 2. The studio would have to face direct east, therefore what would be the best thing to glaze it with? How much solid each end, etc.? No. 3. My present studio is built of corrugated iron, lined with matchboards. It gets so hot in the summer and cold in winter that it makes it unpleasant for sitters. How can I build another to keep a more even temperature. No. 4. How high should the eaves be and height to ridge? I should be so very much obliged as a reader for several years of B.J.P. for any useful information.—X. Y. Z.

1. Yes, certainly. But the studio would be better if it could be made three or four feet longer, particularly for groups. 2. The roof might be either white rolled plate or clear glass. The side plain or fluted glass. The latter would be the preferable if the studio is overlooked by close neighbours. About four feet six or five feet for a studio of these dimensions. 3. If one or two thickness of roofing felt, which is a good non-conductor of heat, intervenes between the matchboarding and the iron, the temperature will be kept more even. Two or three inches of saw dust between them will serve the same purpose. 4. About twelve feet to the ridge and eight feet to the eaves will be about right.

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## SUMMARY.

exhibition of portraiture by R. Dührkoop, at the offices of BRITISH JOURNAL OF PHOTOGRAPHY will be opened also on sday evenings from 6 to 8.

methods to be followed in making a combination negative are d in an editorial. (P. 303.)

ography, by the inclusion of the Manchester Municipal al School, in the Victoria University, becomes one of the nents of the Faculty of Technology, and is to be selected of the optional subjects for the B.Sc. (Vict.) degree. (P. 302.)

G. F. M. Hopkins, in a paper before the Oxford Camera discussed certain aims and methods in portrait photography. (P. 304.)

ording to an Austrian worker, Herr Heicke, enlargements by al light may be made direct on gum-bichromate paper by the sensitive surface a supplementary even exposure to light. (P. 305.)

cent copyright decision in the High Courts has affirmed that ncession of certain rights to sell copies of a photograph is ble consideration," and that therefore the copyright of photo- taken under such circumstances is the property of the person the concession. (P. 319.)

invention of self-toning paper in 1888 is claimed by D. ch, writing from Baltimore, U.S.A. (P. 319.)

exposing chamber for plates or films, and improvements in is and shutters are among the patents of the week. (P. 313.)

first of a series of articles by E. J. Wall, F.R.P.S., dealing the use of the spectroscope treats of the construction of the he spectroscope. (P. 307.)

on tetrachloride is recommended by Valenta as a solvent for n-making purposes. (P. 310.)

John Bartlett advises photographers aiming at art photography field of figure work to eschew personal friends and actors ers, and select only the professional model. (P. 311.)

## EX CATHEDRA.

### An Important Copyright Case.

The letter from Mr. Stackemann in another column this week draws attention to a copyright case, in which he was the plaintiff, which seems of the very greatest importance to the profession. The case, *Stackemann v. Paton*, has not yet been reported in the Press, but as soon as the Easter recess is over a verbatim report will be available. The importance of the action, however, lies in the ruling of Justice Farwell that certain limited concessions to a photographer in the way of issuing copies of a photograph is a good and valuable consideration, and therefore the copyright in the photograph becomes the property of the party making the concession. This, according to the information of Mr. Stackemann, was the ground upon which the case was decided, and those who have studied the copyright cases of the past will see that it reverses previous decisions of the courts. As communicated to us *viva voce*, the case was briefly as follows:—The plaintiff, trading as the Photographic Tourists' Association, was in the habit of photographing the exterior and interior of schools, taking the photographs at his own risk, and the proprietors of the schools ordering copies if they approved of them. Several of the photographs made under these circumstances having been published in a book issued by the defendant, the action was brought for infringement of the plaintiff's copyright, but was lost on the ground we have already mentioned. It will be better, perhaps, for us to postpone further reference to the case until the verbatim report is available, but if the facts as we state them are correct, the ruling must be highly prejudicial to photographers' interests, and must introduce the very greatest uncertainty into the so-called "free-sitting" business.

\* \* \*

### Orthochromatism.

We seem to be in for a season of strenuous orthochromatism, or shall we not say panchromatism. We believe that recent accessions to the list of colour-sensitive dry plates has destroyed the small minority of makers who did not issue an orthochromatic plate. As our columns have shown during the past few weeks, plate makers are alive to the need of a suitable screen for their colour plates, and themselves are taking steps to see that the user gets it. The issue of bathed plates has further concentrated interest on orthochromatic methods, and now we have the offer of a firm to orthochromatise plates to order. The user may make his choice among the pinachromes and cyanols, and obtain his pet sensitiveness without the *embarras* of home sensitising and drying. It remains to be seen what use will be made of these new processes in portrait photography. Probably retouchers still feel secure in the natural conservatism of photographers.



### Figures in Landscapes.

When visiting exhibitions one cannot help being struck with the value a figure or figures are in a landscape picture, and also, in many instances, how many pictures would be improved if a suitable figure had been introduced at the right point. Most are aware of the desirability of the figures at the time the pictures are taken, but the difficulty of obtaining a suitable one is frequently unsurmountable. Many, however, do not seem to realise how simple a matter it is to introduce a figure or group of figures into a landscape, or, say, a horse and cart into a picture of a country lane, in the printing of the picture. Of course, it has to be done by double printing, but this is a very easy matter if the simplest method of working be adopted. In our issue of March 2 (see p. 162) appeared an article on combination printing, and one of the methods there described is applicable to the introduction of figures, or anything else, into landscapes. Suppose, for example, it is desired to introduce a figure or two into a landscape, or, maybe, a vehicle of some sort into a photograph of a road or lane. We must first obtain a small negative of the figures, and it goes without saying that they must be of suitable size, and the lighting must correspond with that of the picture in which they are to be introduced. The background and everything else not desired is then neatly blocked out with black varnish, and this negative is then printed to the right depth to suit the picture on a piece of paper the size of the landscape negative, the portions beyond the small negative being shielded from light while printing. We thus have the figure on white paper. It is then neatly painted over with gamboge. The landscape is then printed, the paper being put on the negative, so that the figure appears in the place intended and the landscape printed. The picture is then toned and fixed in the ordinary way, whilst the free silver is washed out of the paper prior to toning, the gamboge is also washed off, and leaves no stain behind—that is, if albumen or collodion-chloride paper be employed. This is not the case with all samples of gelatine papers, as with some a stain is left; with others, however, there may be none.

### Colour Photography in Glasgow.

A large proportion of the specimens of colour photography which were exhibited at these offices in January and February have been brought together in the studio of Mr. Lewis P. Muirhead, of Glasgow, where they will remain open to inspection by the public for a week or two. One or two of the exhibits represent advances in practice even within the short time which has elapsed since the closing of the exhibition at our offices. Among these is a three-colour print by a modified pinatype process shown by M. Vidal, who has communicated to us a description of the process for appearance in our columns at an early date. We congratulate Mr. Muirhead upon his enterprise in showing Scotsmen the latest achievements in trichromatic methods, and we hope that the exhibition will stimulate interest in the processes among Scottish workers. At the conclusion of the Glasgow exhibition steps will be taken by the Royal Photographic Society to house a representative selection of the exhibits, originally brought together by ourselves, in their premises at Russell Square.

### A Professorial Chair of Photography.

Those who have laboured to elevate and advance the science of photography will be glad to hear that by the entrance of the Manchester Municipal Technical School into the Victoria University as the Faculty of Technology, photography and its cognate branches takes their place among the other departments of applied science recognised in

the University's wide educational scheme. The occupation of the first professorial chair of photography thus falls to Charles W. Gamble, by whom the department of photographic and photo-mechanical techniques at Manchester was organised and arranged with the experience gained as Principal of the London County Council School of Photo-Engraving and Lithography, Bolt Court, in the leading Continental schools. Under the arrangements photography is one of the optional subjects for candidates for the B.Sc. degree in applied chemistry and the Victoria University may thus be looked upon as the first training ground for scientific photographers and photo-chemists. The new prospectus of the University curriculum shows the precise part which photography occupies, and should be studied by those desirous of taking a science degree with photography as one of the subjects. We are glad to see that no relaxation of the necessary training in mathematics and pure physics and chemistry is proposed for students of this and other branches of chemical technology.

\* \* \*

### The Dührkoop Exhibition.

In continuation of our note of last week offering to open the collection of portraits and portrait studies now being exhibited at our offices on one evening in the week, we have to announce to the numerous correspondents who have written thanking us and approving of the suggestion that the exhibition may be seen on Wednesday evening from 6 to 8. Some brief notices of the work of H. Dührkoop by the daily press appear on another page. A review will appear in our own pages next week. Meanwhile we have only to say that all readers and friends of THE BRITISH JOURNAL OF PHOTOGRAPHY are invited to pay a visit to 24, Wellington Street. The occasion, it is hoped, will be one on which they will discover something to interest them if not a good deal which they can study with profit.

\* \* \*

### The Free Portrait Dodge in Germany.

What is a variant of the free portrait dodge has cropped up in Berlin. A circular was left at each house, and the top was a puzzle, which we reprint:—

Edej  
Eilimaf  
Tähre  
Nie  
Dnalar  
Tiartrop.

Anyone who solved this, and each line forms a word at the whole a sentence, as will be obvious to those of our readers who know German, had merely to send sixpence to a certain art institute, and they would receive a 18 by 14 inch enlargement. The secret of the above puzzle is that the German words are simply reversed, and the actual reading is "jede Familie erhält ein Roland portrait", or, in English, "every family may obtain a Roland portrait." Of course, when the portrait was made it was essential to purchase a frame. On the same circular particular attention was called to the "oil portraits" at 15 shillings, the pastels at 12 shillings, and black pastels at 10 shillings.

\* \* \*

### Portraits taken in the studio with natural backgrounds.

Many photographers may be presumed to be looking out just now for novelty in the way of portraiture for the coming season. Those in pleasure resorts might induce many visitors to have their portraits taken with a background depicting some of the well-known scenery or places of interest in the neighbourhood.

Some portraitists do have backgrounds painted to represent them, but their number is limited, and, after they show only as painted backgrounds. There is no reason, however, why natural backgrounds themselves should not be employed, and the above paragraph calls to mind a method introduced many years ago by Mr. Edge, of Llandudno, which he worked commercially, and with which he produced thousands of pictures, finding the process highly remunerative. Although the method is, as is said, old, it will be novel to many at the present time and may be of use to some. A series of stock negatives are secured of the scenes desired. They should be taken at such a distance that a figure posed in the foreground would be, say, of the cabinet size—that is, for cabinet portraits—and show the amount of subject desired on the background. These are the stock backgrounds, and they serve for any number of different portraits. The portraits are taken in the studio in the ordinary way before a light grey background. The portrait negative is then made, and, of course, has only a very light-tinted background. The figure is then painted over with gamboge, as directed above. This, in Mr. Edge's establishment, was done by girls. The landscape background is then printed, the printing being kept light. The prints are then washed, dried, and fixed in the ordinary way. In washing out the nitrate of silver from the paper the gamboge comes away, so that it causes no trouble whatever. The reason for using a light-grey background instead of a white one in the studio portrait is that a tint is obtained, which, when the background is printed, gives atmosphere to it. Any of our older readers will remember Mr. Edge's work on the very artistic pictures he produced. There seems no doubt, in our mind, that if enterprising portraitists at pleasure resorts were to make a feature of this simple method of producing portraits with natural backgrounds, Mr. Edge's method they could obtain much enhanced pleasure for them. The same portrait might be printed with several different backgrounds, and, when that were desired, a still higher price could be charged. A dozen portraits could be produced each with a different background, and depicting a different scene, with no more trouble than making the same for all.

#### COMBINING SEVERAL NEGATIVES INTO ONE.

In the conclusion of the article on "Combination Printing" in the issue for the 2nd ult. (see page 163) it was mentioned that when a considerable number of prints of the same subject are required it is best to make a combined negative rather than to repeat the combination for each individual print of the two negatives. It goes without saying that when once the combined negative is obtained the printing involves no more trouble than that of any other, and, furthermore, the prints will be more generally uniform than when made by the double combination. In the article just referred to it was assumed, as a way of illustration, that one or more figures which were not present when a group was taken had to be introduced into the picture. It will now be assumed that the same object is in view, and that instead of only four or five prints being required as many dozens have to be produced. In this case it is far less trouble in the end to make a combined negative, and thus be able to obtain many prints at a single printing. There are different methods of making combination negatives, but, whichever is selected, if it be known when the group negative is taken that other figures have to be included provision could be made for them in posing the group. We will now describe one method that may be employed, and we

shall assume, as in the previous article, that the original group is of the 12 by 10 size, though, of course, what is to be said applies equally to negatives of any dimensions. The film of the negative of the portrait to be introduced is first stripped from the glass by any of the well-known methods, or the portrait may be taken on a thin celluloid film. The film negative, whichever it may be, is then placed in the desired position on the large negative and the figure cut round with a sharp penknife, using sufficient force to cut through to the glass. The film of the large negative is then neatly scraped away and the new one introduced in its place, and secured there with a few touches of gum. In this way the original negatives are used, but in order to obtain a successful result it is imperative that the printing value of the second negative be identical with that of the first, otherwise the result will not be at all satisfactory.

By far the best way of proceeding is to reproduce the negatives through the medium of transparencies, making the actual combination in them. This plan, it is true, involves a little more trouble than that just described, but such is amply repaid in the superior excellence of the results obtainable. In this method of procedure the transparencies must be in film form. They may be printed on dry plates, and the films afterwards stripped off; or they may be made on the thin rollable celluloid films. But with either of these methods there may be some little difficulty, at times, in getting them all of exactly the same printing value, and, moreover, in the case of celluloid, it is a little difficult to cut through cleanly. For these reasons it is best to make the transparencies by the carbon process, using the ordinary transparency tissue for the purpose. With carbon the question of colour does not come in, as all will be the same, so that the printing density is readily judged of and made equal in the development; all the transparencies can thus be obtained with the greatest uniformity. It may be mentioned here that the transparencies should be much more deeply printed than if they were for lantern slides; indeed, as deeply as if they were to be used for enlarging from—there should be absolutely no bare glass anywhere, except, perhaps, in the very highest lights.

The transparencies must be developed on collodionised plain glass as described in the double transfer carbon process (see *Printing Processes*, XX., page 264 ante). Perfect transparencies of the requisite density having been obtained, they are flowed over, while still wet, once or twice with a warm dilute solution of gelatine (say one ounce of Nelson's No. 1 in a pint of water), and allowed to dry. They are then coated with enamel collodion and again allowed to dry. When thoroughly dry, and not before, the films are cut round the edges and stripped from the glass, which they will leave readily. We now have the transparencies ready for combining. The reason for coating them with gelatine, it may be mentioned, is to prevent the second coating of collodion from dissolving the first—that on the glass—in the highest lights.

The combination is made as follows:—The largest transparency—that made from the large negative—is firmly secured to a glass plate—preferably a little larger than itself—round the edges with strips of gum paper. The plate is then put on the retouching desk and one of the small film transparencies bearing the figure to be introduced is adjusted in its place and temporarily secured in position at the edges with a few touches of indiarubber solution—such as is used for repairing cycle tyres. This being done, the figure is neatly cut round with a sharp, thin penknife, used with sufficient pressure to cut clean through both films at once. The uppermost film is then removed, the rubber cement allowing of that being done,



the cut-out piece of the under one taken away and the other one put into its place where it will fit accurately. It is then cemented in position with a few touches of gum applied to the figure portion—not the face. Any other portraits that have to be introduced are dealt with in the same manner. In this way we get a combination transparency which, if the work has been neatly done, will show no joins, and will have all portions of equal printing value. From this combined transparency a negative, or several negatives, may be produced. They may be made by contact printing on dry plates, or by the carbon process. Or they may be produced in the camera in any desired

size. By making the combination with the transparencies the original negatives remain intact.

It will be seen from the above that it is quite an easy matter to build up excellent combination groups of persons, although the negatives of the individuals composing it were all taken at different times. In the foregoing only portraiture is dealt with, but it will be obvious to everyone that the system is also applicable to landscapes. For example, in taking a picture the size of the plate may not include the whole of the subject desired. But if two negatives are taken at the time they can be afterwards combined by the method just described

## PORTRAITURE.

A Paper read before the Oxford Camera Club last week.

In a recent lecture on Art the statement was made that "Raphael's best pictures were those he never painted." What the lecturer exactly intended to convey in this paradoxical saying I am not sure; but how true it is in one sense all art workers are sadly aware. Our best productions are always those we have only seen in our waking dreams, in what we call "our mind's eye"; those perfectly satisfactory achievements which seem so possible till we attempt to translate them into fact!

### Portrait and Likeness.

The perfect portrait is so rare that it may almost be called non-existent, and the attempt to produce it in photography gives rise to more disappointment than perhaps any other branch of the art. The reasons for this are numerous. I suppose we are all pretty well agreed about what constitutes a good portrait. If asked for a definition, most people would give this: A faithful and pleasing likeness; or possibly, a faithful *but* pleasing likeness. And in the "but" lies all the difficulty! I suppose, judging by what we see in exhibitions, both of painting and photography, that there does exist a certain number of people who prefer *unpleasing* presentments of themselves or their friends; at any rate, the artists' tastes seem to run in this direction. This is no doubt partly due to the modern craze for "actuality," as it is called, and to the excessive emphasising of one particular phase of the sitter's personality, to the exclusion of all the other thousand traits which go to make up the human character. This doubtful fashion in art, however, like other fashions, will have its day and subside into obscurity. If, however, any photographer wishes to follow it, he will not find it very difficult up to a certain point. He will probably not be able to emulate certain eminent painters, who contrive to put into some of their sitters' faces traits of character which, whether they exist or not, might almost furnish material for a libel action. Such triumphs are reserved for the more plastic arts. Photography must be content with representing things as they are—only let us be careful to represent them as they really are, as far as we can, for our limitations are somewhat severe.

First of all, let us get a clear idea of what our sitter really is like, and what impression we must endeavour to convey to the world of this particular human being. A true appreciation is seldom obtained by one interview; if possible we should see our sitter several times in the case of a stranger to us; with acquaintances and friends the task is easier. The several somewhat varying impressions thus received must be compared, and a general composite one obtained. If this is felt to be unsatisfactory, some one of the *pleasantly* characteristic impressions should be selected, mental notes being taken of details of lighting, costume, etc.

### Orthochromatic Portraiture.

Having determined what we wish our portrait to look like, we must consider our means. It will be found, in thinking over the characteristic points of anyone's personal appearance, that colour plays a very important part. And the rendering of colour is one of our chief stumbling-blocks. The difficulties connected with it are twofold, viz., those belonging to any rendering of colour by monochrome, and those peculiar to photography. Careful study of tone-values, and practice in trying to render them correctly, help to overcome the first, but technical knowledge in addition must be employed to grapple with the second. For example, in photographing a person with blue eyes, pink and white complexion, and auburn hair, we have not only to find out the relative depth of tone of the various colours, but also to reckon with the fact that blue will appear nearly white, and pink and auburn approaching black, in a photographic print, unless we take means to remedy this misrepresentation. Colour-sensitive (orthochromatic) plates, with or without coloured screen, should often be used, especially where defects such as freckles exist, but care must be taken not to overdo the use of these devices, or we may get the opposite result to that aimed at, e.g., blue eyes may look black and auburn hair nearly white. Care in development helps much towards correct colour rendering; parts of the negative which threaten to become too dense can be stopped, while others are coaxied into density. It will be seen that in order to do this with success a clear idea of the colour result desired must be kept in mind, and here comes in the use of the study of tone-values, or relative depths of various colours.

Printing, too, plays an important part in colour-rendering. Printing processes suitable to the negative and subject should be chosen. The best processes for portraits are certainly carbon and platinum, as both render the delicate gradation of tone required far better than other processes; unless, indeed, it is required to suppress detail, or obtain a broad effect, when bromide or gum-bichromate prints are most satisfactory. P.O.P. and albumenised silver paper come between, and are not really so effective as either, except in a few cases. A fairly good carbon-like effect is obtained by drying P.O.P. in contact with matt-surfaced celluloid, a good deal more detail and a pleasing surface are thus obtained.

### The Real Rembrandt Lighting.

All said and done, however, the absence of real colour from a presentment of the human face must remain a great disadvantage, and we can only partially atone for it by judicious lighting and posing. In studying the question of lighting, we can, as everyone knows, get much help from observation of

works of great artists, especially such as Rembrandt and others. These masters are particularly useful, in so much as their model are generally homely, if not ugly, whereas others like Vandyck, and even Reynolds, have a knack of trying to have had only handsome sitters, who would look in any light. The poses of the last-named artists (and schools) are frequently too artificial, though charming, of much use as guides to us, and the models seem to all possessed hands of the same beautiful and useless type. Hands of the Flemish and Dutch schools are, on the contrary, lifelike and natural in their various types and positions. If the lighting of a number of Rembrandt portraits studied, it will be found that the portion of the face and in bright light is almost always in the form of an oblong shape, with a piece taken out of it—never, I think, a egg shape, as is often seen in photographic portraits lighted from the side. This particular lighting is not very easy to obtain in an ordinary room, though in a studio it is easy to do it. Some light must be thrown from above or underneath in addition to that coming from the window. Of course, lighting must be adapted to the type of face being operated on, nothing but practice can teach how this is to be done. Rembrandt was very clever in the lighting of eyes; and it is good practice to try to copy some of his effects. Often quite magnificent eyes can be made interesting by throwing them in shadow, which must, of course, be transparent shadow. The transparency of shadow is much helped by the use of chromatic plates and care in development. A source of trouble in connection with the eyes is their surface polish, which, transparent and limpid in nature, often gives a glassy, unnaturally glaring effect in a photograph. This must be taken into account in arranging the lighting, as it often escapes notice when revealed in the print. Eyes are generally most pleasingly presented when looking naturally in front, not turned at an opposite angle to the face, or looking much away from the lens, though sometimes the face may be turned away and the eyes directed to the lens with advantage. Bunches of hair do not light up well, and should be avoided. They

usually resemble black and white rags more than anything else. Flowers, which form such beautiful studies, resent being treated as accessories, and demand special lighting.

### Back-ground and Accessories.

Accessories may help or hinder a picture. When thoroughly appropriate they are very desirable, but they seldom are unless the sitter can be pictured in his own room among his ordinary surroundings. A portrait of an artist or student becomes doubly interesting when taken in the midst of his paints or books, but such things introduced into a studio portrait look absurd and pretentious. Taste, however, no longer runs in this direction, as in the days when Lewis Carroll wrote "Hiawatha's Photographs."

The use of black backgrounds is condemned by many good critics, and I think that dead black screens are certainly to be avoided. If we examine Rembrandt's or Velasquez's dark backgrounds we shall find them always of a luminous quality, even if not shaded into half-light, as they frequently are. Against a dead black, the face is apt to look as if cut out of cardboard, without roundness. This failing may be observed in some very fashionable photographer's portraits.

The arrangement of the principal object on the plate belongs properly to the subject of composition, about which the Oxford Club has had much valuable advice from Mr. Snowden Ward and others, so I will only say that great care should be given to this point, if a good picture is to be produced. We do not always know why a picture pleases us, and very often it will be found on consideration that the arrangement of the chief masses according to rules of composition has a great deal to do with the matter. One chief rule is that the chief object should not be placed in the centre of the plate, especially when it is a seated figure and when accessories are included. I have indicated a few "side lights" which will, I hope, if not new or particularly useful, at any rate not help to darken the path of the aspiring portraitist as he struggles towards the full light of successful achievement.

G. F. M. HOPKINS.

## DIRECT ENLARGEMENTS IN MONOCHROME AND THREE-COLOUR IN GUM BICHROMATE.

The following article by Dr. Richard Hiecke, of Vienna, which appears in the current issue of the "Photographische Korrespondenz," should interest those of our readers who are workers in gum-bichromate, and whilst the author refers especially to three-colour prints, it is obvious that it may also be used for monochrome pictures. It seems an obvious sequence, too, that by adopting this plan it would be possible to obtain enlargements direct on ordinary carbon tissue.—Eds. B.J.P.]

In making enlarged gum prints it is usual to make a transparency to contact from the small negative, and then to make an enlarged negative. Even for a monochrome gum print it is necessary to develop three plates; with a three-colour print, however, at least nine are required. The result is considerable complication, as well as plentiful opportunities for failures and other inconveniences.

A process of making enlargements direct which would avoid the above roundabout methods appears, therefore, very desirable, even if longer exposures had actually to be given. The experiments which were instituted in following out this plan proved that the times of exposure with suitable arrangements were not so inordinately long; that actually from fifteen to twenty minutes was quite enough, and that even six minutes was sufficient for individual prints.

The enlarged image was projected by an ordinary lantern lens with an arc lamp of twelve ampères. An ordinary double

condenser of 4 in. diameter was used, with a Steinheil anti-planet of 1 in. aperture without a stop.\*

The three negatives of the tricolour set which were used for the experiment were clean and almost hard; the size of the enlargement was 2.8 times linear. The paper used was Schöller-Hammer paper sized with chrome-alum-gelatine, according to Kosel's formula. The pigment mixture consisted of one-part of gum solution (60 parts of gum arabic in 100 of water) and two parts of a 10 per cent. solution of potassium bichromate, with the requisite quantities of tube colours.

The exposure required for each of the three colours was about twenty minutes. The prints gave, however, as was only to be expected in gum-bichromate, only a few of the lightest gradations of the negative, so that to obtain a perfect three-colour print, at least six exposures, each of twenty minutes, or two

\* Although the author does not give the focus and aperture of the lens, the only one that we can find corresponding to this aperture is the group-aplanat of 7 in. focus, which worked at about  $f/5$ .—Eds. B.J.P.



hours' exposure in all, were required. It became necessary, therefore, to try and obtain a reduction of the exposure. Here I happened on a process which not only solved this question, but also had the further advantage that it reduced the number of printings to one for each colour.

#### Supplementary Illumination to Reduce Exposure.

The process consists of illuminating during exposure the sensitive paper on which the negative is projected by a supplementary light of even strength over the whole of the surface. The action of this supplementary lighting ought naturally not go so far that the high-lights remain coloured during development; the limits here laid down, however, are fairly wide in consequence of the variation in the duration and forcing of the development. By this supplemental lighting the exposure on the one hand is considerably reduced, and on the other hand the number of gradations of the negative projected can be increased at will, so that the softness of the prints is under control.

This appears at first sight almost too much to be at once attained by such a simple dodge; let us see how this agrees with theory.

#### The Theory of the Method.

In Fig. 1 let N be the luminosity curve of Vogel's photometer; the abscissæ be the numbers of the steps of the photometer, and the ordinates be the luminosity values of the individual degrees in fractions of the luminosity of the original light. Therefore, degree 0 has the luminosity of 1, and each succeed-

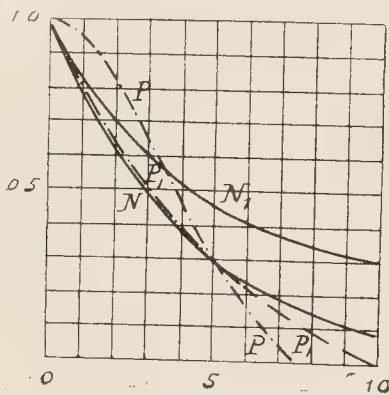


Fig. 1.

ing degree 1.27 that of the preceding one. If, for example, one had a negative of 10 degrees, its luminosities would be so reproduced by one printing on gum-bichromate that each photometer degree of the negative would correspond with the ordinates of the curve P. This curve P is obtained from Dr. Köster's curve for normal gum prints on sized paper which is also shown in slightly altered measurements, in that C to A is drawn in the co-ordinates of Fig. 1. That the ordinates of the curve P in Fig. 1 correspond to different photometer degrees than in Fig. 2 depends on the fact that by variation of exposure the curve P may be shifted throughout the whole of the photometer scale without altering the shape of the curve.\*

It will be seen that the curve P is quite different from the curve N; that especially the reproduction of the gradation in the shadows of the print is insufficient, and that from degrees  $7\frac{1}{2}$ –10 there will be no detail as these portions will be represented by bare white paper.

\* So far as we are aware, very little attention, if any, has been paid to Dr. Köster's work on the influence of development and the composition of the sensitive film on the gradation of gum print, and we hope to give a summary of his arguments shortly.—Eds. B.J.P.

If, however, there is added for every gradation of the negative an equal supplemental exposure of 0.3 of the original incident light in the clear portions of the negatives, and the time of exposure is reduced to three-quarters of the original, the luminosity under the clear glass parts of the negative, degree remains unchanged, whilst the luminosity under degree 5 of the negative now corresponds to photometer degree 5.

The distribution of luminosity under the negative would thus by the supplemental exposure be actually reduced from 10 to 5 degrees and would correspond now to the curve N1 in Fig. 1. If the exposure is now reduced still more, so that in the print only the piece A to B of Dr. Köster's curve of blackness, Fig. 2, is obtained, which exactly includes five degrees of the photometer, the degrees of blackness of the print under

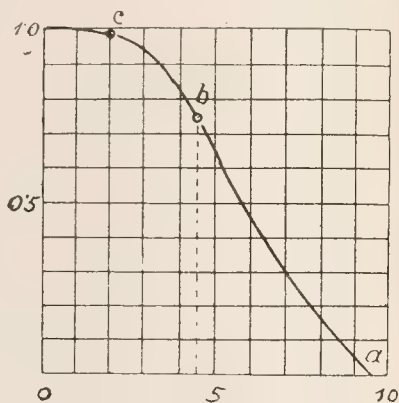


Fig. 2.

the influence of the luminosity curve N1, will be reproduced by the curve P1, which only under degree 10 of the original negative gives blank whites, and in the other degrees agrees as completely as possible.

From these facts we may advance the following conclusions:

1. The supplemental exposure must be fairly strong in our numerical example about 0.3 of the luminosity under the bare glass of the negative.
2. The duration of exposure is not inconsiderably decreased in our case to more than one-fourth of the original time of exposure.
3. The luminosity curves are with correct treatment reproduced in a very perfect way.

#### A Practical Test.

The process is also proved by a practical test. The supplemental exposure was given by means of two incandescent lamps of 35 NK. at 100 volts, which, however, run at 110 volts, gave 75 NK. The two lamps were placed one on each side of the screen at a distance of 18 inches; to increase their action a semicylindrical reflector covered with white paper was used. The other arrangements were as already described. With this supplemental illumination much softer prints were obtained and a reduction of the exposure for the red and yellow prints to 15 minutes, and for the blue to 10 minutes was obtained.\*

Still even now the extreme reduction of the exposure is not reached. If the bichromated gum solution is allowed to stand for some time in the dark it becomes considerably more sensitive. The sensitised pigment and gum solution had, for instance, after seventy hours, about three times its original

\* It is a well-known fact that in the production of three-colour prints by contact printing on the ordinary trichrome carbon tissues, the red and yellow require longer exposures than the blue, one would naturally therefore expect the same law to hold good in enlarging.—Eds. B.J.P.

ness, so that with the supplemental exposure the yellow only required  $5\frac{1}{2}$  minutes to give an image equal in quality to that obtained with a fresh solution of gum in 15 minutes. In a second case a trichromatic negative intensified with gum was printed on a pigment mixture, which was made with gum solution 24 hours old. The supplemental exposure made with the above-mentioned lamps at a distance of inches from the middle of the picture; the exposures for yellow and red prints were 6 minutes, and for the blue prints. The quality of the image was perfect.

It is important to point out that the coating and colour must not be dried by heat before printing. I use a small electric fan. After development, however, each individual print should be dried by heat and then where possible be well exposed quite close to an arc lamp, so as to make sure that gum is quite insoluble and thus be able to bear the coating distributing brushes. It was soon found that in quick drying this was not attained by cold drying. Development was effected with a rose.

It should be further noted that the supplemental exposure helps to overcome the high inertia of the light sensitive bi-gum paper, as mentioned by Dr. Kösters, according to whose experience it is better to use an intense light rather than a weaker one in gum printing, and that sunlight is the best.

This recommendation, which is confirmed by Kosel, is based on the fact that negatives which will give good prints in sunlight will, if printed in a weak light, remain detailless in the high-lights, even if the shadows are much over-exposed. It is obvious that, in this case too, the disadvantage of the weak light may also be compensated by the supplemental exposure.

#### Focussing the Enlargements.

In enlarging trichromatic negatives direct there is yet another point to be considered, and that is the superposition of the images. It will be most convenient to fix rigidly all parts of the projection lantern, and to do as little focussing as possible even with the negative. The placing of the negative in the middle of the field of view is unavoidable, in which position it should be firmly fixed. All further focussing is best effected by moving the projection screen itself,\* which

is a small drawing board sliding both horizontally and vertically in grooves on the wall. The drawing board is first covered with drawing paper and the yellow negative, for instance, projected thereon in the required size. On the margins of the picture some sharp outlines should be looked for and traced with a sharp pencil. Then these outlines on these other images should also be made to correspond with the pencilling, before the sensitive paper is secured to the board. The sensitive paper should be fastened on the board with four drawing pins, which should be placed each time in the same holes, and old holes may be crossed over with the pencil.

There is no difficulty in obtaining the coincidence of the constituent images of unequal size, which may happen with nonsymmetrical objectives. It will be quite sufficient to give a very slight shift to the lens, which will scarcely alter sharpness. If perfect accuracy is desired then the whole apparatus may be shifted and the focus be readjusted.

The production of a three-colour print from the negatives, inclusive of focussing, preparing the paper, developing and drying the prints, requires altogether not more than  $1\frac{1}{2}$  hours.

The process leaves thus as regards the technical side nothing to be wished for. It may be objected that it reduces gum printing to the level of a silver print, since it excludes more or less the personal artistic treatment, which is attained by many gum workers. This I will not now dispute, although with the individual impressions there is still sufficient opportunity for the use of brush and local development, and certainly influence can be exerted on the tone of the picture by choice of the supplemental lighting and time of exposure.

But even if this is unsatisfactory, my process may in any case be useful to scientific photography, for which correct reproduction is the principal thing, and feeling and artistic treatment quite subsidiary. There is no doubt that three-colour printing in this department of photography is of the highest importance, and that up to the present the difficulty and complications of this process has limited its use.

RICHARD HEICKE.

\* If the original negatives are all of the same size and small there should not be the slightest difficulty in fixing them in true-up wooden frames, and accurate superposition of the images obtained precisely in the same way as is used in a triple dissolving lantern. For the necessity of focussing each image can only be requisite when the images are not the same size.—Ems. B.J.P.

## THE USE OF THE SPECTROSCOPE.

The following notes are written with the hope that they may help to define some of the very elementary facts connected with the spectroscopic, an instrument which has lately come more prominently to the front in photographic circles. Being purely elementary, many statements must necessarily be made which, to the expert, will appear utterly trivial, and in some cases even misleading, because essential data for higher work are omitted. As, however, it is to the absolute beginner, the one who has never handled a spectroscopic, that these articles are addressed in the hope that they may lead him to comprehend much of what now appears in the journals on spectroscopy and to experiment for himself, the expert worker must excuse such things by.

There is a well-known story to the effect that a candidate for an examination for physics defined a spectroscopic as "a collection of bits of glass in a brass tube." This may or may not be a true description, as will be seen later; but it would rather define it as an instrument by means of which one can conveniently make and observe a spectrum. Now, a spectrum may be most familiarly described as a "rainbow." Everyone has seen after a sudden rain storm a brilliant arch across the sky, comprising practically red, orange, yellow,

green, blue, and violet. This is a spectrum produced by the dispersion of the sun's light by means of the drops of rain.

It is unnecessary to give a figure explaining what is meant by the "dispersion" of light. This is to be found in every elementary book on optics and many elementary books on photography, where one finds the familiar prism or triangular piece of glass, with the homogeneous beam of white light entering the same, and emerging therefrom split up into a rainbow or spectrum.

When we use one or more brass tubes or other opaque media so as to limit the light reaching the prism, we can obtain a spectrum which is unmixed with white light, which is not the case with the rainbow, and we at once see that the colours are extremely brilliant. If we use daylight, under certain conditions, or gaslight we shall find that the spectrum is a ribbon of colours, starting with deep red and gradually shading off into orange, this into yellow, and thence into green, greenish blue, bluish green, blue, bluish violet, into pure violet.

It will be noted here that there are two terms used, "greenish blue" and "bluish green," which require a little explanation, for such terms are very common. The rule is to denote the



hue or tint of colour when not pure by a compound term, the first word of which shall give the predominant colour. Thus, in the first case just cited, "greenish blue" means a mixture of green and blue, in which green predominates. Exactly in the same way we may talk of a red-orange or an orange-red, the former having a preponderance of red and the latter a preponderance of orange, but both being orange.

### Mapping the Spectrum.

If when we use a spectroscope we limit the white light falling on the prism to a very narrow slice or line, by means of what is technically called a "slit," we shall find on examining diffused daylight or sunlight that now our spectrum, instead of being a continuous and unbroken ribbon of colours, is broken up by innumerable transverse black lines, some fairly distinct and others extremely fine and faint. These lines are known as the Fraunhofer lines, although actually discovered by Wollaston in 1802; but it was Fraunhofer who set to work to map these lines out, and he discovered that two black lines in the solar spectrum corresponded with the two bright yellow lines given by burning sodium. It was by Kirchhoff and Bunsen that the fundamental facts of the coincidence of the black lines in the spectrum of the sun with terrestrial metals were established.

Fraunhofer designated some of the most striking lines by the first letters of the alphabet; and, reading from left to right; as in the usual way, we have A in the extreme red, B in the deep red, C in the reddish orange, D in the orange (or, as it is generally called, the yellow), E in the green, "little b" in the green, F in the green-blue, G in the deep blue, and H in the violet.

These lines are practically the only ones that we need trouble ourselves with, and they may be likened to milestones on the road, for they tell us exactly where we are. For instance, supposing we have either a diagram or a coloured chart of the spectrum with these lines marked, and we are told that a certain plate is sensitive to D&E, we know that the plate is sensitive to violet and blue, and also to green and yellowish green. Precisely in the same way we know that when anyone talks of a panchromatic plate sensitive to C&D that it is sensitive to yellowish orange.

Another method of defining a particular part or colour of the spectrum is by naming the wave-length of the light. This may be done in three ways. Thus, taking what is known as the D line, we may express the length of the wave in thousandths of a millimetre, expressed by the Greek  $\mu$ , and it would then be  $\lambda 0.58916 \mu$ ; or in millionths of a millimetre, expressed by  $m\mu$  and it would be then  $\lambda 589.616 m\mu$ , or, more briefly,  $\lambda 589$ ; or we may write it as  $5896.16 \text{ A.U.}$  or  $t.m.$  A.U. stands for Angström Unit, and is named after Angström, who mapped and measured the visible spectrum from A to H. His map is usually called the Normal Solar Spectrum, and was published in 1868. In making it, the unit was a ten-millionth of a millimetre, or  $t.m.$  For all photographic work the expression  $\lambda 589$  is quite sufficient, for it will be seen later that for ordinary work the refinement of absolute measurements of wave-lengths to three or four places of decimals is absurd.

### The Anatomy of a Spectroscope.

A spectroscope consists of three essential parts—the collimator, the dispersing medium (which may be either a prism or a grating), and the telescope, the last being for photographic work replaced by a camera.

The essential parts of the collimator are the slit, which admits a narrow beam of light, and a lens which merely makes this parallel before falling on the prism. Unfortunately, a slit made by an optician, and such a one as is necessary for the highest work, is somewhat costly, but it is by no means a difficult matter to make one which will answer very satisfactorily

for photography. Brass is the easiest metal to use, and printer's brass rule, about one-sixteenth of an inch thick, answers well. One edge must be bevelled off, first with a file and then on a stone, to a knife-edge; the brass should then be cut in two and the two bevelled edges placed together, with the bevel inside. The actual size of the slit depends upon the size of the lenses and prisms, and, roughly, the following will be correct: For a 3in. diameter lens,  $\frac{1}{16}$  in.; for 2in. lens,  $\frac{1}{8}$  in.; for  $1\frac{1}{2}$  in.,  $\frac{1}{16}$  in.; and for a 1in.,  $\frac{1}{32}$ ths of an inch.

One of the pieces of brass should be screwed or soldered on a flat plate of brass, and the other left free, so that it can move on slides or grooves. It can either be actuated by a screw or can be just shifted with the fingers. There is no necessity for this screw to be a micrometer, for a fine square-ended screw, as used for electrical work answers perfectly.

The slit must be affixed to a brass tube, or, what is better for photographic work, a wooden box, as this simplifies matters considerably. At the other end of the box should be affixed the lens, the diameter of which should be equal to the height of the prism, or half as much again. Ordinary landscape lenses can be used, without the diaphragm. The focus may be almost anything over 7in., but 10in. or 12in. is most convenient.

As already stated, the purpose of the collimating lens is to render the beam of light passing through the slit parallel, and therefore the latter must be at the equivalent focus of the lens. This may be found by opening the jaws of the slit as wide as possible, placing a small piece of ground glass across the same, and focussing a distant object on it. When the exact focus is once found the position of slit and lens may be fixed, otherwise one or the other should be adjustable, but there is no advantage in this, provided the adjustment is once made.

The prism should have an angle of 60 deg., and such may be obtained at a very reasonable price made of flint glass, which is better than crown, as the dispersion is greater. It would be possible to use a hollow prism bottle filled with carbon bisulphide, but the practice cannot be recommended, because of the convection currents in it.

The prism must be supported on a stand opposite the centre of the collimator lens, and with its side parallel to the slit. There is a particular position for the prism with respect to the lens, which is the best to use. It is known as the angle of "minimum deviation," a term which will be explained later. The prism should be about 1in. from the outside face of the lens.

The camera lens will be naturally that with which the operator is in the habit of working, and may be either landscape or a doublet. The length of the spectrum is dependent on the dispersion of the prism and the focus of lens. The lens should be placed about an inch from the prism face, and of course level with it.

When the whole apparatus has been set up the camera must be shifted towards the base of the prism till the spectrum is seen, because, as is well known a prism refracts as well as disperses the light, and the refraction is always towards its base. When the spectrum is seen centrally on the ground glass of the camera it may be focussed till its edges are sharp; we may then burn some salt in a bunsen burner in front of the slit and focus the bright yellow line.

We now come to the operation of setting the prism at the angle of minimum deviation. This is most easily done with the salt and bunsen flame. The prism should be turned on its support first in one direction and then in the other, and the yellow line will be seen to move, and then it reaches a point at which it turns back again; this point where it begins to turn back shows that the prism is at the angle of minimum deviation. This is most easily done with the salt and bunsen flame. The prism should be turned on its support first in one direction and then in the other, and the yellow line will be seen

move, and then it reaches a point at which it turns back in; this point where it begins to turn back shows that the spectrum is at the angle of minimum deviation, and it is as well drawn pencil lines round the base of the prism on the support, so that the prism may always be set in the correct position. Instead of salt we may, of course, use magnesium ribbon, and the minimum deviation for the bright green rays.

Provided the length of the spectrum is not too great, practically all the lines will be in focus at once, or an almost easier method is to see that the spectrum is the same width from the

red to the violet. If it is not, the swing back or side swing must be used.

The above are the essentials for a prism spectroscope, with the exception of details as to the slit width; this will be dealt with later. There are, however, serious objections to the use of the prism, and the apparatus is clumsy and takes up room, and unless the whole is firmly clamped together on a solid support there is great chance of parts shifting and of vibration. Much more compact and handier apparatus will be described hereafter.

E. J. WALL, F.R.P.S.

## THE THEORY AND PRACTICE OF INTENSIFICATION.

### III.

THOUGH any particular intensifier cannot be definitely recommended for each individual negative, a reference list of the various modern formulæ is desirable. The reason that the comparison of two intensifiers will not always hold good will readily be seen from the following example. The effects on gradation of two plates intensified, one with mercury and ammonia, the other with chromate and hydroquinone-soda, may vary in their relation, because the time allowed for bleaching the mercurial case will bring about a different effect according as it varies; a very short bleaching may convert the shadow all into the white compound substances, the high-lights being superficially bleached, whilst with a prolonged bleaching shadows may be still only bleached, and the high-lights verted throughout. The result in each case would vary as regards gradation in the intensified negative.

The bleaching bath for all mercurial purposes may be the one, as follows:—

Mercuric chloride .....	105 grs. or 6.8 grms.
Ammonium chloride .....	42 grs. or 2.7 grms.
Water .....	8 ozs. or 250 c.c.s.

Assuming that a constant time be allowed for bleaching, the following reblacking baths are recommended:—

For normal, or under-exposed, negatives, a 10 per cent. solution of ammonia.

For weak, or over-exposed negatives:—

Hypo (or, ammonium thiosulphate) .....	4 ozs. or 60 grms.
Water .....	20 ozs. or 300 c.c.s.

A 10 per cent. solution of sodium sulphite is suitable for over-exposed negatives, when bleached for a short time only, or for flat over-exposed negatives when thoroughly bleached (3-5 minutes at 60 deg. Fahr.).

For normally-exposed, under-developed negatives, a short bleaching followed by ammonia, may be alternated with a longer bleaching, and redevelopment with a 5 per cent. solution of acetone sulphite.

#### MERCURIC IODIDE.

There are two ways of using mercuric iodide. The first is to prepare two solutions as follows:—

A.—Mercuric chloride .....	60 grs. or 4 grms.
Water .....	7 ozs. or 200 c.c.s.
B.—Potassium iodide .....	180 grs. or 12 grms.
Water .....	3 ozs. or 85 c.c.s.

Four sufficient B into the A to quite redissolve the red precipitate at first formed. Mix one part of this solution with three parts of water, and immerse the negative in this until sufficiently intensified. Then rinse well and clear in 5 per cent. solution.

The alternative method is to make up the following:—

Mercuric iodide .....	15 grs. or 1 gm.
Sodium sulphite .....	300 grs. or 20 grms.
Water .....	3½ ozs. or 100 c.c.s.

The plate is left in this solution until sufficiently dense, then washed (for not too long a time).

Mercuric iodide gives a result similar to that produced by mercury and ammonia.

#### COPPER BROMIDE.

Equal parts of the two following solutions are mixed:—

A.—Copper sulphate .....	30 grs. or 2 grms.
Water .....	3½ ozs. or 100 c.c.s.
B.—Potassium bromide .....	30 grs. or 2 grms.
Water .....	3½ ozs. or 100 c.c.s.

The well washed negative is bleached in this, rinsed for ten minutes, then reblacked in

Water .....	3½ ozs. or 100 c.c.s.
Silver nitrate .....	30 grs. or 2 grms.
or,	
Amm. sulphide .....	1 drm. or 4 c.c.s.

#### LEAD.

Lead nitrate .....	75 grs. or 5 grms.
Pot. ferricyanide .....	120 grs. or 8 grms.
Glacial acetic acid .....	1 drm. or 4 c.c.s.
Distilled water .....	3½ ozs. or 100 c.c.s.

The negative is bleached in the above bath, and then washed in water containing a trace of nitric acid. It is next reblacked in either weak ammonia or Schlippe's salt solution.

Both lead and copper increase the harshness of the negative, the former being chiefly employed in process negative making.

#### URANIUM.

Two solutions are advisable, as follows:—

A.—Uranium nitrate .....	30 grs. or 2 grms.
Glacial acetic acid .....	5 to 10 drops.
Water .....	3½ ozs. or 100 c.c.s.
B.—Potassium ferricyanide .....	30 grs. or 2 grms.
Water .....	3½ ozs. or 100 c.c.s.

For under-exposed negatives use three parts of A to two of B; if the negative be over-exposed, use three parts of B to two of A. If the whites become discoloured, soak the intensified negative in 5 per cent. ammonium sulphocyanide solution.

#### CHROMATE.

"Bleach" the negative with a solution of

Potassium chromate .....	30 grs. or 2 grms.
Hydrochloric acid .....	15 mms. or 1 c.c.
Water .....	3½ ozs. or 100 c.c.s.



Redevelop—after a short washing—with hydroquinone, or metol-hydroquinone-soda.

#### PERMANGANATE.

Soak the negative for one to three minutes in a freshly made solution of

Potassium permanganate	30 grs. or 2 gms.
Hydrochloric acid	5 mns. or 4 c.ms.
Water	3½ ozs. or 100 c.cs.

Next wash for two or three minutes only, then redevelop as with chromium.

#### REHALOGENISING BATH.

Bleach the plate in the following bath:—

Copper chloride	30 grs. or 2 gms.
Hydrochloric acid	30 mns. or 2 c.cs.
Water	3½ ozs. or 100 c.cs.

Wash well, and redevelop with amidol or glycin for preference. If it be desired to reduce contrast, only carry on development until the shadows are reblackedened; then quickly fix in hypo. The high-lights can thus be actually reduced whilst the half-tones and shadow-details are intensified.

T. THORNE BAKER, F.C.S.

## FOREIGN NOTES AND NEWS.

### Marginal Fog.

Dr. STOLZE states, in the current number of "Das Atelier des Photographen," that marginal fog on plates is due to radiations from the packing materials. Incidentally he points out that ammonia emulsions are much more liable to this than acid boiled emulsions, and this is due to traces of ammonia being tenaciously held by the gelatine. To render this harmless he suggests that carbonic acid should be pumped through the emulsion of carbonic acid water be added to the same, so as to form the true ammonium carbonate. If the plates are already coated, then it is sufficient to fume the plates with carbonic acid [He does not state whether the plates are to be wet or dry.—Eds., B.J.P.], and advises that plates intended for the tropics should be packed in boxes filled with carbonic acid instead of air. Plates kept in metal boxes at fairly high temperatures for varying periods of time showed marginal fog, and more at the edges of the glass than these edges which were cut from a larger plate. From this curious fact he argues that the effect is due to "rays."

In the BRITISH JOURNAL for December 22, 1905, page 1008, an abstract is given of Dr. Homalka's experiments on this subject, in which he proves that marginal fog is due to a diffusion of the salts from the edge towards the middle of the plate, the chief salt being traces of the alkaline bromide used in the manufacture of the emulsion, which thus keeps the centres free from fog.

### Carbon Tetrachloride Varnishes.

Valenta suggests in the current number of the "Korrespondenz" the use of carbon tetrachloride as a solvent for various resins which will give good cold negative varnishes. Carbon tetrachloride,  $\text{CCl}_4$ , is a colourless, pleasant-smelling heavy liquid of great dispersive power, which boils at 138deg. F. The specific gravity is 1.63; it is mixable with alcohol and ether, insoluble in water, and dissolves oils and various resins fairly easily (and costs pure about 1s. per lb.—Eds., B.J.P.) A solution of 5 to 10 parts of gum dammar in 100 parts of carbon tetrachloride gives, after filtration, a clear solution, which, poured on a glass plate, leaves behind, after evaporation of the solvent, an absolutely clear, hard, and firm film of varnish. This dammar varnish is excellent for gelatine negatives as a cold varnish, and may also be used in suitable concentration for varnishing collodion plates.

Mastic also gives a useful varnish, although it is less soluble than dammar. To make such a varnish 5 parts of mastic should be dissolved by the aid of heat in 80 parts of carbon tetrachloride, allowed to cool, and then filtered, and the varnish kept in well-corked bottles. Both these varnishes give films which, when quite hard, take the pencil well. It is difficult to make a shellac varnish with carbon tetrachloride, as this resin is very insoluble in it.

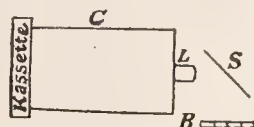
### Yellow Fog in Bromide Prints.

Namias states that bromide prints and plates fixed in a weak fixing bath frequently show a slight yellow fog or stain, due to small traces of the developer, reducing very minute traces of silver, and this defect is particularly noticeable in the shadows of the negatives and whites of the print. To prevent this, he recommends that fixation should be effected in almost saturated solutions of hypo, that 5 per cent. of boric acid should be added to the bath, so as to prevent the action of the developer, and that fixation should

always be done in the dark. There is not the slightest danger of any reducing action in such a strong solution of hypo unless the prints or plates are left in for two hours.

### Photographing Writing and Printed Matter.

Dr. Wiedeman gives, in the "Zentralblatt für Bibliothekswesen," a very simple method of obtaining quickly a photograph of a manuscript or printed matter, and whilst this idea has been used for some years, it may be useful to draw attention to it. It entirely obviates the making of a print, as for such purposes as it is intended, for it is perfectly immaterial whether the written or printed characters be black or white, so long as they are distinctly legible. A reversing mirror is placed in front of the lens, and the object is photographed



on to bromide paper, which is then developed in the usual way, so that a black line appears as white on a black ground. The position of camera, mirror, and object is shown in the following diagram, in which C is the camera, L the lens, S the mirror, and B the book, which obviously lies flat on the table. This method has been in use in the libraries of Rome, Paris, London, etc., and in Paris the bromide paper is used in rolls, and all exposures developed at once. It is obvious that this method of working is particularly valuable when a manuscript can only be retained for a short time.

### The Red Filter in Three-colour Work.

Mr. Thorne Baker, in the "Korrespondenz," points out that the exposure through the red filter is the longest, and that it is very desirable to reduce it as far as possible. Homocol, pinachrome, and pinacyanol bathed plates show a better red sensitiveness than when the dyes are added to the emulsion, but still in these cases there is need of a red filter that cuts the exposure down as much as possible. In order to attain a good reproduction of the blue-green, green, and yellowish-green in the colour print, it is necessary that the transmitted spectrum of the red filter should still contain some green, the luminosity of which appears abruptly cut off at  $\lambda$  5,750, which, however, with longer exposures, gradually increases till at about  $\lambda$  4,750 it is completely extinguished. Naturally the latter region will only be faintly reproduced even with longer exposure. A sheet of glass should be coated with a 5 per cent. solution of gelatine and dried, and then soaked in a solution of

Croceine scarlet R	10 parts.
Tartrazine	0.05 parts.
Water	1,000 parts.

till the requisite degree of staining is obtained. The dye bath must be made up 24 hours before use, well shaken, and then filtered twice. The stained plate must be rinsed under the tap, and quickly dried at about 75deg. F., otherwise the dye will crystallise out. Croceine scarlet R. is made by the Bayer Company, and it permits of very

rt exposures being given. The author does not, however, give information as to how short the exposure is with any plate.

#### Acid Bisulphite Lye.

Amias has analysed the commercial acid sulphite lye, and finds it consists of 25 per cent. of sodium sulphite, 10 per cent. of sulphurous acid, and 0.7 per cent. of sulphate of soda. This, being into consideration the small proportion of sulphate, is much better than commercial sodium sulphite, and he suggests, therefore, that it should be used instead of the sulphite and the free acid neutralised with caustic or carbonate of soda. If 150 parts of stic soda are added to 1,000 parts of acid lye, the result will

represent 400 parts of anhydrous or 800 parts of crystallised sodium sulphite. Instead of neutralising beforehand, the lye may be added to the developer and the carbonate of soda increased, and he gives the following as a suitable formula:—

Acid sulphite lye (32 deg. Be.) ...	60 parts.
Sodium carbonate anhydrous .....	100 parts.
Potassium bromide .....	1-2 parts.
Hydroquinone .....	7 parts.
Metol .....	1 parts.
Water .....	1,000 parts.

This reduces the cost of the sulphite considerably.

## PORTRAITURE BY R. DÜHRKOOP.

second house exhibition at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY opened on Tuesday last, and will remain open till May 26, being open free to visitors from 10.30 to 4.30 every day of the week except Saturdays, when the hours are 10.30 to 12.30. I shall not refer at length to the collection of Herr Dührkoop's portraiture which has been brought together until next week, when a critique will appear by Mr. F. C. Tilney. We may, however, quote a few notices of the exhibition, which reach us as we go to press.

The "Times" says:—Herr Dührkoop has devoted many years to making a series of portraits of the celebrated people of his town, and these, reproduced by photography from plates of the photographer's own making, may be seen in a large portfolio in the gallery. They are all vigorous and characteristic, one or two rising to a high level; and the ruff and roan in which nearly every celebrated man (there are very few celebrated women in Hamburg) wears have a valuable pictorial quality; the effect of turning over the many sheets of the portfolio is to the lack of variety in the subjects. That feeling can instantly be removed by a glance at the walls, which are hung with original photographs. There are a few celebrated men here, too—No. 4, a portrait of "Dehmel (Poet)," and No. 72, a strong study of Herr Dührkoop—may be especially noticed; but it is the photographs of children which will most attract the visitor. Herr Dührkoop, as Mr. F. C. Tilney tells us, though a man of over fifty, "is content to dance antic before his youthful sitters," and his efforts have their reward. These child-studies are delightfully natural, fresh and spontaneous. Sometimes, as in Nos. 45 and 49, the child is merely lying still and looking straight at the camera; sometimes two or three are building bricks, or playing games, as in No. 26 (a very pleasing composition); in one case (No. 25) two babies are at breakfast; in another (No. 18) there is a baby in bed laughing up at its mother; in several the child is being kissed or held close in a hug. There are constant variety and constant individuality in these portraits of children which are not often found in the work of the child photographer. Old women, too, make good subjects for Herr

Dührkoop; notice No. 43, the poet, "Elise Averdick," and No. 75, "Mme. Zacharias," and, to descend the social scale, No. 34, "Gossip," and others, which show very natural studies of old peasant women. Herr Dührkoop can make mistakes, as in the very commonplace "The Big Hat" (No. 14), and the unpleasant "Recollection" (No. 45), in which the lady appears to be holding two telephone receivers to her ears. He sometimes poses his subjects in too theatrical a manner. But his accomplishment is high. The interior (No. 7) must have been very difficult and is very charming. So is No. 39, a gum print, "In the Doorway," and many of the figure studies, though called by grandiloquent names, are remarkable for their naturalness and intimacy.

"The Pall Mall Gazette," in its "Photographic Notes," by "J. M. B.," writes:—The collection of portraits by a Hamburg professional that are now being shown at the office of THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, will, I feel sure, be universally admitted to be a remarkable show. Herr R. Dührkoop is a professional of long experience, and the pictures now on show are, we are told, such as he turns out in the ordinary way of business. If that is so, one cannot help thinking that the Hamburg professional's patrons require, and insist on having, a very much better portrait from the artistic point of view than do our people over here. At any rate, these pictures, with a few minor exceptions, have a quality about them that makes them quite different from the work of the average high-class professional. There seems to be very little retouching or "faking" of any kind about this work; it is just good straightforward photography, but wonderfully good of its kind. In his portraiture of men the photographer has had some striking sitters, and has caught their personality to a surprising degree. And yet I like him better in his presentation of children. In some of this class of work he has given us a rendering of his little sitters that is quite fresh, and yet perfectly natural without, while in all his work his command over the processes of carbon, gum and platinum enables him to make the most of what must, in the first place, be very fine negatives.

## THE ARTIST, THE PHOTOGRAPHER, AND THE MODEL.

[A paper read before the Photographic Society of Philadelphia.]

A painter always uses models, and though he may exercise his imagination in delineating them upon his canvas, there is always a certain amount of realism about his productions from the living object which enables us to recognise the special individual he has employed in his studio. And so, if we examine the work of noteworthy photographers, we shall discover that it is not so much the technical qualities which attract us, but the skill displayed in lighting, posing, and managing the model. As a general rule the photographer is anxious about the slant of his studio light; he is urgent in his inquiries as to what kind of curtain to employ; will follow implicitly the directions laid down in some photographic magazine on the advantage of side light, or on the super-necessity of top illumination

for artistic effect or 45 degree angle of illumination; how far the subject should be placed from the source of illumination; what height the camera ought to be; what inclination, etc. All this is mechanical, and he ought to know all about it before he puts his model before the camera.

A well appointed studio, in fact the most scientifically constructed studio, is, after all, only a means to an end in securing artistic effect. A cut and dried method of professional photography is the bane of the profession. There is more originality and a greater display of effective illumination to be found in amateur work, simply because nine times out of ten the amateur is obliged to work under constrained conditions of illumination. He has that as a fixed and un-



alterable quantity, and so his whole attention is upon his model. His thought is on his subject, and the light is made to do his bidding, and the result is generally more pleasing to the painter than the faultless technique and skilled lighting of the professional. The professional cannot understand the reason for this preference of the painter for the crude productions, as he calls them, of the amateur over his carefully but conventionally posed subjects.

#### Professional v. Sympathetic Model.

Another point, too, in which the amateur is more in line with the painter than is the professional is the employment of models. The only desire of the amateur is the realisation of the idea he has in his mind, and the sitter is generally accessory to his striving, and so in a measure contributory.

The painter, as we say, always uses professional models. It is true these models, as a class, have not the intelligence of the average sitter to the amateur, but by their experience and training they have acquired a certain amount of pliancy, and are capable of being moulded, so to say, to the conception of the artist—in reality becoming a part of the painter's self.

And now the question arises, which is preferable, the model who follows the profession as a means of livelihood, who becomes nothing but the clay in the hand of the artist, and aims to be and to do nothing but what is desired, or the casually selected model, the friend and acquaintance of the photographer who may be a very intelligent person, capable of high thought and possessed of keen artistic perception; and who may desire intently to carry out the conception demanded by the picture?

Unfortunately, this role of the models though apparently a very easy one, is not so easily played as one might imagine.

It is one thing to take a histrionic attitude and to have your soul filled with the theme for the delectation of an audience, and another to pose before the camera so as to give sentiment, life and animation to the image on the ground glass. The histrionic pose is a dead failure in photographic art. Any painter will tell you it takes certain characteristics to make a model.

The class model or professional model is really a certain social differentiation, and on this account is to be preferred to the haphazard selected model or self-conscious sitter. We frequently hear the remarks of people when pleased with a well conceived picture, "What a clever model," or something of the kind, implying that the artist was dependent altogether on the model for his success.

Now, nothing is more fatal to success in portraiture or genre than to have a model who is clever or over-intelligent. It is more fortunate to have one who, while possessed of these qualities, is at the same time obedient and pliant.

#### The Virtue of Compliance of the Model.

Everyone knows that actors are the worst possible agents in the hands of an intelligent photographer. Dramatic action is appropriate with its proper stage settings, but it is out of place in a picture—it makes things look stagy. And yet actors, as a class, are

far above the artist's model in intelligence and education, but it is just the self-conscious knowledge which makes them spoil the picture. A photographer who has no idea of his own will succeed better with an actor than with an artist's model, the reason being obvious. But when trying to materialise some idea of his own in a picture his model had better be kept in ignorance of his intention. All that is demanded is compliance, and this can only be effectively secured by employment of trained, hired models.

Even the expression of the subject is better secured by use of the paid model. The photographer is bound to get nothing but a histrionic pose by asking a model to assume a trait not inherent in their character. Even Reynolds did not succeed as well with Mrs. Siddons as the "Tragic Muse" as with some of his other work, notably the "Duchess of Devonshire." Any one can see in this delightful composition of the great painter how he has utilised the unconscious moment of the model, when her every thought was centred upon the little child she is holding at arm's length.

But let the photographer be within the moderation of nature and not strive to get agonising expressions. Never attempt a subject which cannot be followed out with a model. Be natural, and you shall enter the kingdom of art even if ye may be cast out of the salon.

Never advertise the method by which you secured your result, neither to the model nor to the readers of art magazines. Be magnanimous and let the model imagine she is the be-all and the end-all of your success.

Let us photographers follow in the line of the painters and not be so ambitious, or, rather more forcibly put, self-conceited, by carving out new paths in art for ourselves which the painter fears to tread. Let us study lighting and posing and draping from the painters' art, with the aid of the complaint trained model, a girl who is perfectly at her ease while with the photographer, who knows just how far to appreciate his chaff and who doesn't take offence easily or get tired or impatient, or knows better than the artist; whose ambition is to please and to be accounted a success at her trade. One who will do anything desired to carry out the artist's idea about which *per se* she knows nothing and cares less. Such a subject will be more likely to give the picture success than the young lady of your acquaintance whose every movement you consider a favour, and tell her so, every change or condescension, and from whom you are from time to time supplied with distracting suggestions about the *motif*.

Then the chance of selection is wider amongst the ranks of the Tribllys. There are more comely faces and graceful figures willing to have their charms portrayed, and the photographer is not compelled as he frequently is when a friend has posed for him, and he has achieved something beautiful, to hide his picture and surreptitiously exhibit it to only a few choice friends with fear and trembling lest he offend the fair original.

Therefore, in conclusion, I want to inculcate, first, have a definite idea as to what you intend to embody in your picture, then search out the model or models best suited and go to the lists of the professional rather than to the circle of your friends. JOHN BARTLETT.

A PHOTOGRAPHIC Survey of Sussex.—Mr. J. C. Stenning, of Steel Cross House, near Tunbridge Wells, is the hon. secretary of the Photographic Survey of Sussex, the second annual report of which has now been issued. The report records two exhibitions, one held at the Eastbourne Public Library in July, the other at Hastings Museum in August. Both were well attended, and the respective curators reported that the photographs were of much interest to visitors. There are several new subscribers to the Survey. The committee draws the attention of any who possess old photographic or scrap albums, old negatives or photographs of buildings or of other antiquities in the country, to the service that can be rendered by their lending them for the purpose of copying; any such articles sent to the hon. secretary will be copied and carefully returned. Negotiations are in progress for placing the Survey on a better and wider basis, and thus rendering it more useful and permanent, and also with the view of making the collections of photographs, lantern slides, etc., accessible to all interested. Should this alteration be effected, notice will be given to subscribers and contributors; in the meantime the committee appeals to amateur photographers interested in the work of the Survey to take any of the vacant sections, three miles by two

miles, into which the county has been mapped out for the purposes of the Survey, and to this end the hon. secretary invites correspondence.

Our Leaders in the North.—The "Newcastle Weekly Chronicle," in its photographic notes commences a series of brief biographies with that of Mr. Arthur Payne, well known by his writings no doubt to many of our readers, and a technical director of the factory of Mawson and Swan, Newcastle. We will spare Mr. Payne's blushes by recapitulating his many labours and achievements, yet we may quote the local tribute to his work—the establishment of the Northumberland and Durham Federation. "A work of Mr. Payne's that has perhaps been of most benefit to this district was the formation of the Federation some four or five years ago. His commanding position to-day is the outcome of most arduous labour, freely given for the good of others. He held the position of secretary until a year ago, when upon retiring he was made a life member of the Federation."

The death took place on Tuesday in last week at 6, St. Margaret's Road, Plumstead, of Mr. Dutton, at the age of fifty-seven years. Deceased was a partner in the firm of Messrs. Schreiber and Dutton, photographers.

Patent News.

Process patents—applications and specifications—are treated in *Photo Mechanical Notes*."

The following applications for patents were made between April 2 and 7:—

**REPRODUCING.**—No. 7,935. Improvements in reproducing pictures by reprinting an original picture that has been treated under hydrogen peroxide. A. G. Bloxam, Birkbeck Bank Chambers, London, for Veire Photographische Gesellschaft, Germany.

**COPIING APPARATUS.**—No. 8,239. Improvements in photograph-copying apparatus. Heinrich Koller and Samuel Löw, 65, Chancery Lane, London.

COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**VELOPES.**—No. 13,475, 1905. The invention consists of a cover in one piece of paper or of fabric such as chintz or silk, satin, muslin. The front and back are joined together at one end, whilst the opposite end of the front may have a flap extending from it. Other flaps are provided along each side of the front. In the central part of the front is a large opening which on the inside is closed by a flexible sheet of talc cemented at its edges to the front inner face. The back is doubled over to lie against the inner face of the front, and the side flaps of the front are pasted over the back. The flap at the end of the front may also when a photograph has been placed into the cover, be either pasted down to the back or tucked into the cover's open end. When a photograph has been placed into the cover it can, if desired, be retained centrally with the talc-covered opening by brass pins or fasteners passed through it at its corners and through the cover. Janie Lambert, Telham Court, Battle, Sussex.

**SHUTTERS.**—No. 12,030, 1905. The invention provides an improved means of forming a direct light-proof joint between the shutter and the lens partition by the following means: The shutter, which may be of the sliding plate or quadrant plate, or other suitable pattern, is fixed on the inner surface of the front panel, and enclosed by means of a metal cover (hereinafter called the cover) in such a manner as to leave sufficient space for the free play of all the working parts, the cover being turned down on each of its four sides, and provided with suitable flanges for the purpose of attaching it to the front panel. This cover is provided with a circular opening to correspond with the exposure aperture in the front panel of the camera, and around this opening is formed a series of concentric depressions or corrugations. Over the lens, which is fixed on the intermediate partition, is fixed a metal or wood tube, which extends forward towards the cover, but is not quite long enough to form contact therewith when the front panel is closed. The outer end of this tube carries a disc, which is pressed forward by means of an enclosed spiral or other spring, and prevented from being thrust too far by means of a flange formed on the front face of the tube. The disc is provided with a central aperture around which a series of concentric corrugations are formed, and projects beyond the tube sufficient to form a yielding contact with the cover when the front panel is closed, the corrugations on the disc being so formed that they engage with those on the cover and form a perfectly light-proof connection. The shutter release projects through an opening in the side of cover, and a corresponding space is made in the side of the camera body to allow of the necessary movement when operating the shutter. It will be seen that the improvement removes all possibility of light entering the camera through reflections from inner surfaces, for, notwithstanding that there may be a considerable quantity find its way between the front panel and the inner partition by means of fine apertures or an imperfectly fitting front, it is entirely prevented from passing through the lens and fogging the plates by reason of the contact of the corrugated surfaces. By

varying the construction of the device the spring operated disc could be applied to the shutter cover, and a corresponding series of corrugations be made on the face of the lens tube, or the surfaces of these parts could be plain, without corrugations, and covered with velvet, leather, or other suitable material for the purpose of forming a light-tight joint at this juncture. By a further modification the joint could be made by means of a fixed flange on one part working in a channel or making contact with a yielding material, such as velvet, on the other part. When adopting the corrugated spring disc, as before described, its diameter is adjusted so as to allow of a moderate amount of side play in the metal or other tube for the purpose of accommodating the fit of the two corrugated surfaces in case the openings in same are not quite concentric. Herbert Holmes, Tudor Works, Tudor Road, Hackney; and Houghtons, Ltd., 88 and 89, High Holborn, London, W.C.

**SHUTTERS.**—No. 25,237. Certain of the claims set forth are: A photographic shutter, consisting of two gold-mounted plates, or of two plates, each with an exposing aperture, revolving on the same centre, and both revolving together during the whole period of exposure in conjunction with means whereby one of the plates is stationary and the other revolving during the process of winding; a shutter as above having means for altering the angular position of the two plates by a gearing connected to one of them, the gearing being mounted on a separate centre from that of the

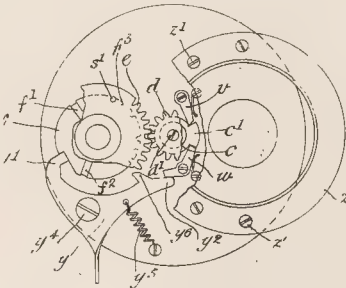


Fig. 1.

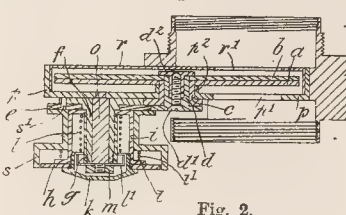


Fig. 2.

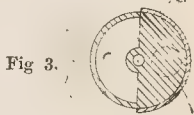


Fig. 3.



Fig. 4.

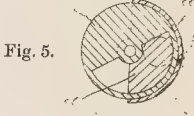


Fig. 5.

plates, and having a catch or catches to hold the other of the plates stationary while the change is being made. In a photographic shutter as claimed in above, the combination of means whereby one only of the plates is revolved for a certain distance for the purpose of winding, and can then be revolved somewhat more or less than the distance required for winding in order to vary the size of the exposing aperture, which opens the lens and which can be further revolved to a greater or less extent in order to bring into action catches for the purpose of stopping the revolving plates, while the exposing aperture is opposite the lens in order to make prolonged exposures. In a photographic shutter, as above claimed, the combination therewith of a set-off lever, which releases a projection on the driving device, and which, also by means of a supplementary lever, releases a projection on one of the revolving plates in order to make the exposure. The action of the shutter is as follows:—In order to wind the shutter, the milled head s is revolved clockwise. This carries with it the cog wheel e and the flanged sleeve f, which are all locked together by the pin s<sup>1</sup>. It also carries round the cup i, the dial h, the cap k, the sleeve nut g, and one end of the



driving spring *l*, and places this spring under tension. When the winder *a* has been revolved about half a revolution, the set-off lever *y* drops into the stop notch in the flange of the sleeve *f* and holds the shutter wound. During the course of winding, the speed plate *b*, which is geared to the winder, has been revolved anti-clockwise for a complete revolution while the shutter plate *a* has been retained in a stationary position by the pawls *v* and *w* acting on the projection *c*<sup>1</sup>, thereby avoiding opening the lens during winding. To make an exposure the set-off lever is pressed so as to lift the projection *y*<sup>1</sup> from the stop notch in the flange of the sleeve *f*. The winder is then driven round by the spring *l*, carrying round with it the speed plate *b*, and also the shutter plate *a*, because the latter is now free to move, the pawl *w* having been lifted by the set-off projection *y*<sup>2</sup>, and because it is held by friction to the speed plate *b*, so that the two revolve together. Thus when the shutter is set off or released, both plates, *a* and *b*, revolve for an entire revolution and uncover the lens aperture for a longer or shorter period, according to the size of the aperture in the said plates. Both the plates *a* and *b* are provided with apertures, which are preferably 180 degrees or thereabouts in their angular size, and it is evident that by varying the relative positions of the two plates, the angular size of the resultant aperture, formed by the two plates, may be reduced until it is a small slit. Figs. 3, 4, and 5 show the plates *a* and *b* in different relative positions. Fig. 3 shows the two plates superimposed, giving the maximum attainable aperture. Figs. 4 and 5 show them arranged to give smaller apertures. The variation of this aperture is obtained in the following manner: After the shutter is wound, the winder *s* may be slid outwardly along the cup *i* against the pressure of the spring *i*<sup>1</sup>, thus drawing the pin *s*<sup>1</sup> out of engagement with the flange of the sleeve *f*. It can then be revolved independently of the sleeve *f*, but it will not draw the pin *s*<sup>1</sup> sufficiently far out to disengage it from the cog wheel *e*, consequently its revolution also revolves the speed plate *b* by means of the cog-wheel *e*. In this way the shutter plate, being held stationary by the pawls *v* and *w*, the relative angular position of the plates *a* and *b* can be altered to any extent. The pin *s*<sup>1</sup> can be engaged in any one of the series of notches *f*<sup>3</sup>, thus locking the winder in different positions and leaving the plates *a* and *b* in definite relative angular positions before they revolve to make an exposure. Thus each of the notches *f*<sup>3</sup> corresponds to a different resultant aperture in the plates *a* and *b*, and a different duration of exposure is given by the revolution of the exposing plates, dependant upon which one of the notches *f*<sup>3</sup> the pin *s*<sup>1</sup> had been engaged in immediately before the exposure was made. The position of the winder *s*, with reference to the dial *h*, records the notch in use, and consequently the duration of exposure that is given, as the dial *h* is attached by means of the cap *k* to the cup *i*, which latter is attached to the flange of the sleeve *f* by the sleeve nut *g*. Conrad Beck and Horace Courthope Beck, 68, Cornhill, London, E.C.

**EXPOSING PLATES, ETC.**—No. 21,840, 1905. The invention relates to a method of successively exposing sensitive sheets (plates, films, etc.) in a suitable chamber by pulling the exposed sheets one after the other out of the exposing chamber into a collecting chamber. The invention does away with the necessity of providing a special chamber for gathering the exposed sheets, by allowing the light-tight envelope in which the sheets are enclosed before some are inserted into the exposing chamber to be also used as a collecting chamber for the sheets after exposure. Therefore the device comprises an exposing chamber and a package containing sensitive sheets having extensions, the package having a light-tight envelope adapted to be shifted on the sheets contained therein. The exposing or film changing chamber, shown in Fig. 1 has a cover *a* jointed thereto, this cover being provided at both ends with strips *b*, *c* of velvet or similar material. Opposite the strip *c* of the cover *a* is a strip *d*, fastened to the frame of the exposing chamber, so that the strips *c*, *d* are pressed together on closing the cover *a*. At the end of the exposing chamber, which is opposite the end carrying the strip *d*, the chamber is provided with a mouthpiece *e*, having a free passage. The film represented in Fig. 2 is designated *f*. The film is provided at both ends with unsensitive extensions, forming pulling strips *g*, *h*. The light-

tight cover enclosing a pile of films *f* is designated *i*. The cover *i* is shiftable on the pile of films; and for this purpose is provided at both ends with ribs or strips *k*, *k* and *l*, *l*, respectively of velvet or similar material surrounding passages for the pulling strips and the films, and to make a light-tight contact with opposite surfaces of the pile. The light-tight cover *i* of the film package is provided with a flap *m*, which may be grasped in order to shift the envelope *i* on the films. The use and operation of the devices described is as follows:—Assuming that the exposing chamber has been opened, as shown in Fig. 1 of the drawing,

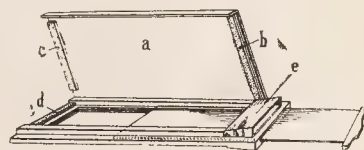


Fig. 1.

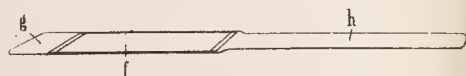


Fig. 2.

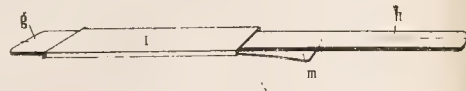


Fig. 3.



Fig. 4.

then the film package, shown in Fig. 3, is inserted in such a manner that the flap *m* and the pulling strips *h* pass through the passage of the mouthpiece *e*. Now the cover *a* of the exposing chamber is closed, with the effect that the flaps *g* are squeezed between the ribs *c*, *d* of the exposing chamber; at the same time the rib *b* is pressed against the side wall of the mouthpiece *e*, so that the passage of such mouthpiece is compressed. Now one grasps the flap *m*, and at the same time the flaps *g*, and begins to pull, so that the light-tight cover *i* is shifted along the film pile and passes through the passage of the mouthpiece *e*. The movement of the cover *i* is limited by suitable stops, not represented on the drawing. Now the cover *i* has the position shown in Fig. 4, and compresses the strips *h* between its ribs *l*. The cover *i* may be turned over so as to contact with the cover of the exposing chamber, this being possible owing to the foldable nature of the material forming the mouthpiece *c*. If now a film has been exposed, and if it is desired to take it out of the exposing chamber and to place it in the collecting chamber which is formed by the cover *i*, then the operator grasps the pulling string or flap *h* of said film and pulls the film between the ribs *h* of the cover *i* into the hollow of the cover. This procedure is repeated as often as a film has been exposed within the exposing chamber. When the films in the exposing chamber, which originally in unexposed conditions were in the cover *i*, are all exposed and carried back into the cover *i*, then the apparatus is brought into a dark room and the cover *i* is removed from the exposing chamber and the films are taken out for development. Carl Paul Goertz, 10, Bismarck Allee, Grönewald, Berlin; and The Optische Anstalt C. P. Goertz, a.-G., Rheinstrasse, Friedenau, Berlin.

The following complete specification is open to public inspection before acceptance, under the Patents Act, 1901:—

**CHANGING PLATES.**—No. 24,431, 1905. Apparatus for carrying or changing photographic plates. Peters.

## Photo-Mechanical Notes.

### Scratchy Marks on Half-tone Negatives.

Replying to a query in "Process Work," a writer assigns the cause of this defect to the rubber solution used in edging the plate. The solution is too thick and does not dry quickly. The plate is washed while the edging is sticky, and some of the rubber is carried over the plate, to which it faithfully adheres in fine lines, and if development is prolonged these lines attract silver, and can be seen after fixing between the film and the plate. Such is my experience. When I bought Penrose's solution of rubber I was all right; but when I started to make it with naphtha and bisulphide I made it too strong, and got the 'long scratchy marks.' The usual investigation of the cleaning followed, and now I only use good methylated chloroform and a weak solution of rubber, using a clear pat only. The plate dries *instantly*, and I have not had any 'scratchy lines' since. The writer has suggested washing the camel-hair brush with warm water; this is insufficient to remove rubber, which can be done with the chloroform."

### Plating on Paper.

"Paper and Pulp" sets forth a new electric process for giving a metallic surface to paper. It consists in placing the bath in a metal tank in which are immersed two metal plates. One of the plates is formed of the metal which is used to cover the paper. A rather weak current is used for the bath. A thin layer of metal is deposited on the second plate, as is usual in the galvanostatic process. When the deposit has reached a thickness of about  $\frac{1}{160}$  inch, the plate is placed against a sheet of paper which is previously coated with the proper kind of glue. After drying, the metallic layer adheres to the paper so strongly that it remains upon the paper when it is pulled off the metal plate. A variation of the process consists in ornamenting the foundation plate with any kind of designs or letters, and these are reproduced on the metallic deposit. The solutions which are recommended in the above process are as follows:—For silver paper, a bath is made of cyanide of silver 210 parts, cyanide of potassium 13 parts, water 980 parts. For gold paper, cyanide of gold 4 parts, cyanide of potassium 18 parts, water 900 parts. For copper, sulphate of copper 18 parts, sulphuric acid 6 parts, water 40 parts.

### Natural Grain.

Husnik points out in the "Photographische Korrespondenz" that a grain screen has certain advantages over the line: the disadvantages are that the dots are of different sizes and at different distances from one another, so that the effect in the print is not even—rough and coarse. This is due to the fact that the smaller dots are actually eaten away in etching, so that blank spaces with neighbouring patches of denser dots are formed. Attention is drawn to Pretsch's process, in which silver iodide was emulsified in the bichromated gelatine. The disadvantage of this process was that the exposure was so long and the shadows were blocked up, whilst in the lights and half-tones a very coarse grain was formed. The author has now omitted the silver iodide and used only calcium chloride, which produces a grain, and states that Spitzertype is very much like Pretsch's process. In 1894 W. T. Wilkinson gave in the "Photogram," page 316, a modification of Pretsch's process, which has worked well. A solution is first made with

Cologne glue .....	50 gms.
White of two eggs .....	
Water .....	200 ccs.

The glue should be dissolved first, then the white of egg added and well stirred, and the mixture heated to boiling point to thoroughly agitate the albumen. The mixture must then be filtered and

Ammonium bichromate .....	4 gms.
Water .....	100 ccs.

Mixed, and then

Silver nitrate .....	2 gms.
Water .....	100 ccs.

Mixed with constant stirring. The mixture will be a deep red, due to the formation of silver chromate. To this should be added

enough 5 per cent. solution of calcium chloride to discharge the red colour, and then

Acetic acid .....	8 drops
Glycerine .....	10 drops

and the mixture strained and coated on ground glass which has been substratumed with silicate. A thin coating gives a fine and a thick one a coarse grain when dried at 50 deg. C. Exposure must be continued till all the details are visible at the back, and then soaked for two or three hours in a saturated solution of borax and rinsed. A cast may now be taken from this as usual. Instead of the Cologne glue a mixture of 1 part of hard to 5 of soft gelatine may be used, and the albumen and coagulation omitted. It is obvious from Wilkinson's formula that silver chloride would be formed with 'practically little or no excess of calcium chloride. If, as Husnik suggests, Spitzertype is a revival of this method, it may be worth experimenting on the above lines.

## New Books.

"Camera Work." Edited and published by Alfred Stieglitz, 1,111, Madison Avenue, New York.

Whatever criticism may be passed on the quarterly publication of which Mr. Stieglitz is the breath of life, it cannot be gainsaid that it puts before the reader American and other photography in a way more nearly equivalent to an exhibition than any publication whatever. We may differ as to what is and is not deserving of the sympathetic treatment which Mr. Stieglitz assiduously extends to all the work he reproduces in "Camera Work," but there can hardly be any discussion of the invaluable services which he renders to photography by the issue of such a quarterly. Of the volumes before us, one is a "Steichen Supplement," but the other is no less concerned with plates by the same worker and by nobody else. Our readers know, therefore, what to expect. The portrait of the late G. F. Watts, R.A., is, to our minds, the best thing. The four or five nude subjects—with never a face amongst them—have fine qualities technically: but the aim of the photographer in producing them is not clear. Since he has shrunk from admitting his models to the light of day, or of giving them anything particular to do, we must presume that they are offered as examples of beauty merely. Any anatomical charm they may have, however, barring that of proportion, is lost in the photographer's treatment of them, and a few have a shivery undressed look fatal to the highest aims of this class of work. "In Memoriam" is, by reason of its title, far-fetched in idea: it is apparently headless, and the bombshell (?) is hurtful. In its modelling, however, it is beautiful. "The Model and the Mask" makes us think of a cattle pen and a gratified prize-winner: the huddled figure is nothing if not porcine. As in these days the covers of literary ventures need have no application to the matter they protect or lure us towards, we are content to accept the cover design shown here as the best we have yet seen of photographic origin. The letterpress of these stately journals is for the most part divided between notes of the Photo-Secession and two articles by Mr. Shaw, reprinted, unadvisedly, as we think, from a London journal. Perhaps they did not read the hollow brilliancies of Mr. Shaw in America at the time, and so "Camera Work" may be excused for re-dishing them. But to English readers these fulminatory contradictions will be "cauld kail!" Mr. Stieglitz ought to be cautious, for he is playing with fire. When the risible nap has worn off Mr. Shaw's polemics his formula stands threadbare, which is "Demolish everybody and everything with all thy strength." Thus he "snorts defiance" at the kind of thing Mr. Steichen does just as much as at painters past and present. And he will be certain at some time to stumble upon an awkward truth, just as an "empty clock-case," to borrow a simile of his own, will, for one instant in twelve hours, tell the right time. In the supplement the footprints of Mr. Shaw are followed with not a little apprehension and timorousness by Mr. Maeterlinck.

The first number of "The Practical and Pictorial Photographer" (Studio series) fulfils the promises of its producers in size, variety of contents, and handsome appearance. Its literary bill-of-fare, made up from standard dishes, is doubtless none the less fitted to the amateur appetite. Among the writers, who in some instances repeat



a well-worn tale, are Chapman Jones, C. Winthrop Somerville, and J. C. Warburg. Some notes on "Light and Shade in Landscape," by Horace Munnery, is a welcome escape from conventional topics. Presumably the task of editing a photographic miscellany is less arduous than the supervision of the monographs which formed the previous "Library" series of the "Practical." We see the Rev. F. C. Lambert announced to have ready for publication a series of four sixpenny handbooks on the popular subjects of development, exposure, P.O.P., and bromide. An outlet, we presume again, for tireless energy.

## New Materials.

Artistic Film Border Negatives. Sold by the Autotype Company, 74, New Oxford Street, London, W.C.

The presentation of the photographic portrait within a border which, if suitably chosen, greatly enhances its appearance has been one of the observable fashions among photographers of standing for a year or two, yet so far as we have found it has been left to individual photographers to get prepared for themselves designs for pleasing combination printing from the portrait negative. The Autotype Company may therefore be congratulated on making good the deficiency in a way which permits of justice being done to this method of



"framing" in the print itself. The figure which we reproduce represents one (A) of the six patterns at present issued and obtainable in cabinet size (opening  $4\frac{1}{2}$  inches long) at 3s. 6d., and in whole-plate (opening  $6\frac{1}{2}$  inches long) at 5s. With each negative the necessary masks and discs are provided, and the operation of double-printing does not call for any special skill. The other patterns are equally plain and reserved in design, for the company have wisely refrained from anything like ornate decoration, a border of such character defeating the purpose for which it is intended. An illustrated circular issued by the Autotype Company gives half-tone reproductions of all six designs.

MESSRS. A. W. PENROSE AND Co. announce that they are prepared to undertake the resensitizing of commercial dry plates to order. They can bathe with any of the following dyes:—Orthochrome T

(panchromatic), Pinachrome (panchromatic high speed), Pinacyanol (red sensitive high speed), Dicyanine (extremely red sensitive), Tetra-brom-fluorescein (green sensitive), Di-iodo fluorescein (green sensitive), Homocol (green sensitive), Ethyl Red (green sensitive). These plates will be prepared as wanted, and any order received in the morning can be despatched same day. They will keep two or three weeks. The prices will be 2s. for quarter-plate, 4s. for half-plate, and 8s. for whole plate. Special filters can be supplied to suit the colour sensitiveness of either of the above plates, combined with the highest transparency, to allow of the shortest possible exposures, especially for trichromatic portrait work and landscape photography, or reproductions of oil paintings in badly lighted galleries. Approximate ratios will be given with each set of filters for daylight or open arc. If required, a ratio of 1:2:2 can be obtained by proper combination of plates and filters. The bathed plates will be prepared under the immediate supervision of Mr. H. O. Klein.

## CATALOGUES AND TRADE NOTICES.

The London Stereoscopic Company are holding, at 54, Cheapside, a large sale of photographic apparatus and materials, which should repay a visit by both amateur and professional photographers. We see from the 32-page list of the lots that very considerable reductions are made on the list prices, and the opportunity—which can be embraced by post—appears to be one for picking up cheaply a good hand camera, lens, or enlarger.

Messrs. Elliott and Sons, Ltd., send us a set of show cards and specimens, a parcel of which they will be pleased to send any dealer on application. The present series is even more attractive than previous issues of the kind, which is saying a good deal, for Messrs. Elliott's judgment in matters of window display has impressed us of late years as altogether admirable.

A NEW list of "Amateur Photographic Requisites" has been issued by the London Stereoscopic Company, 106-108, Regent Street, W., and though not professing to be an encyclopædia of everything photographic, includes a selection of high-class cameras and accessories which can be specially recommended. The Company offer a copy free to every applicant, and are prepared to advise on the choice of apparatus personally or by post.

## FORTHCOMING EXHIBITIONS.

April, 1906.—Barrhead Amateur Art Club. Hon. Secretary, R. Murray, 146, Main Street, Barrhead.

April 16-21.—Redcar Photographic Society. Entries close April 9. Secretaries, W. H. Taylor, Esplanade, and J. M. B. James, 4, Elton Street, Redcar.

April 18 to 21.—Bolton Amateur Photographic Society. Secretary, T. W. Cross, 27, Latham Street, Bolton.

April 20-21, 1906.—Watford Photographic Society. Hon. Secretary, C. J. Trevarthen, Ashcroft, Bushey Hall Road, Watford.

April 27-May 27.—Northern Exhibition (Manchester). Sec. G. M. Morris, 9, Chandos Road, Chilton-cum-Hardy, Manchester.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

May 15 to 17, Clevedon Photographic Society. Last day for entries May 9. Secretary, Rev. E. H. Sandford, 18, Hallam Road, Clevedon.

A FIRE took place recently on the premises of Messrs. G. W. Wilson and Company, photographers, St. Swithin Street, Aberdeen. About five o'clock an employe noticed that something was burning in the collotype department, and on investigation he found that a bench was on fire, having apparently become ignited by a gas ring on the floor, which had inadvertently been left burning. By the time the brigade put in an appearance the fire was almost extinguished. The damage amounts to a few pounds, and is covered by insurance.

CAMERAS Barred.—The Japanese worship "Katori" was open for inspection at Birkenhead last week, and was visited by about 6,000 persons, the proceeds going to local charities. The Japanese sailors received the visitors with great courtesy, although cameras were strictly prohibited.

# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

rl.	Name of Society.	Subject.
.....	Aberdeen Amat. Photo. Assn.	President's Prize, Competitive Prints—any subject.
.....	Sutton Photographic Club	"Intensification and Reduction." Mr. J. H. Baldock, F.R.P.S.
.....	Bromley Camera Club	Social Evening.
.....	Rotherham Photo. Society	"Developing." Mr. C. E. Davis.
.....	Watford Photographic Society	Third Annual Exhibition.
.....	Hackney Photographic Society	Excursion to Ayot.
.....	Chelsea and District Photo. Soc.	Trip to Wimbledon Common.
.....	Society of Arts	"Ivory." Mr. Alfred Muskeil.
.....	Southampton Camera Club	Amateur Photographer Prize Slides.
.....	Cripplegate Photo. Society	"Lantern Slide Making." Mr. W. H. Wilshire.
.....	Royal Photographic Soc.	"The Red Sensitiveness of Dyed Films."
.....	Cardiff Windsor Amat. Ph. Soc	Mr. W. A. Scoble, A.R.C.Sc.
.....	Leeds Photographic Society	Competition Night.
.....	Birmingham Photo. Society.	"A Talk on Composition." Mr. Gilbert Foster, R.B.A.
.....	Hackney Photographic Society	Lantern Evening.
.....	Richmond Camera Club	"Architecture and the Camera." Mr. H. W. Bennett.
.....	Hampstead Scientific Society	Open Evening.
.....	Leeds Camera Club	"Flower Photography." Mr. Edward Seymour.
.....	Society of Arts	"Gum-Bichromate." Demonstrated.
.....	G.E.R. Mechanics' Institution.	"The Production and Collection of Picture Postcards." Mr. Frederic T. Corkett.
.....	Cricklewood Photo. Society	Annual Meeting.
.....	North Middlesex Photo. Soc.	"Bude and Newquay."
.....	Acton Photographic Society	"Retouching." Mr. H. Gordon Stollard.
.....	Rugby Photographic Society	"Pictorial Composition." Mr. E. Todd.
.....	Woolwich Photographic Soc.	"Stories without Words." Focus.
.....	Darwen Photographic Assn.	"Figure Study." Mr. E. T. Holding.
.....	London and Prov. Photo. Assn	General Meeting.
.....	Cardiff Windsor Amat. Ph. Soc	Lantern Slides. Mr. H. T. Malby.
.....		Self-Toning Aristo Paper.

**FULL PHOTOGRAPHIC SOCIETY.**—At the annual meeting, held on Tuesday, April 5, the following officers were elected for 1906-7:—President: Rev. C. O. Stewart, M.A.; Vice-presidents: G. F. Stow, jun., and A. E. Hindson; Treasurer: D. L. Cockcroft; a Solicitor: R. E. Johnson; Hon. Editor: W. Gilleard, 18, Grey Street, Hull; Curator Enlarging: J. T. Dyson; Hon. Secretaries: Garnet Galtry, 146, Spring Bank, Hull, and Chas. Davis; mail: Messrs. R. Clark, W. L. Willatt, W. Dalton, W. H. Irish, and L. Stephenson.

**WATFORD CAMERA CLUB.**—An exhibition of prints executed on the Croft Pigment Paper was held at the headquarters on Thursday, April 5. Mr. Page Croft also sent some prints for development. There was a fairly good attendance of members and others, and all were much struck with the simplicity of manipulation and ease of control.

**WIDYON CAMERA CLUB.**—The President, Mr. W. H. Smith, brought the new Ilford "Amauto" plate to the attention of the members last week, an innovation he regarded as ideal for lazy workers. So far as his brief acquaintanceship with the newcomer went, it appeared to be fast, clean working, and possessed a good deal of gradation, with latitude. Several plates were developed in a plain solution of carbonate of soda, and good negatives resulted in each case. Mr. Mees supplemented Mr. Smith's observations by pointing out that apparently an "Amauto" plate could be over-developed. The merits of Messrs. Edmunds' Cubrome were next illustrated by several bromide prints and lantern slides—the work of members—being passed round for inspection. These were toned a capital warm sepia, and then producers testified to the ease of working Messrs. Edmunds' product, and the certainty with which good tones could be secured. Unless care was taken there was, however, a tendency to obtain perhaps too warm a tone, hardly suitable for some subjects, though appropriate for others. In this connection it was mentioned that the developer had had an important bearing on the final colour. In one respect Cubrome toner failed to come up to the mark, the familiar "egg" odour being but slightly in evidence. Towards the end of the evening the President handed round a set of prints,

in black and varying shades of warm brown to cold sepia, and said he should be glad to know what those present thought of them, and if they would tell him what the process was. There was an unanimous expression of opinion that, judged from the standpoint of colour, shadow transparency, richness and depth of image, they were the finest prints ever shown in the club rooms, but all failed to identify the process itself. It came as a complete surprise when Mr. Smith revealed the fact that they were forerunners of a new "Platinotype" paper shortly to be placed upon the market. No further information was forthcoming, but doubtless fuller particulars would be obtainable at the offices of the Company.

## News and Notes.

**SIR WILLIAM CROOKES**, the eminent scientist, celebrated his golden wedding last week. Since Sir William, who will be seventy-four in June, entered the College of Chemistry in 1848, many marvels of science, some of which he helped to perfect, have been wrought. Londoners in particular owe him a debt of gratitude for investigations into sanitary matters and the world in general for the Crookes' tube. The following are a few of the principal "milestones" in the scientist's career:—Gained the Ashburton Scholarship, 1849; gold medal and prize of 3,000 fr., French Academy, 1880; President British Association, 1898; Albert Medal, Society of Arts, 1899; discoverer of thallium, a new element, 1861; the radiometer, 1875; the spintharoscope, 1903. Sir William Crookes, as most of our readers probably know, was one of the earliest amateur photographers, and eagerly experimented with the camera as far back as 1855. According to the "Daily Chronicle," the excellent photograph of Lady Crookes, which was reproduced on the invitation cards to the golden wedding party on Tuesday, was taken in the year mentioned by Sir William himself, and forms a most interesting reproduction of the fashion of the time. We see how nice some people used to look in ringlets! Sir William was an enthusiastic amateur photographer, and was always saying to his wife, "Sit!" And she used to reply, "It sounds like a hen."

**THE YORKSHIRE UNION.**—Speaking at the annual meeting of the Yorkshire Photographic Union, in Batley, Mr. Atkinson, of Hull, the new president, said he believed that the Union had, and would continue to have in the future, an influence in the cultivation of taste which would in time permeate all classes of the community. It was not necessary to be artistic in order to be utilitarian. Speaking of photography as an art, Mr. Atkinson pointed out that photography would soon lose its fascination for many of those who took it up were there not in it something beyond the mere accurate production of any scene or object. Photography was an excellent medium for artistic expression, and it was also an excellent educational medium. The Mayor of Batley (Alderman George Hirst, J.P.), accompanied by the Town Clerk (Mr. J. H. Craik), welcomed the delegates, and thanked them for the honour they had conferred upon the town by holding their annual meeting there.

At Albury, a building occupied by Mr. A. Pustela, as a photographic studio, has been destroyed by fire, together with the contents.

**COBURN** at the "Cheshire Cheese."—To Mr. Alvin Langdon Coburn, as a member of the photogravure class at the Bolt Court School, is due, we believe, the idea of a students' supper, which duly took place on Tuesday of last week in the ancient tavern which stands within a stone's throw of the L.C.C. School. The circular of invitation or notification is quaintly worded:—"Ye feast of ye photogravure devils from ye ancient Bolt Court. Held on ye tenth day of ye fourth month, at ye 'Old Cheshire Cheese,' in ye yeare

MCMVI.

Ye fare will consist of ye renowned pudding, steaming hot, and ye far-famed cheese. Also those who so desire may quaff of ye foaming ale."

A **NEGATIVE** which has strong high lights and thin shadows requires the use of a local reducer to make a satisfactory printing negative. If the high lights are not too dense, writes the "Photo-Era," the plate may be immersed in a solution of ammonia persulphate—a reducer which has the quality of first attacking the



high lights before beginning to affect the shadows or thin part of the negative. To use, dissolve 2oz. of the salts in 10oz. of water. The reduction begins very slowly; but as soon as the chemical begins to act it works very rapidly, so that it is necessary to watch the process closely to prevent over-reduction. As soon as the dense parts are sufficiently reduced, rinse the plate and place in a bath made of a 10 per cent. solution of sulphite of soda. Let it remain in this bath five minutes, wash well, and dry. The sulphite of soda converts the persulphate into sulphate, which has no effect on the plate. If the ammonia persulphate is not entirely eliminated from the plate it will in time destroy the negative.

In the photographic competition organised by "The British and Colonial Druggist," in connection with the Chemists' Exhibition and open to all chemists and their assistants, no less than five of the awards, including the first prizes in both sections, were obtained by members of the staff of Burroughs, Wellcome and Co., whose pictures were produced with "tabloid" photographic chemicals. The premier award was won by a member of Burroughs, Wellcome and Co.'s staff for the fourth year in succession.

**A PHOTOGRAPHIC FATALITY.**—At Highcliffe, seven miles from Bournemouth, Miss Florence Leach, age 33, was killed by the falling of the cliffs whilst she was being photographed in a group on Friday. The party consisted of six persons, most of whom are employed at Bournemouth post office. According to the evidence given at the inquest on Saturday last by Mr. Pulsford, the party walked along the top of the cliffs at Mudeford for about 200 yards, and then went down to the beach. There they were grouped by witness, deceased standing behind the other four ladies, and close up to the cliffs. Whilst fixing the camera witness heard a rumbling noise, and as far as he remembered he uttered a cry of warning. A quantity of cliff fell, covering deceased. The other four rushed into the sea to a depth of four or five feet in order to escape the debris. Mr. Pulsford tried to remove the fallen boulders, but another fall took place, and it was not until assistance came that the body of Miss Leach was recovered. A verdict of "Accidental death" was returned.

**MANUFACTURE OF Plate Glass.**—A consular report from Nuremberg recently issued gives details of a new invention in the glass-plate industry, which, if it does all that is claimed for it, will seriously affect the blowing glass-plate industry. Hitherto, writes a correspondent of the "Birmingham Post," two methods have been employed in the manufacture of crystal plate-glass and mirror and window-glass—namely, that of casting and blowing. The new method is the invention of Mr. Fourcault, a Belgian, who has sold his patent to a European syndicate of plate-glass manufacturers for 952,000 dollars. This syndicate consists of German, French, and Belgian manufacturers, and one Bohemian factory. Up to the present in the making of window-glass the molten substance has been blown into cylinders by glass-makers' pipes, and subsequently flattened, while in the making of plate-glass the viscid mass was cast from the pots and rolled. The new invention draws the molten substance from the pot, and conducts it between rollers lying side by side. Seventeen pairs of these rollers are built up tower-like above the pot. The liquid mass cools on its way between the rows of rollers and comes out from them polished on both sides, in any desired thickness, beautifully flattened and ready for use. At present dimensions of from 157.48in. to 39.37in. can be made, but experiments are being conducted to allow of the manufacture of from 98.42in. to 68.90in. as well. It is believed that this invention will bring about a revolution in the trade. One early result would be that the manufacturing of plate-glass of 157.48in. and less would undergo an entire change, as the making of glass-plates would come chiefly within the scope of the plate-glass furnaces. Splendid as this invention appears, it may greatly injure the plate-glass industry in the Bavarian city of Fuerth, as it would be impossible for the glass blower to compete with a simple and cheap process of drawing out the glass mechanically.

MR. FRANK R. FRAPRIE, formerly associate editor of the "Photo-Era," has joined the staff of the American Photographic Publishing Company, and will conduct the "American Amateur Photographer."

**ROYAL PHOTOGRAPHIC SOCIETY.**—On Tuesday next, April 24, two papers are to be read, one on "The Red-sensitiveness of Dyed Films," by W. A. Scoble, A.R.C., Sc., B.Sc., and another on "A Natural-colour P.O.P. and the Smith Three-colour Plate," by Dr. J. H. Smith, of Zürich.

## Commercial & Legal Intelligence.

**THE Coupon System.**—At the Bristol Police Court, on April 11, Frederick Arthur Webb was charged with stealing 19s. 6d., the money of Agnes Bullock, a servant, at 33, Cornwallis Crescent, Clifton. The defendant is a photographer in the employ of Mr. Moore, Park Street, and it appeared he called on the complainant and asked her to purchase a coupon for her portrait. She agreed to give 6d. for the coupon, but had only a sovereign, which was given to her for wages. The defendant stated that he would get change if she would take charge of a case which he had, and she gave her a receipt for the 6d. He did not, however, return, and ultimately the matter was put into the hands of the police. The defendant was apprehended in York Road, Bedminster. In his defence he stated that he was willing to repay the money, but when apprehended it appeared he had only 4d. in his possession. Mr. Moore attended before the magistrates, and in answer to them he said he received an excellent reference with the defendant from his former employer. The advantage to the girl upon taking a coupon was that she would get a portrait for less than the usual price. The brother-in-law of the defendant offered to repay the complainant 19s. 6d., and after consultation the magistrates allowed the defendant to go upon payment of 25s., his brother-in-law being security for his good behaviour for six months.

**A CARDIFF CANVASSING CASE.**—At the Cardiff Quarter Sessions, on Thursday in last week, Edward Kelsey was indicted for obtaining 14s. from Mr. Clement Stone under false pretences. The case, on its hearing in the Cardiff Police Court, was fully reported in our last issue. According to the prosecution, Kelsey visited different places during the week, and on the Saturday handed in the orders he had obtained, when he was paid a deposit of 1s. in respect of each order. Inquiries were then made by Mr. Stone, and if the orders were found to be genuine the defendant was paid 3s. 6d. for each. On February 24 the prisoner handed four small photographs to Mr. Stone, and said the owners of them required enlargements. He asked to be paid the 3s. 6d. commission in respect of each order that day, as his wife was lying ill at home and he wanted the money. Learned counsel alleged that the four orders for which Kelsey was paid were bogus ones. The prosecutor stated that the orders were supposed to have been obtained at Treorky. When a canvasser was sent to verify them it was found that they were bogus. The prosecutor was cross-examined at length by the defendant. Witness admitted that he had not received any fictitious orders previously. The prisoner, in evidence, said he went to Treorky and called at the "Red Cow" public house. He there saw four men, who gave him the orders. He entered up the customers' names and addresses after leaving the public house, and although the number of the house which he gave might be wrong, he believed the men existed. The jury found the prisoner guilty, and the Recorder passed sentence of two months imprisonment.

**THEFT from Messrs. Southall Bros.**—At the Birmingham Police Court last week, Harry Cubbin, 117, Branstons Street, was charged with stealing a Kodak camera and stand from his masters, Messrs. Southall Bros. and Barclay, of Broad Street. He pleaded guilty. Mr. Willison pleaded for leniency for the prisoner, who, he stated, had been led to commit the theft through financial difficulties. Prisoner was sent to gaol for six weeks' hard labour.

**A TRAVELLING Photographer's Record.**—At the Leeds Quarter Sessions, on Monday, William Burton pleaded guilty to stealing sixty-six yards of flannelette, the property of Edward Chandler, on March 26. The Recorder remarked that the prisoner had not confined his operations to one part of the country, and proceeded to read off a long list of names of places where Burton had been convicted. The prisoner: I am a travelling photographer, and my business takes me all over the country. The Recorder said Burton seemed to have levied toll at all these places. He had taken bicycles, bags, boots, shawls, rugs, stockings, and other articles. The prisoner was sentenced to twelve months' imprisonment with hard labour.

## Correspondence.

*Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*We do not undertake responsibility for the opinions expressed by our correspondents.*

### MEASURING SHUTTER SPEEDS.

To the Editors.

Gentlemen,—I see, in printing my letter of the 3rd inst., in your issue of April 6, there is a compositor's error which, as it alters an important factor in a formula, I hope you will allow me to correct.

It is in the sentence where I explain how the constant  $\frac{2}{\pi}$  in my formula makes the necessary correction for the harmonic motion of a pendulum. The sentence should read:—"It is based on the fact that in such a motion the velocity in the middle of the swing is equal to  $\pi$  times (not eleven times, as printed) the length of the g, divided by the periodic time."—Yours faithfully,

ARTHUR A. WATKINS.

14 Lodge, Vanbrugh Park, Blackheath.

April 9, 1906.

The above letter was unfortunately received too late for insertion in last week's issue.—Eds. B.J.P.]

### THE INVENTION OF SELF-TONING PAPER.

To the Editors.

Gentlemen, If you will kindly allow me the space, I wish to ask you to exercise the fairness and impartiality for which you are noted in determining the justice of the claim I make to being the inventor of the practical method of incorporating the toning salts in the coating of photographic papers, and doing the toning chemically, appertaining to papers known as "self-toning."

My experiments were conducted as far back as 1868, when I was then a youth and an employee, and I commenced using the process, practically, in my own business for plain salted papers in 1870, and it was for that kind of paper, which was known to my employees as the exact formula, until the time that the platinum process replaced the plain salted papers. I published my method in 1888 in "Wilson's Photographic Mosaics" under the heading "The Uses of Chloride of Gold." The reason I delayed the publication so long was that I was constantly experimenting with an attempt to apply it to albumenised papers, in order to make something of it commercially, as they were almost exclusively used in the profession at that time, not considering its application to plain prints of sufficient value. Chemists will, of course, understand I failed, as any attempt to make a mixture of the auric chloride with albumen must fail.

It may, of course, be possible that some have preceded me in this matter, which has now become a very important method of photographic printing, and if you find it so, the truth will do no harm; at some time, if I am entitled to the credit of the method, it should be in fairness to be given to me.

What makes me think that my claim has some foundation in fact is that a patent was taken out in 1891 covering the self-toning principle, and a self-toning collodion emulsion paper was manufactured under that patent and exploited by a gentleman of the name of M. Wille at Newark, N.Y., in 1892. Shortly after the American Aristotype Company commenced the manufacture of a similar paper, and were sued by the M. Wille concern for infringement.

I was called on by Mr. J. J. Kennedy, the counsel for the defendants, to find evidence of the invalidity of the patent, they having heard that I had made publication of the essential principle involved. It took some time to remember and hunt up the publication I had made (as heretofore mentioned), though I knew the patent could not be sustained under our laws. The suit was abandoned. I learned that the Eastman people bought out what was left of the concern and afterward continued the manufacture and sale

of the self-toning paper. One thing is certain, there is no valid patent on the process, and the action herein noted lends colour to the view that my publication was the first of any practical method of so-called "self-toning."

The reason I send this communication to you, Gentlemen, is that your publication appears to be the most thoroughly posted on the history of photography, and of your well-known love of fair play in such matters. I mentioned the subject one time to Mr. J. Traill Taylor when in this country, and he seemed to be under the impression that I was the originator, though he had a vague idea that a suggestion of such a method had been made in publications back in the fifties.—Very respectfully yours,

D. BACHRACH.

Baltimore, March 31, 1906.

[We will refer to our correspondent's letter in a forthcoming issue.—Eds. B.J.P.]

### A COPYRIGHT CASE.

To the Editors.

Gentlemen,—We recently took proceedings against the publisher of a book called "Paton's Lists of Schools and Tutors" to put a stop to the reproduction in such book of a number of photographs taken by us, at our own risk and expense, of certain schools advertised in the book.

The action came on for trial on the 4th inst. before Mr. Justice Farwell, and was decided against us on the grounds, as we understand it, that permission, given to us by the proprietors of the schools, to take photographs of the exterior and interior of the school, was a good consideration under the Act, and was sufficient to divest us (although we were expressly held by Mr. Justice Farwell to be the authors) of the copyright of the said photographs and vest same in the school proprietors. It seems to us, and we may say that our counsel pointed this out to us, that the effect of this decision is to prevent the copyright of any photographs whatsoever, except possibly "surprise photographs," remaining in the photographers or author. We think this is a most alarming proposition, and one of great importance, not only to ourselves, but the trade at large, and that, therefore, steps should be taken with a view to get the decision, if possible, set aside.

If any photographers or publishers who may read this letter are of the same opinion, and feel inclined to give their support to an appeal, we should be pleased to hear from them.—Yours faithfully,

The Photographic Tourists' Association, Carl Stackemann, Manager.

[We refer to this letter under "Ex Cathedra."—Eds. B.J.P.]

THE Historical Medical Exhibition, to be arranged in London shortly by Mr. Henry S. Wellcome, has already been mentioned in our columns. Mr. Wellcome has now issued a pamphlet inviting contributions to the exhibition, the character of which, we may say, will be strictly professional. One section of the exhibition will deal with photography from the historical point of view, the exhibits to be classified as follows:—

- (a) Objects illustrating the invention and history of photography.
- (b) Early cameras and apparatus.
- (c) Daguerreotypes.
- (d) Portraits of the pioneers of photography.
- (e) Original papers and early MSS. on photography.
- (f) Application of photography to medicine.
- (g) Early X-ray apparatus.
- (h) Curiosities of photography.

Mr. Wellcome will be glad to hear from any collectors who are able to participate in the exhibition, and communications should be addressed to him at Snow Hill Buildings, London, E.C.

THE latest addition to the list of the general papers which provide photographic reading for their subscribers is our bright and varied contemporary "The Onlooker." The "Photographic Notes," which commence in to-morrow's issue, are illustrated by half-tones well made and printed, a feature of the "Onlooker's" columns which we are informed is to be maintained.



## Answers to Correspondents.

- \* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- \* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- W. Rochard, Honey Street, Bodmin, Cornwall. *Photograph of the A.F.C. 190 1906 Bodmin Football Team.*
- W. J. Reed, 2, Marina Arcade, Bexhill, Sussex. *Photograph of the First Trampcar from Bexhill to St. Leonards-on-Sea.*
- A. Osborne, 87, High Street, Hadleigh, Suffolk. *Photograph of Acton Church Suffolk. Photograph of Catherine Foster's Cottage, Acton, Suffolk.*
- G. Cross, 173, Lord Street, Southport. *Photograph of "Hoprend," Winner of the Waterloo Cup, 1906.*

**CHARGES FOR NEGATIVES.**—Will you kindly answer the following query in your columns? I have been requested to quote for a price for taking P.P.C. negatives, that is, half-plates, at different places in the country. Could you tell me what is a fair rate for quoting for a dozen such negatives so as to cover all initial cost, besides allowing for a fair margin for travelling, etc. I do not know what I ought to quote, but I thought about 25s. per dozen, at the rate of 2s. 6d. each negative. Thanking you in anticipation.—C. R. DODD.

How is it possible for us to say? We do not know anything of your capabilities as a photographer. We have no idea where the "different places in the country" are, how far they are apart, or the cost of travelling to and from them. Neither do we know the value you put upon your time, which, by the way, we imagine is very little from the prices you mention. Surely you can estimate what will remunerate you for your work better than anyone else can.

**AN ASSISTANT'S QUERY.**—If I accept an engagement (situation) for a permanency, should I be subject to be discharged after twelve months by a short notice?—X. Y. Z.

Certainly, unless you make a legal contract. So long as you fulfil the terms of such a contract you are not liable to discharge without compensation.

**UNDERGROUND PHOTOGRAPHY.**—I have to take photographs of machinery in a coal mine, and shall be unable to use a flash of any sort, owing to the danger of an explosion. The mine is lighted by electric incandescent lamps. But I understand these are of no practical use for photography. Could you inform me what electric lamp would suit my purpose (it must be in an air-tight globe), and what you would think the exposure would be. I thought of having an arc lamp fitted with an air-tight globe.—ERNEST CARVER.

We should say the arc light is the only one you can use, although it is far from suitable for the work. You should provide as much reflected light as possible by means of white screens, and give an ample exposure. With rapid plates (backed, of course) and about *f*/16 stop the exposures would run into several minutes.

**TITLES ON POSTCARD NEGATIVES.**—1. How to title negatives for postcard printing (reversed lettering on direct negatives) so that title prints white on dark ground; also to so title them that name is dark on white ground (as — cards, for instance, are done). I can very effectively name negatives by hand, but the difficulty is to do so, neatly, reversed. I have purchased reversed rubber type, but it proves quite useless for some reason. 2. A Scotch firm is supplying envelope sheaths of excellent make to carry glass half-plates. I have seen them, but

mislead name of firm (a Glasgow one, I believe). Can you help me in this?—ENQUIRER.

The titles are in the first place photographed down from hand or typographical lettering, and a negative or positive made on a gelatine plate according as black letters on a white ground or the reverse is wanted. It is usual to photograph a number at a time. The various titles are then stripped off on to the negative, a portion of the film of the required size being cut from the latter if it is necessary. 2. You probably refer to the Mackenzie-Wishart, 17, Douglas Street, Glasgow.

**BOOK ON STUDIO.**—I should be obliged if you could suggest a book on how to manage a studio. I am just taking a studio over, and have not a great experience of the system required, and have thought that perhaps a book on the subject would be a great help.—W. H. J.

"The Photographic Studio," by Bolas (2s.); and "The Studio and What to Do in It," by H. P. Robinson (2s. 6d.). Any photographic dealer or bookseller will supply you with these works.

"NERO."—O. Flammger, Dept. C., 39, Redcross Street, London, E.C.

**VARIOUS.**—1. What are the advantages of using pyro in crystals instead of powder? Does it work different? 2. My studio is 16 ft. long by 10 ft. wide. I want a cabinet portrait lens to give a full-length figure on cabinets, also for groups same size. What focus lens do I require, distance between camera and sitter not to exceed 12 ft., to allow for working space for operator? 3. Have you any objections to using self-toning paper for professional work? 4. Can you recommend a good print washer for 1-1 plate work and under? Not a rotary washer, as I find that prints 1-1 plate size kink when placed in the rotary washers. I have had some trouble with this matter.—OPERATOR.

1. No pyro dust in the dark room, and greater convenience in weighing out. The action of the developer is the same in each case. 2. For the full-length figure on the cabinet you require a lens of about 11½ in. focus. 3. Your question cannot be answered in regard to self-toning papers as a class. The debateable points in regard to self-toning papers are the methods of working them. If the conditions are such as to set up sulphur toning, we cannot anticipate great permanence in the results. 4. A good washer for large prints has still to be made. Separate hand washing is the best method you can use.

**B. R. J.**—In our next.

**TONING BROMIDES.**—I should be much obliged if you would kindly help me by replying to the undermentioned query in the current week's issue. I have just tried the sulphide toning for bromide papers recommended on p. 978 of the "Almanac." I printed very deeply—as the first print I tried, which was only an average print, remained bleached after being in the sulphide bath fifteen minutes—but after bleaching and being in the sulphide bath for quite fifteen minutes again the image failed to come up. Could you explain what is the matter, as I spoiled quite a batch of prints experimenting?—R. D.

We can only say that in our experience the formula answers perfectly, and that it is very little different from others in daily use. We suggest that you have been supplied with sulphite instead of sulphide.

**ANACHROMATIC.**—We are not aware that the firm has offered to send specimens. We have not any.

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## SUMMARY.

Mr. F. C. Tilney contributes an appreciation of the photographs Dührkoop now being exhibited at the BRITISH JOURNAL, characterising them as fresh, sound, and preserving the virility and intensity of the sitters. A portrait of Herr Dührkoop by Strauss, St. Louis, appears on page 325, and a reproduction of one of indoor portrait studies in the Exhibition is presented as a complement.

At a conference of the Professional Photographers' Society of New York, the President, Dudley Hoyt, proposed a scheme of joint organisation for photographers throughout New York State. Mr. MacDonald succeeds Mr. Hoyt as President of the P.P.S. of N.Y. (P. 328.)

Mr. A. L. Coburn is showing a collection of his photographs in Liverpool for two weeks, commencing May 1. (P. 337.)

The Professional Photographers' Association contemplate a "single picture" exhibition on the lines of the recent one in America, and to be held at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY. (P. 337.)

The properties of half-tone engraved plates as regards depth are the subject of some lengthy recorded experiments by Mr. N. S. Amstutz. (P. 331.)

Some historical notes on self-toning paper show that the claim Mr. H. Bachrach to have invented it in 1888 may be conceded as far as the published literature of the subject goes. A very similar formula to Mr. Bachrach's appeared in 1864, but without any claims to a self-toning method. (P. 323.)

Two deaths from ammonia occurred last week. Some precautions in the use of the strong liquor ammonia .880 are mentioned on page 323.

Norwich lady photographers combined last week in the cause of art, holding a sale exhibition of their work. (P. 322.)

At the London and Provincial last week the new "Matos" papers are accorded a very favourable reception on the occasion of their demonstration by Mr. L. Thornton. (P. 338.)

A remarkable exhibition of multiple-gum prints in colours is now being held in Hamburg. The collection includes the work of the Hofmeister brothers in this new field. (Pp. 321 and 334.)

## EX CATHEDRA.

**The Hamburg School of Pictorial Photography.** For the past fortnight an exhibition has been held, in the Hamburg Art Gallery, of pictorial photography. It forms the eleventh of the series of exhibitions organised by the Hamburg Society for the Promotion of Amateur Photography commenced in 1893. In previous years the Society's exhibitions have possessed an international character from the inclusion of foreign work, but on the present occasion, which marks an interregnum of three years during which no exhibition has been held, it has been thought well to limit the work to that of members of the Society and other photographers in Hamburg. And the result quite justifies this policy of self-reliance. There is in Hamburg a small body of workers of whom little has been heard for some years past. Oscar and Theodor Hofmeister, H. W. Müller, Bernhard Troch, and Dr. Ed. Arning form a body of workers whose aims at pictorial expression in photography have been sought through the medium of the gum-bichromate process, but in a manner which entirely marks them out from those of other exponents of that process. In Hamburg they are multiple gum-

mists, and their experience of the technique of the process has led them to produce pictures of very large size, so that, in the matter of space alone, one or two prints by the Hofmeisters would somewhat embarrass a hanging committee. The character of the Hofmeisters' work—we may refer to the two brothers as the leaders of the Hamburgers—is such as demands a setting of its own in an exhibition, for it is big with a bigness which is not size merely but an embodiment of nervous and imaginative force. We confess to not understanding some of their work, and we admit our inability to appreciate the motives which have prompted them in not a few instances, but we would hasten to add that by no other photographer have we seen compositions which so convinced the observer that here were pictures which showed commonplace scenes and themes through the temperament of the artist. In the earlier work especially of the Hofmeisters, the imaginative treatment is to be seen. All of it has been done in gum, and almost all in multi-gum, but we will anticipate the cry of fake which is easily raised by saying that a number of direct P.O.P. prints from the original negatives which Herren Hofmeister showed us when on a recent visit to them, possessed almost precisely the character of the large gum-bichromate prints. In fact it was evident that by their assiduous and infinite patience, care in the selection of a view point, and their thorough use of screens and plates which will give them their impression of the scene, that the Hofmeisters seek to get all their effect in the negative with greater pains than the average worker who proposes to print in platinum-type or carbon. Of late they have taken up gum in multi-colour, and their results and those of their friend Müller



are an eloquent testimony to the possibilities of the process in the hands of the artistic and perfectly practised worker. One must pay a tribute also in judging their work to the truly Teutonic persistence with which perhaps twelve different printings are done for a single picture. Yet many of the finished results which we have seen and which are now being exhibited at Hamburg are perfectly harmonious in their colouring, and an immense advance on the gaudy multi-colour gums which were shown at the Royal Photographic Society's Exhibition some three years ago.

\* \* \*

#### Machine-engraved Half-tones.

The "acrotomes" mentioned in the lengthy article by Mr. Amstutz, which we reprint with the original illustrations in this issue, may raise a query from those who have not followed Mr. Amstutz's invention of a machine for the mechanical engraving of half-tone blocks. The "acrotome," as the machine is called, is in essential a rotating cylinder to which a fine graving tool can be approached with micrometric accuracy, the graving tool also making a certain (and adjustable) step from left to right for each revolution of the cylinder. A negative carbon relief (i.e., printed from a positive transparency) on celluloid is laid round the cylinder, relief side outwards, a piece of plain celluloid strapped to it, and the cutting tool then adjusted to the celluloid surface. On the revolution of the cylinder the step-by-step movements of the cutter engrave the celluloid in lines corresponding in thickness to the relief of the carbon print, and thus reproducing the light and shade of the original print. From this "acrotome" a stereo or electro is taken for the printer. Those anxious to study this method of "top engraving," as it has been called, may consult "The Process Photogram," June, 1899, April, 1900, June and November, 1903, where details of the machine and the methods of using it have appeared.

\* \* \*

#### Photographing the Dead—A Coroner's Remarks.

At an inquest held last week on the body of a woman who died from poison at a Pimlico hotel, and whose identity has not yet been discovered, the coroner made some strong remarks on the system under which bodies in this country were photographed as compared with that of France. He said that coroners had no power here to order a body to be photographed at once, and the result of photographing after the lapse of several days was never satisfactory; and he could quite conceive that in this case relatives would be completely puzzled if asked to identify the body from the photograph. It represented something that hardly looked like a human being at all. He added that the photographs of dead persons were not taken in an intelligent way. They ought to show the shape of the head and the appearance of the person in life, so far as that appearance could be reconstituted after death. The present plan, however, was to take only the photograph of the head while the body lay in a recumbent position. Judging from the several photographs of such subjects as we have seen we should say that the coroner's strictures were well grounded, for the photographs were not taken in an intelligent way, or by a skilled photographer who understood his work or what was actually required, namely, a means of identification. Sometimes the work is done by an amateur, a policeman, or perhaps a third or fourth rate professional living close at hand. He is simply told to take a photograph of the body; and he takes it. But if a skilled artist were employed he would appreciate the object of the photograph, and the result would, in most cases, be quite different. It would be a good thing if the coroner in each district had the power to appoint a good class artist as his "official

photographer," to take photographs when called upon to do so, and sometimes the places, and their surroundings, where the bodies were found. He might also have the power to order the photograph to be taken promptly.

#### Altruistic Photography.

A bright example which might be followed by societies governed by selfish men has been set by the Norwich Ladies' Camera Club, the members of which have just held an exhibition of their photographic work in aid of the Jenny Lind Infirmary for Children. Some two hundred photographs were brought together—"under distinguished patronage," as the county newspapers are in the habit of saying—and were offered for sale on behalf of the local charity. Such an exhibition, planned purely in the interests of philanthropy, is something new, if we are not mistaken, in photographic society circles, and the ladies of Norwich have our sincere congratulations on their enterprise, the fruits of which, we hope, are satisfactory from a financial point of view. Photography alone, so we read in a newspaper report, was not the only incentive to visit the exhibits, but shared this duty with a concert and a theatrical performance, in the production of which some few fortunate men of Norwich were allowed to participate.

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#### Photography of the Infra Red Spectrum.

The paper read before the R.P.S. on Tuesday last, whilst dealing with the red sensitiveness of dyed films, may be useful to those who wish to take up the spectroscopic study of the infra red, a region of the spectrum which has but little interest for the practical photographer, except that therein lies the greatest heating effect of sunlight. A curious omission from the author's paper will be at once recalled by all conversant with the subject, and that is the absence of any reference to the classic work of Sir William Abney on the infra red, which was reported in our volume for 1880. The method then adopted was a peculiar collodion emulsion which absorbed the red rays and transmitted blue, and with this Abney recorded up to wave length 20,000, and stated by a modification of the formula it was possible to record the radiations from a kettle of boiling water. Possibly the use of this collodion was excluded in the present case by the fact that a celluloid film was used, and the visible part of the spectrum was also required, for which this emulsion is useless. The author comes to the conclusion that pinacyanol is the most satisfactory dye up to wave length 7,000, and beyond this alizarine blue S would have to be used. In the "Archiv für Wissenschaftliche Photographie" for 1900 Lehmann suggested the use of a mixture of alizarine blue S with nigrosine W.S. plus ammonia and silver nitrate, and was able with this to photograph up to wave length 10,000. Another dye, which has been used by Eder and Valentia, is Columbia Green, with which they have obtained sharp results up to wave length 8,660. The most valuable work on the infra red has, of course, been done by the late S. P. Langley with his bolometer, a delicate thermopile which will record a variation in temperature amounting to one-hundred-thousandth of a Fahrenheit degree. This instrument was combined with a mirror galvanometer, and the reflections of the latter photographically recorded.

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#### "Camera Craft."

We can hardly let the occasion of the destruction of San Francisco pass without a sympathetic reference to our contemporary which is produced and printed in the Western capital. It is difficult to expect that amid the almost total annihilation of the city the offices of our contemporary in Market Street have escaped scathless. By a coincidence one article in

a "Camera Craft" for March, which reached us a few days ago, is devoted to "Photography on a Burning Land," the experiences of a photographer on the volcanic Whakari off the New Zealand coast. The terrors of this active volcano, whereon no living thing, bird or insect, can exist, are probably feeble in comparison with those which burst suddenly upon San Francisco. We hope it will not be long before we hear that Editor Fayette J. Mute and his confrere, Dr. D'Arcy Power—the latter known to many photographers here from his visits to Europe—are in safety, and engaged in making good the continuity of their publication.

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**Baths from ammonia.** It is not everyone who uses liquor ammonia in photography that is aware of the danger that may lurk in places where it is stored, even when in small quantities. Last week an inquest was held at Hammersmith on the bodies of two men, employed at Cadby Hall, on Good Friday. According to the evidence, as reported in the daily papers, the accident was due to the closing of a valve of the machinery in the motor room, which caused the ammonia to escape, death in both cases being due to internal injuries set up by ammonia vapour. A verdict of accidental death was returned. The liquor ammonia of commerce, known generally as .880, is really a dangerous thing to keep in a small dark-room, for the bottle containing it should happen to get broken, and escape into the room, unless they immediately make their escape into the open air, might sustain serious injury. Liquor ammonia is a solution of ammoniacal gas in water. That having a strength of .880 is a nearly saturated solution, and if it be kept in a warm place the gas expands and tries to escape, with the result, as most are aware, that the top of the bottle is frequently blown out, the gas escapes, and the solution becomes weaker. When a Winchester of ammonia is received from the wholesale chemist the stopper of the bottle is generally luted with almond, oil, linseed, paste to prevent the escape of the ammonia. The bottle be thin, and of glass, and it is stored in a warm room, it may burst from the internal pressure. The safest and best way of dealing with ammonia when required for photographic uses is to at once dilute it with an equal bulk of water as soon as received from the dealer or chemist. It is then comparatively harmless, and double the quantity can be used in making up the formulæ. There is another advantage in doing this. Each time a bottle of .880 ammonia is opened some of the gas is liberated and escapes, consequently it gets weaker every time; but when it is diluted with an equal bulk of water, its strength is practically constant, and can be relied upon, supposing the bottle is always kept properly stoppered.

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**Sight testing opticians.** Some three or four years ago the Spectacle Makers' Company, following the example of some of the old City Companies, who have taken steps with a view to improving the crafts they are supposed to represent, decided to grant certificates of proficiency in sight testing to opticians who were successful in passing their examination by a committee of experts. A Bill has now been introduced in the House of Lords, by Lord Addington, entitled "An Act to regulate the practice of opticians as regards the testing of sight." The Bill, as now printed and issued, is evidently the outcome of the action of the Spectacle Makers' Company, for if it should become law it will enact that "any person who after the passing of this Act shall pass the examination in sight testing required by the Company, or such other examination as may from

time to time be approved by the Central Board, shall be entitled to be registered under this Act," etc. In the interpretation of the Act, "the Company means the Master, Wardens, and Fellowship of the Spectacle Makers of London." The Act, if it passes, makes it illegal for anyone to style himself a sight testing optician unless he has been duly registered as such, and the penalty for so doing is one not exceeding £20. Some of the clauses in the Bill are very stringent. For example, any person who procures, or attempts to procure, registration on a fraudulent declaration, certificate, or representation, will be guilty of a misdemeanour, and on conviction will be liable to imprisonment, with or without hard labour, for any term not exceeding twelve months. There is little question that the Spectacle Makers' Company have done, and are doing, good work in examining and granting certificates to those competent to test persons' sight in a proper manner, and their action will apply a check to the harm which is frequently done to persons purchasing spectacles unsuitable for them.

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**Warrington Exhibition.** On May 17 to 25 the exhibition of the Warrington Photographic Society will be held in the Municipal Art Gallery, a venue which should be noted by exhibitors, inasmuch as its selection precludes the Society from charging for admission, and therefore a good attendance may be expected. A further incentive to exhibit is provided by the offer of the Society to collect frames from the Northern Exhibition at Manchester. There is thus every prospect that the Warrington people will bring together a very good collection. The class for those who have not previously taken an award should encourage a large number of beginners, and scientific workers may note that lantern slides illustrative of one subject will be received for one fee in the scientific class without regard to number. The entry forms and all other particulars may be had from the secretary, Mr. B. C. Smithson, 13, Chester Road, Warrington.

### THE INVENTION OF SELF-TONING PAPER.

THE letter from Mr. H. Bachrach, of Baltimore, in our last issue touches a point which, so far as our knowledge and reading go, has not been noticed in works or papers dealing with the development of photography from the historical standpoint. The principle of a self-toning paper, one would have supposed, would have been enunciated in the fifties or sixties of the last century, inasmuch as during the early part of the period covered by these two decades the practice of toning and fixing very closely resembled the operations now customary in treating papers of the popular self-toning class. Following closely on the processes of Fox Talbot, it was found that a fixing solution of hyposulphite of soda which had been in use for some time, and had thereby accumulated a certain proportion of silver salts from the prints, together with some free acid, was able to impart a cold tone to prints, whilst at the same time fixing them. Some years elapsed before it was recognised that this toning was due to decomposition of the hyposulphite, was brought about by the formation of silver sulphide, and was almost invariably fugitive in its results. Prior to the introduction of alkaline toning baths the tone-



fixing bath of hyposulphite of soda and gold chloride was largely employed, and proved capable of producing lasting results. It would have been a natural and easy step from this procedure to the use of a plain hyposulphite bath and the incorporation of the gold in the sensitive material. Yet we must confirm Mr. Bachrach in his claim to have been the first to have worked and published such a process. Such was our first impression on perusing his letter, which appeared in our last issue; nor are we able to discover any publication of a similar nature which ante-dates his paper in "Wilson's Mosaics" for 1888. The only item in earlier photographic literature which may be taken as suggesting a self-toning paper is contained in a work on "The Dry Collodion Process," by Mr. Robert Freeman Barnes, published by R. F. Barnes and Co., New Bond Street, W. In a second edition of this manual, which appeared in 1857, are some supplementary notes on printing processes and other matters, in the course of which the author comments on mercury bichloride (corrosive sublimate) as "calculated to rank high as a fixing and sensitising agent." He impregnated salted paper with the mercuric chloride by floating on a solution of the sublimate, and he subsequently sensitised with ammonio-nitrate of silver. The passage which follows might almost be read as instructions for the use of self-toning paper in the present day:—"The picture must be printed exactly to the depth required, as it is not reduced afterwards in the hyposulphite. The prints when taken out of the frame are reddish in colour: on immersion in the fixing solution they rapidly change to a beautiful blue-black." The fixing bath here directed, however, is a strong solution of hyposulphite containing three or four grains of gold chloride in each pint. Except that the mercury appears to have accelerated the toning process, there does not seem to be anything in Barnes's method worth describing as formulating a "self-toning" principle. It is quite possible, however, that it is the process of which the late Traill Taylor had some recollection on the question of self-toning being broached to him by our correspondent of Baltimore.

In 1864 there appeared in "Photographisches Archiv" (p. 288) a process which is very similar to Mr. Bachrach's. It is described as "Hennah's," but although gold is included in the salting solution no mention is made of its self-toning properties, nor any reason given for the inclusion of the gold in the salting solution. The article reads as though the process were well known at the time. The paper was salted on:—Gold chloride, 1 gm.; ammonium chloride, 2 gm.; water, 160 c.c.s.; and whilst still somewhat damp floated on ammoniacal silver bath containing 18 gm. of silver nitrate in 150 c.c.s. of water. After printing it was laid in water, 500 c.c.s.; hypo, 125 gm.; silver nitrate, 1 gm., to which was added also 25 gm. of the sensitising bath. The prints were immersed in it without washing, removed after one hour, and washed in boiling water. When dry they were flattened out and pressed with a hot iron, though as to whether this part of the process was necessary for the toning nothing is said. In fact, as not a word is said from first to last it is not easy to understand why Dr. Eder in his "Handbuch," Part IV., page 105, should discuss the claims of Hennah to the enumeration of the self-toning principle.

As "Photographic Mosaics" is but little circulated in this country, although at one time a popular annual in America, it may be worth while to quote the portion of Mr. Bachrach's paper relating to the self-toning process. He writes:—"About twenty years ago I conducted a long and exhaustive series of experiments to com-

bine the gold with the sensitising solutions on the paper, and thus tone automatically: the operation being completed in the fixing bath, the tone to be determined by the amount of gold used. In this operation, of course, the entire body of reduced silver in the picture was thoroughly converted, not merely on the surface as in the toning methods now used. Without going into the chemical theories and reactions on which I based my ideas, I will confine myself to the results obtained so far as I went: for I was compelled to drop these experiments in the active duties of business which followed. . . . On plain paper I succeeded perfectly, but on albumenised paper, though some fair results were obtained, I could not work out a practical method. By adding two grains of pure chloride of gold (previously neutralised with chalk) to every ounce of the salting solution, and silvering with ammonia-nitrate of silver as usual, the print came out of the frame ready-toned, needing only the washing to rid it of free nitrate and fixing in the hypo solution, *no toning being needed*. The tone with this quantity of gold is a perfect black with warmer half-tone. A less quantity will give a warmer tone. Every print is, of course, toned alike by this process. I must add that I found it necessary, in order to avoid bad results, caused by the amount of chlorine set free by the combination of silver and gold, to add one grain of bromide of potassium to each ounce of the salting solution, which gave prints retaining every detail in the negative. But with albumenised paper I found almost insurmountable difficulties. No combinations that were tried could make gold chloride combine with albumen properly. After numbers of fruitless experiments I used an alcoholic solution of neutralised gold on the commercial albumenised papers, and the results obtained proved that success was possible, and, in fact, certain, if a different salt of gold, one containing no chlorine, could be made for the purpose."

The patent referred to by Mr. Bachrach is no doubt that of Louis F. Marten, St. Charles, Missouri, applied for on October 22, 1899, and granted October 21, 1890 (No. 439,021). The distinctive features of the process are stated by the inventor to be the toning of the prints without the usual gold bath, uniformity of tone, and saving of time and labour. The preparation of the paper is to be carried out on the following lines:—15 grains of ammonium bromide are dissolved in three ounces of water, 180 grains of gelatine added, and the latter allowed to soak for fifteen minutes, after which it is dissolved on a water bath kept just below boiling. One grain of gold chloride dissolved in three drams of nearly boiling water is then added, and then 75 grains of silver nitrate dissolved in one ounce of water, also nearly boiling. Nitrate of ammonium, 95 grains in three-quarters of an ounce of water are mixed with two grains of gold chloride in two drams of water, the mixture heated to nearly boiling and added to the first solution. Citric acid (75 grains) is next dissolved in half an ounce of hot water, heated and added, and then, finally, 150 grains of gelatine are placed in a vessel, the above mixture poured over it and kept warm until the gelatine dissolves, when the emulsion is ready for use, and is employed in its warm state to coat the paper.

It was held essential by the inventor that nitrate of silver, chloride of gold, and a bromide salt should be used in connection with other salts in conjunction with a colloidal vehicle, to form a good printing surface.

The coated paper was ready for use when dry. It was printed deeply, rinsed in one or two changes of water, and placed in a bath containing one grain of ammonium sulphocyanide in each four ounces of water in which the toning took place. The prints were then fixed in 1:6 hyposulphite of soda and washed as usual.

## PHOTOGRAPHIC PORTRAITURE BY R. DÜHRKOOP.

An exhibition of the examples of Herr R. Dührkoop's work which opened at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY last week has already been visited by a number of professional and amateur photographers, to whom, we

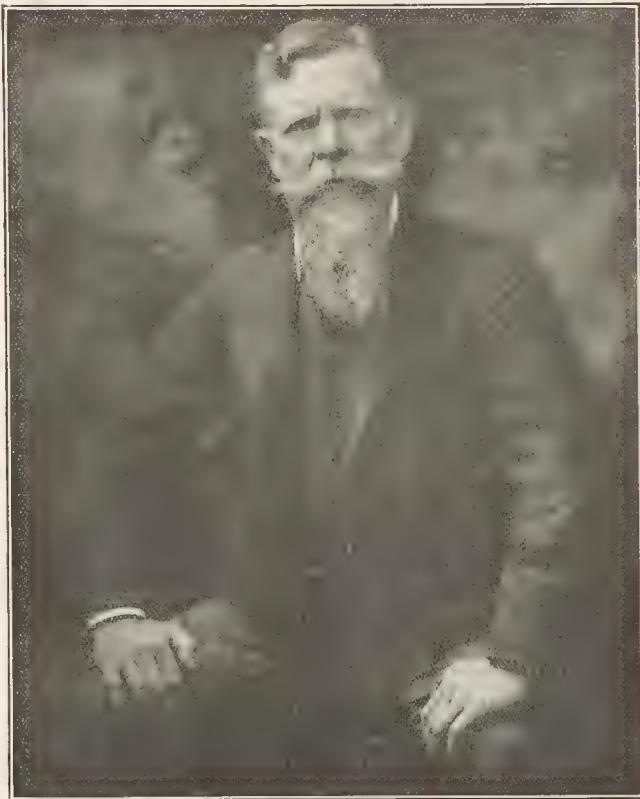
understand, the photographs have appealed in a manner which has convinced our own judgment of the photographs as an object of study for English workers. The technique by Mr. Tilney which is printed below may be profitably read before paying a visit, as it represents the view of an artist and critic approaching the collection free from bias one way or the other, and anxious only to discover from what causes the pictures on the walls derive their effect. Herr Dührkoop, it may be interesting to mention, is no newcomer in the ranks of professional photographers in Germany. For almost the whole of his life he has been in business in Hamburg, and until some ten or eight years ago was content to produce a kind of photography which may be seen in the windows of good photographers in that country in Great Britain. His present position of a leader in his profession arises from his discernment of the fact that there is a public which would

respond to his offer of a different kind of photography, of a class which aimed at individual portrayal of his sitters and involved the banishment from the studio of the whole stock of the usual accessories or furniture, and a complete revision of the style in which each photograph is presented to the customer. Some five years ago Herr Ernst Juhl, a critic of German photography and photographers, wrote in "Photograms of the Year" an article in which he took a pessimistic view of the progress towards a recognition of art principles among the professional photographers of his country. Dührkoop he singled out as one of only three or four photographers in all Germany who rose above the dead level of their contemporaries. Since that time Herr Dührkoop has shown himself capable of a variety and originality which, perhaps, his preciator did not completely realise. And the fact must be stated in connection with this development that it has been limited to a large business. Herr Dührkoop has his studios and establishment in the Hamburger-Hof, the handsomest block in the city, and he is opening, about the time these lines appear, a house in Unter den Linden, Berlin. He issues no price list, though he has a fixed scale of charges. If the price

is too high for a customer, he or she is politely told that he is compelled to decline the commission, a course which, in his experience, has the desired result of leading the would-be sitter to return sooner or later. On the other hand, if the

result of a sitting is not to a client's liking, he is liberal with the sittings, and agreeable to leave it to the sitter whether an order for copies follows from the negatives which have been taken.

The individuality which is aimed at in all the portraiture done in the studio or at his sitters' houses—a great deal is done in the latter—is continued in the final mounting of the prints. Herr Dührkoop uses not a single commercial ready-made mount in his business. Each photograph, or set of photographs, is supplied, mounted on a stiff paper and contained in a folder which is lettered by hand with the initials of the sitter, surrounded by a simple decorative design, and if a dozen folders are issued to a customer the design on each will be different, and the mounting of the prints likewise varied by ringing the changes on the mounting papers, which Herr Dührkoop purchases to his special order from America. The whole aim of the business is to do the thing as well



R. DÜHRKOOP. Portrait by J. C. Strauss, St. Louis, U.S.A.

as it can be done, and to show the customer that he is getting a photograph which has a character of its own not only in its treatment of his features, but in the details of printing and mounting. The only forms of enlarged portrait which we saw displayed in Herr Dührkoop's studio were in carbon and gum. The latter process is used by him to very good effect for portraits of sitters of striking appearance.

Possibly one secret of Herr Dührkoop's success has been, and is, his open mind. He takes the broad view of a cosmopolitan, and that he is to a greater degree than many of his contemporaries. He spent a year in France when in middle life, has travelled in England, and visited the St. Louis Exhibition last year, when the photograph we reproduce was taken by Mr. Julius Strauss.

Reproduction of Herr Dührkoop's photographs is not at all an easy matter, for the majority embrace a very long range of tones, the gradations of which in the shadows defy satisfactory rendering by the half-tone block. Therefore, we hope that the supplement which we present with this issue will not lead our readers to under-estimate the original, which is a remarkably fine piece of photography. It represents an uncon-



ventional form of indoor portraiture of which there are several examples in the present exhibition. Of Dührkoop in lighter vein we should have liked to have laid some specimens before the reader, but the originals themselves are the best means of making the acquaintance of these spontaneous achievements

with the camera. As we have before announced, the exhibition is open from 10.30 to 4.30; on Saturdays, from 10.30 to 12.30. For the convenience of those who cannot visit it during the day time, it will be open every Wednesday evening from 6 to 8.

### AN APPRECIATION OF DÜHRKOPF'S PORTRAITURE.

HE who would succeed in these grievously competitive days must do something new. This simple fact is so well understood upon all hands that the application of the principle it imposes has given rise to an ever-widening stream of surprises. Especially has the amateur photographer sought to leap into popularity by the production of works calculated to arrest at all hazards. In a general way, it is not given to the professional photographer to play those pranks with the portraits of his sitters that the amateur may play with his landscape subjects, where a likeness to the original is of the very least and last importance. He could not, even if he would, adopt those oddities of treatment by which the unprofessional man stops the wandering gaze of an onlooker. And it is a very good thing for him that he cannot.

After all, there is small merit in eliciting such a remark as "What a queer thing!" Queer things are for collectors; customers want fine things. But so great is commercial pressure, so great the danger of being passed over, and, again, so great the desire on the part of the jaded public for new sensations—a quite natural vitiation of appetite caused by a diet too varied and highly spiced—that the queer has latterly been found a very successful substitute for the fine. The truth of this must be admitted whilst it is deplored.

#### Newness Without Queerness.

But—just as if photographic art had suddenly grown sick of masquerading in motley, and had flung off the absurdities with which her sham votaries had loaded her—we are made aware of the work of one who for years past has been producing portraits the sane and simple beauties of which take us by storm far more completely than do the bizarreries of some amongst us whom we have been expected to honour.

The work of Rudolph Dührkoop is as new as that of the most modern; but its newness is all of charm. It is fresh in its outlook upon life and its appreciation of character; but it violates no probabilities. What it lacks absolutely is a striving after the unusual.

In support of our words we may refer to the study entitled "An Interesting Book." In this a young girl lies along a couch, having dropped from a sitting posture to within eye-range of a book which lies open upon the seat. The pose is certainly not one that would be chosen for the purpose of reading, and therein is its unconventionality. Nevertheless, the pose is at once graceful, taking, and, above all, natural. Youth finds ease and comfort in postures that to the mature would be as apoplectic gymnastics. Hence the perfect truth of this picture pleases as much as does the "out-of-the-wayness" of the idea. These remarks apply with equal force to No. 65, "Waking up."

#### The Freshness of Commonplace.

Perhaps it is not too much to hazard that the worldly and artistic success of Herr Dührkoop is attributable to the very ordinary nature of his themes, which appear to be just exactly those of an ideal portraiture in this workaday world. For his sitters are seen as they are in their homes; not glorified by a special "get-up" for the occasion, or transfigured by freaks of light and shade called up by the photographer. They have mostly all the anatomy they were born with, suffering no amputation of ears or hair, limbs or flanks. Their heads are as much "in the right place" on the prints as was the photographer's on his shoulders when he took them.

In the frank and unsophisticated group showing "Herr Georg

Reicke and his Family" at their meal-table; in the two or three mothers with their sucklings; in the children breakfasting, playing, laughing, yawning, or performing other physical functions that little ones do with such charm or comicality; in all of these, and there are many, we see the apotheosis of domesticity.

#### Posing Without Poseyness.

Equally noticeable is the absence of posey self-consciousness that Herr Dührkoop manages, by some miraculous means, to achieve in such hopelessly difficult subjects as a pair of lovers reading, or holding hands seated upon a sofa, or kissing. In these, as well as in the studies of advanced age, such as "The Old Bible," in which the slow-spelling out of comforting texts is admirably shown by the puckered brows; a healthy interest is displayed in the phases of humble or middle-class life. Such an interest is a true echo of the spirit which prompted the early Flemish painters. It is no new thing, perhaps, to imitate an old Flemish painting by photography; but it is certainly a new thing for the camera to approach the humdrum of courting couples without giving way to either facetiousness on the one hand, or to sentimental romancing on the other. It is this contentedness with everyday things as they are, this serious view of the matter around him, contemptible by familiarity to the ordinary mind, that places the works of this photographer in the same category with the painted works of Jan Steen, Terborch, and the elder Mieris; and the attitude of mind that makes this possible is new in photography.

#### The Value of Tradition.

Another secret of Herr Dührkoop's excellence lies, we think, in his firm stand for what the world, during the last three hundred years, has accepted, and still continues to accept, as good in principle. Apparently he sees no advantage to be gained in letting the traditions of art go by the board. Accordingly, his portraits have that dignity of style and beauty of arrangement characteristic of the best examples of painted portraits in all periods. He is evidently not one to "snort defiance" at painters, and as a consequence many of his works remind us of portraits reproduced from Rembrandt and Vandyke, especially those that depict the civic functionaries in ruffs—counterparts of the seventeenth century article—and robes. We strongly recommend a lingering examination of the photogravure prints in the large volume published under the title of "Men and Women of Hamburg at the Commencement of the Twentieth Century." The heads in these portraits seem exactly to be just such as we have seen again and again over such ruffs in the works of antiquity to which we have referred.

#### Character in Likeness.

We should very much doubt if Herr Dührkoop has put himself out in the slightest degree so to manoeuvre things that his sitters in official costume shall look like the men of three hundred years ago; but this we are certain he has done: he has striven first of all to get a literal likeness rather than a shadowy sketch of his sitter. He has endeavoured to pack all the character that the subject possesses and is known for into the record that the camera gives. In this seeking after the inner man as well as taking the outer, the photographer is exactly on the footing of Rembrandt and Van der Helst, and as a natural consequence we are reminded of the works of those masters. Now, whilst the modern professional relies so much upon the beautification of his sitter, and that largely

the pernicious practice of retouching, it must follow that nothing like the real character of the subject is placed beyond range of possibility.

### Professional Prettiness and Amateur "Art"-iness.

The inanities that must result from all methods that give character the go-by are as deplorable amongst professionals as the impertinences put forward as art are reprehensible amongst amateurs. Both are equally unworthy, but perhaps the latter are the more blameworthy because of the lofty claims in which they are flaunted.

The works of Dührkoop even are not absolutely immaculate in this respect; for we remember to have seen the portrait of a famous author writing in a scheme of illumination that sane *littérateur* would adopt; but this no doubt was only to beat the modern amateur on his own ground. At any rate, it does not give us those great coarse faces, larger than life, and all but impinging upon the mount, nor those shadowy faces that stare vacuously, like creatures of a bad dream. It is always a human that he gives us. Abjuring adventitiousness to popularity, he has no need to strain after effect, albeit the effect is never absent.

### Sun Spots.

We have taken exception to one work, and we might as well sweep what other objections we have into the same paraphrase, lest the captious say that we see no spots on this sun, from before which we are proud to have the privilege of withdrawing the cloud of obscurity hanging between him and Londoners.

Our most serious complaint is that in the picture numbered 57, and entitled "Remembrance" in this exhibition, there exists one of those pictorial solecisms that photography and ancient Chinese art have hitherto shared between them, but which is fair to encroach upon the thoroughbred Western stock also. We refer to the violent perspective of the floor. This is the effect of jutting the corner of a carpet right up gable-end into the field of the picture. Why? What is gained? We have a light foreground devoted to the large-scale, well-defined presentment of what is perhaps the least important element of the whole pictorial material. On the other hand, what is lost? The real object of interest, next to that afforded by the figure of the woman who stoops over an open drawer, is a piece of interesting furniture of which the drawer forms part. This, however, is ruthlessly cut off by the top margin of the print.

Unfortunately this practice, originating in a blunder, has now become so common that our minds often accept it without protest, and so the thing is allowed to go on. Its reduction to absurdum is seen often enough: a tiny distant spot of interest placed along the top edge of a picture, and all before it literally a waste of foreground.

### Figures Without Faces.

Another principle is called into question by the picture of a mother and child called "Sunshine," No. 58. It may well be asked whether people are really more glad to see the backs of heads than faces, assuming, of course, that the faces are of average human interest. When back views have been painted it has usually been for some especial study of the nude in this aspect. We never remember to have seen a Madonna and Child with the faces turned away; nor, indeed, any subject relying for its interest upon such human and natural charm as a mother fondling her child. Of all such interest No. 58 is empty. The heads appear to be blanks,

### The World's Debt to Photography.

When compared with the other subjects in the same series the loss of this human interest is more keenly felt than ever.

Nothing could be more moving than the sweet and solemn solicitude of the mother who kisses "Her Child" in No. 57, that hangs next. It is for such happy things, so elusive before, but so easily caught fast now, that the world will ever owe an increasing debt to photography. Study the contrast of emotion in the youngster's expression. He, or she, waits with the elevated eyebrows of calm resignation, whilst the mother makes those demonstrations of adulation which maternity never can suppress. Similar in motive is No. 70, which bears the name of "Maternity." The contrast of expression between the woman and the babe at her breast is remarkable. The little feeder looks up, conscious of something unusual going on during the function, and not a little apprehensive of the camera perhaps. In this, again, the lighting is well thought out. It falls in its fullest strength upon the mother's bosom.

### Straightforward Photography.

But particular instances only beg the question of general merit. Where Herr Dührkoop excels farthest, in our minds, is in the surprisingly artistic results of his works considered pictorially. This is due, we believe, to the straightforward use of well-established photographic methods. He would seem to have decided that the regular ways of photographic procedure are inexhaustible; that new plans and processes offer no extra advantages to a man of resource and artistic appreciation. Accordingly he is not found travestying nature. It is in his approach to the subject that he is new and great. His studies of child life open a new door. We have had pretty children often enough; children reading, playing, or eating; but we have never had them caught red-handed, so to speak, like this before. It is evident that here they have not been told to look nice, to turn their toes out, shut their mouths, or otherwise to behave themselves like good children. No one would ever confess to feeling the slightest evidence of the camera in the older children; and in the babes, where it may occur once or twice, it is of course half the charm, and has not been avoided.

### Virility and Spontaneity.

Spontaneity is similarly welcome in the character studies of old peasant women, knitting, gossiping, or comporting themselves with a natural ease that is delightful. In the portraits it is as much in evidence. We cannot point to one that shows self-consciousness to any damaging extent. Most of them are virility itself, and, moreover, given with that old-masterlike attention to a fitting environment and occupation which makes a portrait so much more interesting a document to those for whom it is to become a treasured possession.

Herr Dührkoop likewise fills up his prints with matter, and that of a sort that is valuable to the pictorial whole. He understands what so few to-day trouble themselves to understand: the precise meaning of the term breadth.

### What is Breadth?

Broader effects of light and shade we have never seen! Such absence of tonal vacuity and "space to let" we have never seen either! Moreover, we may as truthfully add that such wealth of detail we have never seen! Detail in its right place and in its right tone is a glory; it is nature! Do we grumble at the forms of mosses on a tree trunk? There is no reason why, in photography, detail should ever be in the way. It is never in Herr Dührkoop's way, and he revels in it at times. With the painter it may be different. His work does not gain by laboriousness, which is the only way in which he could emulate the camera if he wished to. To get breadth he is compelled to suppress detail, for physical reasons, not necessarily for artistic ones. The camera man shows his weakness, not his strength, when he goes and does likewise.



### The "Grand Style."

In the matter of composition and arrangement, also, these photographs show a fine style. They have always the "large line." Being for the most part full-lengths, or three-quarter lengths, they possess opportunities for the disposal of a sitter's limbs and garments which are denied to the decollated head or the butcher-like divisions of humanity that have become the vogue latterly.

The placing of a figure upon the canvas is always a matter of great importance to a painter; but photographers give the matter no thought, as a rule; at least, it is hard to discover

in their results. Herr Dührkoop is a brilliant exception. The portraits in the book, particularly, show a keen appreciation of this important matter.

A similar respect for the traditions of the art is shown by the well-designed lighting upon the figures. No. 48, a portrait of Bracony, the sculptor, is a good example. The strength and subtlety of this piece would, we are convinced, have given Rembrandt a thrill of joy.

It is to be hoped that Herr Dührkoop will be considered a model for all aspirants.

F. C. TILNEY.

### THE PRESS ON THE DÜHRKOOP EXHIBITION.

"The characteristics of these photographs are directness and simplicity, combined with superb technique. The pictures are subjects well within the range of every amateur photographer, and we wonder with what success would the average English professional tackle similar pictures to those included in the show. We have, of course, professionals of the calibre of Furley Lewis and T. Lee Syms, who would treat these subjects in their own characteristic manner, but it is in the ranks of our leading amateurs that we are most likely to meet with exponents of the style indicated by the German professional."—"The Photographic News."

The artist, we consider, is at his best when dealing with portraits "at home," some very remarkable and effective examples of lighting and posing being shown. Seventy-seven prints, all beautifully mounted and framed in the passe-partout style, are hung on the walls, and about 200 are contained in a portfolio.—"Focus."

"A very fascinating exhibition of the distinguished work with the camera of the Hamburg artist, R. Dührkoop—the name appears to be Dutch—is now being shown at the office of the BRITISH JOURNAL OF PHOTOGRAPHY, in Wellington Street. His work will be familiar to those who visit the Photographic 'Salon.' He excels in the pure art of portraiture, and his skill in invariably getting a real pictorial effect is very marked. There is a splendid portrait of Joachim, and

a group of the two brothers, O. and J. A. Repsold, which is at once natural and vividly striking. Several most lifelike studies of children make a highly distinguished and most characteristic show of genuinely artistic photography."—"Evening Standard and St. James's Gazette."

"To me the pictures appear to be sound rather than inspired. The photographer is one who has with sure hand steered a safe middle course. Take, for example, his home portraiture series; they form a kind of compromise between Ralph Robinson and Alvin Coburn. They are neither sugar nor salt, but just pictorial sherbet, which no doubt many people will find most refreshing."—Hector Maclean, in the "Morning Post."

"Some of the genre pictures are wonderfully lifelike, and free from constraint or conscious pose. The portraits also betray no evidence of the photographer's unnerving presence. The sitters are perfectly at ease, putting on no "side," and having apparently no dread of that trying moment when the demon of the atelier cautions them not to move by shouting the monosyllabic "Now." This is one secret of the success of the portraits on view, the originals being caught at their happiest moments before they have time to distort their features and become as stiff and as lifeless as waxworks."—"Morning Advertiser."

## AMERICAN PHOTOGRAPHERS IN CONFERENCE.

### THE CONVENTION OF THE PROFESSIONAL PHOTOGRAPHERS' SOCIETY OF NEW YORK.

A two days' Convention was held in New York on April 5 and 6 of the Professional Photographers' Society of New York, under the presidency of Mr. Dudley Hoyt. We gather from the reports of the proceedings in our New York contemporary, "The Photographer," now the official organ of the P.P.S. of N.Y., that the Convention appears in every way to have been a marked success. The formal business was transacted at the Hotel Astor, and the list of conventioners includes nearly all the best-known men in the States. The general feeling appears to be that the Society has responded to the needs of the time in frankly ignoring topics of art and technique, and applying itself to the business problems which confront the photographer. Such a special programme is a new feature in American conventions where, however, the business aspect of photography has not been altogether ignored; but the direct aims and objects of the Convention have been business.

For the first time, we learn, the subject of prices was discussed.

For the first time subjects of every-day business interest in the photographic studio held the attention of a photographic body for hours.

For the first time in many years no paid orator swung his arms and displayed his ignorance of photographic topics. There were no set speeches, the word art was not mentioned; all precedent was ignored and the subjects for discussion were selected and debated upon by the members themselves.

The Presidential address which we reprint below outlines a plan of unit organization, perfectly conceived and admirably explained, which may be studied in this country just as diligently as in America.

The "single-picture" exhibition, on which we have already com-

mented, was a great feature of the Convention. One leading photographer described it as "the most magnificent success and the grandest failure I ever saw," commenting on which the "Photographer" says: "It was both. The idea as conceived was unquestionably right. One hundred and sixty-five members of the Society thought so and sent pictures; thirty-four thought otherwise and did not. The thirty-four comprised the prominent New Yorkers whose pictures would have added greatly to the interest of the exhibition. As a result the Society abandoned the price feature for the next exhibition.

But the single picture exhibition, price included, has appeared. It was radical, new, revolutionary, and above all else, practical. If the exhibitions of the future keep pace with the new convention movement, a movement that spells an honest interest in the welfare of the mass, the matter of price must be included in the plan. Scores of men spent hours in front of the incomplete show in the Astor, note book and pencil in hand. These men represented the mass of photographers, and they took home with them far more than appears upon the surface. The pictures shown were extremely interesting; some of them were extraordinarily good, and the valuable feature, the most valuable feature, was the style letter that indicated the price at which the pictures were to be sold.

The exhibition next year will be a single picture exhibition without limitations. Each member will be asked to send one picture, and that picture will be hung. The same men who supported the exhibition this year will support the one next year. It will be a splendid show, and from the standpoint of pictorial and technical interest will surpass anything of the kind ever held in this country. From the standpoint of practical business interest it will be of little value.

Differences between the two parties upon the question will do  
t will put both parties on their metal, and every man is going  
an exhibition next year for blood.  
rint below the address of Mr. Dudley Hoyt, who is succeeded

in the presidential chair by Mr. Pirie MacDonald, who was one of the  
founders of the Society, and who has himself worked with all his  
power for the furtherance of his objects. The Secretary of the  
Society is Mr. Curtis Bell.

## ORGANISATION FOR PHOTOGRAPHERS.

[The Presidential address of Dudley Hoyt, before the Convention of the Professional Photographers' Society of New York.]

**MEMBERS:**—The year which has elapsed since last we met  
en filled with happenings of importance to you and the photo-  
ers of the country. The nation has been blessed with pros-  
and the photographers have had their share of the good  
We are in a better condition as a Society and as members  
profession that grows in standing and importance in the com-  
with each succeeding year. Individually our members have  
ed with the times. Better pictures are being made to-day than  
fore in the history of photography, and in both the technical  
istic channels of effort we are ahead of the world. But, in the  
ment of this position we have, to a certain extent, lost sight of  
ic conditions. In bettering our product along modern lines,  
ring better pictures, we have increased the cost of production;  
sented to the public a studio in keeping with the work turned  
e have been compelled to increase our expenses. Competition  
profession is as keen as in other lines of business, and there-  
e man who lags behind, the man who does not put up a front,  
ut of line and is heard of no more.

pite of these added drains upon the photographer's income there  
en no material change in the size of that income. In 75 per  
of the studios in this state investigation will show that while  
oss income over a term of years has remained practically the  
the expense column has been steadily mounting. It costs the  
graphers of this state more to do business to-day than it ever  
the past. As a result, we hear all over the land the cry that  
photographer is the poorest paid professional man in the com-  
y. To some extent the statement is true. What is the reason?

### On the Work of the Society.

the solution of this question the work of the Society for the  
several years must lie. Herein is our work.  
the State of New York there are about seven hundred profes-  
sion photographers, of whom practically 50 per cent. owe allegiance  
r organization. This, for an institution of barely two years'  
h, is a remarkable showing, and one that indicates to me the  
that the photographers of the state are ready for the tasks which  
ont them. The progress of an organization such as ours must  
sarily be slow. Strength and stability are not born in a night,  
he steady, well defined growth of our society speaks well for its  
e. In two years we cannot expect to enrol more than a major  
of the professional workers of the state, for there will always  
ertain element who cannot and will not see the advantages of  
eration. But there is still a great deal of hard work before  
members. Gradually every man in the state susceptible of im-  
ement must be gathered into membership. Prejudices must be  
ome, the members of the profession at large, not now with us,  
ince that this organization is capable of helping him, and the  
-worn feeling which has so far prevented progress must be  
ved.

### Personnel of the Membership.

in this connection we are confronted with a condition found no-  
re else in the Union. In New York City there are more profes-  
sional photographers than there are in many of the states. Their  
ests must of necessity be somewhat different from those of the  
state members, who in nowise differ from the great army through-  
out the country. It therefore becomes necessary for us to so conduct  
affairs as to harmonise these seemingly conflicting elements, and  
so to the men of the Metropolis and the men from up-country must  
make concessions. We are trying to help the whole body—to  
e it possible for all members of the profession to enjoy a share  
prosperity, and I feel that our members are big and broad enough  
arry out the task without further friction than is necessary to keep  
the feeling of independence and of loyalty to sectional interest.

### Unit of Organization.

its youngest days the Society realised that it could not accom-  
much in the way of helping the photographic profession if its  
k was carried out along accepted lines. Most photographic  
nizations meet once a year. As a result these meetings partake  
e of the nature of a reunion of old friends than of a session of

men, meeting for business purposes only. Hence it was decided to  
incorporate a wheel within a wheel, or rather wheels within a wheel,  
and to this end the state was divided into three sections—the Metro-  
politan, the Central, and the Western. In each of these sections a  
local organisation was perfected, with meetings once a month.

Because it is relevant here, and for the further purpose of acquaint-  
ing those unfamiliar with the work of the Sections with what has  
been done, I shall give a brief resume of the transactions of the  
Rochester Section, with which I am, of course, most familiar.

This Section, over which your President has presided during the  
past year, has held regular monthly meetings since May, 1905. The  
meetings have been liberally attended and little difficulty was ex-  
perienced in interesting the members of the profession residing within  
the circle covered by the Section in the work of the body. During  
last summer the Section reached an agreement as to Sunday closing,  
and during the whole of the season the proprietors and their em-  
ployees had one day which they could call their own.

### Agreement on School Work.

An agreement has also been reached with reference to school work,  
a class of trade which had in former years effectually demoralised  
prices in the city. To-day there is a definite agreement as to prices  
and a uniform discount arranged, graded upon the number of persons  
contracted for, and harmony exists where before there was chaos. A  
number of evenings devoted to practical experiments were greatly  
enjoyed by the members, notably those in which domestic lenses  
and the value of artificial light were discussed. At one meeting a  
collection of ready-to-deliver pictures from a score or more of the  
foremost photographers of the country outside of the State were  
exhibited. Particular attention was given at this meeting to the  
mailing devices, pasters, string, protective board used in mailing the  
packages, as well as the pictures themselves, and considerable informa-  
tion of practical value was gained.

### Good Fellowship Between Members

The one thing that has impressed me at these monthly meetings  
has been the good fellowship engendered from the association one  
with the other. Absolute proof has been furnished that the photo-  
graphers of this state are beginning to recognise their competitors,  
are making it a business to know each other, and to know each other  
as friends. In these three sections I wish to point out to you the  
extraordinary fact that photographers have been meeting socially  
once a month, talking about the most intimate business conditions,  
prices, studio rules, business relations with the public, the suppression  
of objectionable features, and above all else maintained a cordial  
relationship which has, in my experience, never before been ex-  
perienced in the photographic business.

### Extension of the Unit Plan.

In an open letter addressed to the members of the Society last  
November, I called your attention to the advisability of extending  
the unit plan of organisation, so that the same valuable features of  
the local section will apply to a wider territory and reach more of  
our members. Necessarily the present local sections reach but a  
limited amount of territory. It cannot be expected that members  
living remote from the meeting places of these sections can attend the  
meetings regularly. I therefore suggest to you that sub-sections or  
divisions be organised in every locality where there are a sufficient  
number of photographers to warrant such action.

I am glad to say that encouraging communications have been  
received from several towns not in the immediate territory of the  
three present sections, and I am confident that the present year will  
see growth in this direction.

To cement the relationship of these sub-sections, one to the other,  
and at the same time to keep alive the interest in the parent organisa-  
tion, the State Society, I suggest that the present local sections be  
kept intact and that the sub-sections or divisions be made a part of  
them.

The following plan is suggested as a reasonable basis upon which  
to perfect the organisation:



Sub-sections, to be known as districts, to be organised in all towns and communities capable of supporting them. Meetings to be held once a month. The three present sections to meet once a month as usual, with the exception of every fourth month, which should be a general meeting of all of the districts in the section. In other words, there should be a meeting every four months of all members of the Society in each of the three sections, these meetings to be held preferably in the town or city of the parent section.

The dates of the General Section meetings should be so arranged as to bring the entire society together for the annual meeting in New York. Thus there would be a monthly meeting in each district, a meeting every four months in each section, and the annual meeting in New York. In this way I believe that the best interests of every member will be conserved and the Society made of real and permanent value to all.

A uniform constitution and set of by-laws should be formulated by a committee appointed for the purpose, and such other incidental details as will assist the formation and ready conduct of the local meetings.

#### Importance of Development Work.

I have no hesitancy in saying that I consider the development of the Society along these lines as the most important work to come before this meeting, and I wish to ask for the cordial co-operation of every member in formulating plans and devising means by which the whole State of New York will be dotted with sub-sections of the Society, each working for the benefit of its own members and for the good of the whole body.

For the purpose of making the meetings of the local sections and divisions more interesting, I suggest that means be taken to provide for an interchange of exhibitions between the different divisions. Committees should be appointed in each organisation to collect pictures and forward them to other sections. By proper arrangement of details it should be possible to have an exhibition of interest at nearly every meeting. The pictures collected in this way should be on artistic lines and should show progress in a definite direction. Viewed in this light the educational value of such an interchange would be of wonderful help.

#### The Labour Bureau.

During the past year the Labour Bureau, authorised by the last meeting, has been put into operation. Under the direction of the committee proper steps have been taken for the incorporation of the Society under the law of the state, and the final move will be made at the present meeting. Thus the conduct of a labour bureau will become a proper and legal adjunct of the Society. In the administration of its duties the committee having charge of the bureau has been hampered by the fact that some uncertainty existed as to its proper functions under the law of the state, and also by reason of the fact that the bureau and its work was new to both members and those seeking employment.

#### Reorganisation Suggested.

For the purpose of making this bureau of a more general and far-reaching interest to the members, I suggest that its organisation and conduct be extended to the local sections. To properly extend the work in this direction it will be necessary to employ a resident secretary, whose duty it will be to compile and collect the reports from the different sections. The secretary of each division should act as the representative of the bureau in his district and should be supplied with blanks in proper form. These blanks should be forwarded to the resident secretary once a week. This secretary in turn will compile the information received in this way and forward it to each of the local secretaries for reference. In this way it will be possible for the members to immediately consult the records of the bureau, without loss of time and with little trouble.

Every member of the Society should consider himself a working part of the bureau, and should furnish the local secretary of his district with all of the information with reference to men seeking employment at his disposal. All applicants for positions should be referred to the local secretary by the members.

As the bureau and its conduct will be of increasing importance its administration should rest with the executive committee. New rules governing the affairs of the bureau should be made, and I suggest the abandonment of the preliminary charge of one dollar made to each applicant for a position, and the substitution of a charge of

10 per cent. of the first month's salary earned by those who obtain positions through the Society's aid. One-half the sum thus obtained should be devoted to the compensation of the resident secretary, the remainder to the payment of such other expenses as are incurred by the bureau.

In addition to the concentration of interest on the part of members of the Society steps should be taken to acquaint photographers throughout the country with the work of the bureau and the photographic Press should be regularly informed of the progress made by the bureau. In addition to such matters as the bureau is enabled to have inserted in the Press, small cards, bearing advertisements of the bureau's objects, should be printed and distributed to the book houses throughout the state and country with an accompanying request that the card be displayed in a conspicuous place.

#### The Exhibition.

A valuable feature of our annual meetings is the exhibition of photographs. This year we have a "single picture" exhibition that should prove interesting to every member. The members were requested to send one print, which was to be hung, that print to be from a negative made in the regular course of business, and to be as typical of the "bread and butter" pictures produced in his studio as he could make it. By a careful survey of the exhibition you should be able to form a coherent idea as to the work of your fellows, and ample opportunity should be taken to analyse the pictures and discuss with your fellow-members such economic questions as may occur to you. I ask all of the members to contribute to the feeling that in these meetings the spirit of fellow-craftsmanship must rule, and that what one member can do to help another along will be done gracefully and gladly.

#### Studio Membership Cards.

Your Executive Board has had printed a membership card for display purposes in the studio. The committee asks every member to frame this card and exhibit it where the public can see it. It means an added peg in the game of professional prestige, and due attention should be paid to the committee's request.

The suggestion has been made that the Society issue a small metal plate bearing the same matter as the studio card, for display in the showcases. At the proper time this matter may be discussed, and if the Society so wills the plates will be issued.

#### The Question List.

Strong representations have been made to your President during the past year with reference to the consideration of a minimum price to be affixed to a dozen photographs. Necessarily in an organisation of this kind interest in this subject is divided, but from expressions I have had from an average number of all classes of photographers, I am convinced that debate upon the subject at this time is not only advisable but imperative. Your committee has therefore included in the list of published questions to be discussed at this meeting one covering the subject. The free discussion of prices is not according to precedent in photographic bodies, but precedent will be ignored in the conduct of these proceedings, and we shall attempt to get down to business without any more of the frills than is rendered necessary by the presence of our distinguished guests from other and older photographic bodies.

The list of questions which you have been asked to consider embraces many interesting factors in the every-day work of the photographer. At the proper time you will be asked to throw what light you can upon these matters, and I hope that every member will participate in the discussions. Please remember that these questions are suggested to you for the purpose of creating interest along definite lines. We must not hope to fire the Hudson or to correct matters and conditions which have been taking root for a half century. What we can do is to get the abuses into the limelight, where each and every one of us will have a chance to throw our respective bricks at them.

In the consideration of the questions which are to be considered I bespeak the careful consideration of the membership. The eyes of the photographic world are turned in our direction to-day. Let us try to accomplish something—a something that will live and expand for the good of the profession and of ourselves.

DUDLEY HOTT.

[Reports of the Society's conference will appear in our later issues.—EDS. B.J.P.]

PHYSICAL CHARACTERISTICS OF RELIEF ENGRAVINGS,  
ESPECIALLY RELATING TO HALF-TONES.

[A paper by N. S. Amstutz, in the "Inland Printer," to whose courtesy we are indebted for the engravings.—Eds., B.J.P.]

THE production and use of relief engravings have grown with tremendous strides in the last two decades. Especially is this true of half-tone engravings and line photo-engravings or zinc etchings. The term "relief engraving" applies to all engravings formed with raised printing surfaces. The existent half-tone is an outgrowth of a long series of efforts on the part of many investigators, who saw before them for many years what seemed an *ignus fatuus*—the translation of photographic tone values, consisting of variations in the density of chemical discolouration of a plane surface into a relief surface, with the aid of the camera, which should reproduce the seemingly evasive gradations of the photograph into raised printing points of variable size.

Of the principal qualities of half-tones that require the most careful attention, it seems important to put printing quality first, because if this is not up to standard, no matter how good the tonal values may be interpreted, the rendering goes for naught; secondly, should be placed tone values; thirdly, a full control of side etching, so as to preserve the tone values of the original, and also the mechanical strength of the dot; and lastly, an understanding of the broadening effect produced, even with the best printing.

Printing Quality.

This practically practical phase of the subject, obviously, depends on the depth of the etching, especially of the high lights. It may be defined empirically as being proportional to the reciprocal of the width of the widest groove, divided by the greatest depth of such groove.

A certain person connected in a business way with half-tone work when asked how deep the high-light depressions of a 120-line<sup>1</sup> engraving were etched, replied without hesitation and with much confidence: "At least one-thirty-second of an inch." Now, as a 120-line screen is only .00832 inch from centre to centre of line, and an allowance of .003 inch should be made for the width of printing face of a black dot, there remains but .0053 inch from the edge of one dot to that of the next, measured parallel to the screen lines; if measured diagonally, the distance is .0088 inch. Comparing the greater distance of .0088 inch to .03125 inch (being the decimal equivalent of one-thirty-second of an inch), the depth would be about four times greater, which is quite erroneous, especially when it is known, from measurements made, that the depth of etching in the high lights of a 120-line block is .0015 inch. This is approximately one-fifth of the diagonal distance between adjacent edges of the black dots. The off-hand estimate put it about twenty-one times greater than the actual depth.

The black dot at the end of a ten-minute flat etch of a 110-line screen with a given acid strength has a diameter of .0047 inch; after twenty minutes, or ten minutes additional, it has been reduced to .0037 inch, and after a total time in the acid of forty minutes the diameter is decreased to .002 inch.

The white dots in the deeper shadows of a 110-line screen have been enlarged in size during the time the black dots have been reduced, as follows: After ten minutes' etching they measure .004 inch across; after twenty minutes, .0047 inch, and after forty minutes, .0062 inch. The depth has increased at the rate of about .000035 inch per minute, making for a ten-minute etch a depth of .00035 inch, a twenty-minute etch .00070 inch and for a forty-minute etch .0014 inch.

The rate of etching, horizontal and vertical, is more rapid in the high lights than in the shadows, probably due to less isolation on account of gas bubbles. In the high lights at the end of ten minutes, for a 110-line screen, the rate of etching was .000065 inch per minute; after twenty minutes the rate dropped to .000057 inch per minute, and at the end of forty minutes it fell to .00005 inch per minute.

In the shadows the rate is practically uniform, but in the high lights it gradually lowers, though at its slowest remaining more rapid than in the shadows. It is probable that the increased number of metal particles released as the etching proceeds retard the free action of the acid toward the end of the etching. It is also probable that

acid vortices may be established around the black dots of the high lights, causing acid circulation and more rapid action than in the shadows. Irregularity in rocking and lack of attention to bubbles will very materially lower the rate of etching for a given time and seriously modify the uniformity of results, otherwise regularly attainable.

Associated with printing quality is brilliancy, a quality dependent on the relation of the area of the black dots to a unit area, enclosed by the sides of a square equal in dimension to the screen pitch, which with a 110-line screen is 1-110 inch, or .0091 on each side. Such a unit area comprises .0000828 square inch,<sup>3</sup> and if no dot occurred thereon would represent pure white.

Under the different times of etching, the black dots of a 110-line screen vary in area as follows: After ten minutes the area is .0000173 square inch, twenty minutes .0000135, and after forty minutes it is reduced to .0000032. The last, with a diameter of .002 inch, is used to illustrate how a "pure white" is modified by a black dot of such minute size. Remembering that a "unit area," mentioned in the previous paragraph, is equal to .0000828 square inch; omitting the ciphers, 828 represents a pure white, and when a dot of .0000032 square inch is formed therein, a part of the whole area is occupied by black; or, omitting the ciphers, thirty-two parts; then the black value is represented by 32-828 of the whole area, and white by 796-828.

Tonal Values.

Much has been done in Europe along the direction of determining the proper tone value of photographic reproductions. The matter can only be referred to in passing. These values concern the relation of the finished print to the subject of which it is a copy. The interpreting values are modified by screen and focal distance, diaphragm outline and side action during the period of etching. They require arbitrary treatment to compensate for the inevitable broadening of the dots in the process of printing. Proofs made from the specimens shown indicate an almost uniform spreading of .0005 inch away from the edge of any printing surface. It will be interesting to note how much this spreading action is modified in the high lights by overlays.

Side Etching.

After a "screen" negative is printed on to the sensitized surface of a metal plate, the unaffected portions washed away and those remaining burnt into an acid-resist enamel, the dot of remaining enamel in the high lights is of a definite diameter and area. It would retain these dimensions if there was no side action of the acid simultaneously to its etching into the plate. The rate of side action, and the consequent reduction in size of black and white dots, is given in Table A.

TABLE A.

	Orig. Diam.	DIAMETER OF DOTS AT END OF					
		8 min.	10 min.	15 min.	20 min.	30 min.	40 min.
65-line screen							
*Black dot ...	.007	—	—	.005	—	.0034	—
Rate per min	—	—	—	.000066	—	.000060	—
†White dot ...	.004	—	—	.005	—	.006	—
Rate per min	—	—	—	.000033	—	.000033	—
110-lineScreen							
Black dot .....	.006	—	.0047	—	.0037	—	.002
Rate per min	—	—	.000065	—	.000057	—	.00005
White dot ...	.0038	—	.004	—	.0047	—	.0062
Rate per min	—	—	.000035	—	.000035	—	.00035
150-line screen							
Black dot .....	.004	.003	—	.0023	—	.001	—
Rate per min	—	.000063	—	.000056	—	.00005	—
White dot ...	.0025	.003	—	.00344	—	.0044	—
Rate per min	—	.000031	—	.000051	—	.000031	—

Mean rate for white dots for all screens, .000033 per minute.  
\*At point 1, on Figs. 1, 2 and 3. Location shown on Fig. 4.  
†At point 5, on Figs. 1, 2 and 3. Location shown on Fig. 4.



The rate per minute is based on uniform radial action, from a point which makes the vertical rate one-half of the horizontal values given, relating to a change in diameter of size of dots.

given length of etch, with a suitable microscope provided with a direct reading transparent scale placed in the focal plane of the instrument. Any etching method that eliminates the personal equa-

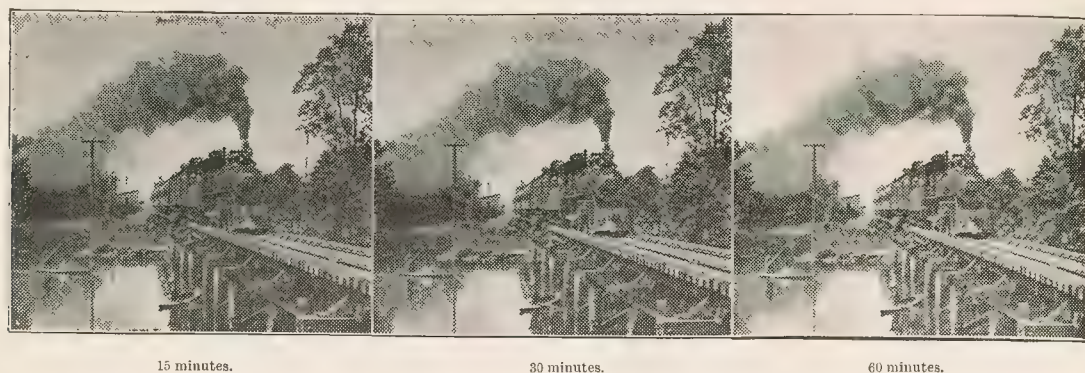


Fig. 1.—65-Line Flat Etch.



Fig. 2.—110-Line Flat Etch.

In Table B is given estimated depths of etching for various lengths of time in the acid, and different screens, in the white and around the black dots. These are theoretical depths. The divergence of this from actual depths requires considerable further research.

TABLE B.

	DEPTH OF FLAT ETCH AT END OF						
	8 min.	10 min.	15 min.	20 min.	30 min.	40 min.	60 min.
65-line screen							
Black dot.....	—	—	*0'075	—	*0018	—	*0052
White dot ...	—	—	*000495	—	*000980	—	*001980
110-line screen							
Black dot.....	—	*00065	—	*00114	—	*002	—
White dot ...	—	*00035	—	*00070	—	*0014	—
150-line screen							
Black dot.....	*000304	—	*00084	—	*0015	—	—
White dot ...	*000248	—	*000465	—	*000930	—	—

\*At point 1, on Figs. 1, 2 and 3 (location shown on Fig. 4), at rates given in Table A.

†At point 5, on Figs. 1, 2 and 3 (location shown on Fig. 4), at rates given in Table A.

The values in Table B apply more especially to the printing-quality characteristics, but are inserted here because of their being estimated from the rates given in Table A.

With definite knowledge as to the rate of progression of any given acid strength on a definite grade of copper or zinc, it will be possible to know the depth of etching after stated periods of time by simply observing the change in size of the black and white dots, after a

tion of rocking, brushing, etc., is in the line of greater scientific accuracy in result and an enlarged uniformity of quality. When this becomes every-day practice, then the chemical side of the process will have reached as great an accuracy as the present stage of the optical phases of the process.

Incidentally, it is interesting to note in the specimens from the same screen an absence of white dots in some of the deeper shadows, under the shortest time of etching, which are present in the engravings having had the greatest time in the etching bath. This would seem to indicate a variation in printing from the one negative. If at the end of the first period an electrotype was made and the etching continued on the same plate for the second period, and another electrotype made, and the etching again continued for the last period, and a third electrotype made, the succeeding interrelated stages would have eliminated therefrom any variable factor relating to the time of printing from the negative.

It is, of course, obvious that the sixty, forty and thirty-minute etches are overdone. In the high lights the dots have been "topped" and, in small areas, entirely destroyed. This is specially apparent when compared with the staged engravings shown in Fig. 4.

#### Broadening of Dots in Printing.

This is the *bête noir* of the inexperienced printer. From observations made on proof-press impressions of the specimens shown, there is an almost uniform widening of .0005 inch on each side of a dot, or an extension of this amount toward the white from the edge of any printing dot or surface. This materially reduces the tonal value and the brilliancy. From specimens used on daily papers, at sixty lines per inch, it was noted that the broadening due to soft paper, rapid presswork, stereotyping and inferior grades of ink was .002 inch in

meter of dot, as against .001 inch for the best ink, plated paper proving-press impressions. Overlays will have much to do toward rectifying this defect.

tion. When they are isolated it is difficult to notice the exact points where the broadening takes place, but when grouped it is apparent at once.

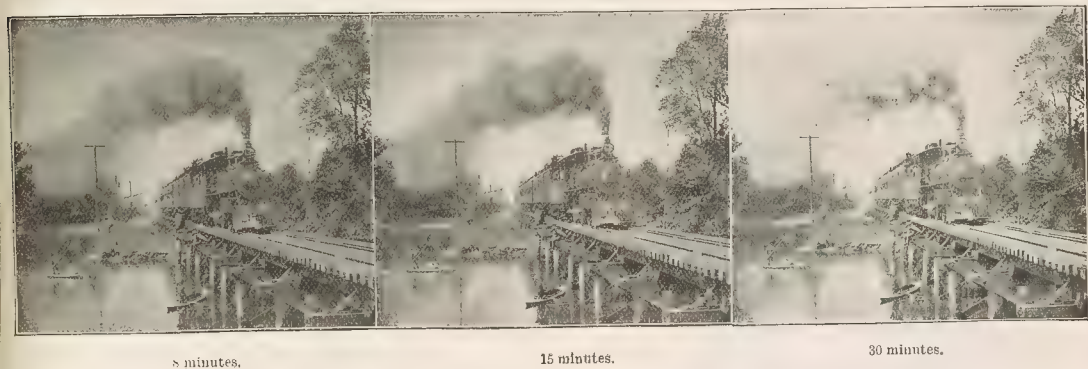


Fig. 3.—150-Line Flat Etch.

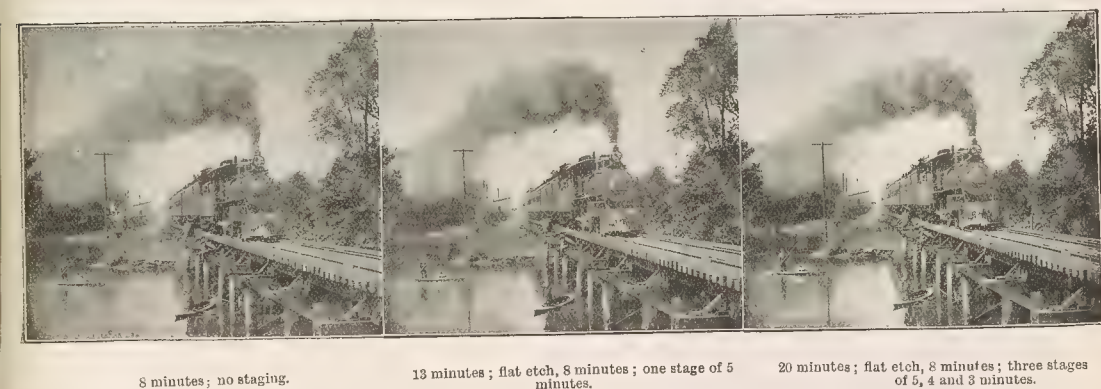


Fig. 4.—150-Line, Staged Etch.

Figs. 1, 2 and 3 show three period flat etchings made with 65, 110 and 150 line screens, at various durations of time in the etching bath, with acid of ordinary uniform strength.

Points of observation are marked on the staged engraving. Fig. 4—1, 2 and 3 for black dots, and 4 and 5 for white dots. The same points were used in each of the other specimens.

Tables C, D and E give the detail information of these specimens. Thanks are due to Mr. H. McRoy, superintendent of the Inland-Walton Engraving Company, for the preparation of the plates for Figs. 1, 2, 3 and 4.

TABLE C.  
ENGRAVING DATA OF WHITE AND BLACK DOTS, ILLUSTRATED IN  
FIG. 1—65-LINE SCREEN AT .0154-INCH PITCH.

	DIAMETER At end of 15 min.	DIAMETER At end of 30 min.	DIAMETER At end of 60 min.
Black—Point 1 .....	.005	.0034	.002
Black—Point 2 .....	.0059	.0046	.003
Black—Point 3 .....	.0073	.006	.004
White—Point 4 .....	.012	.018	.015
White—Point 5 .....	.005	.006	.008

Fig. 5 illustrates the minutiae of ordinary engraving and printing. There are shown lines at 65, 125 and 150 per inch at various depths and widths. Each succeeding stage reading from bottom upward is .0005 inch deeper than the preceding one, and the white lines are .001 inch wider from stage to stage. The two isolated lines also vary in width by .001 inch between stages. It is interesting to note the effect produced by placing a series of similar lines into parallel rela-

TABLE D.  
ENGRAVING DATA OF WHITE AND BLACK DOTS, ILLUSTRATED IN  
FIG. 2—110-LINE SCREEN AT .0091-INCH PITCH.

	DIAMETER At end of 10 min.	DIAMETER At end of 20 min.	DIAMETER At end of 40 min.
Black—Point 1 .....	.005	.0035	.0025
Black—Point 2 .....	.005 square	.004 square	.0027 square
Black—Point 3 .....	.004	.0033	.0018
White—Point 4 .....	.0082	.009	.0105
White—Point 5 .....	.004	.0047	.0062

TABLE E.  
ENGRAVING DATA OF WHITE AND BLACK DOTS, ILLUSTRATED IN  
FIG. 3—150-LINE SCREEN AT .0066-INCH PITCH.

	DIAMETER At end of 8 min.	DIAMETER At end of 15 min.	DIAMETER At end of 30 min.
Black—Point 1 .....	.003 diamond	.0023	.001
Black—Point 2 .....	.003 joined	.0024	.0015
Black—Point 3 .....	.0027 square	.002	.001
White—Point 4 .....	.0058	.0068	.0077
White—Point 5 .....	.003	.0033	.0044

Fig. 6 illustrates a single-line electrotype from an "Akroton" engraving, which was produced automatically in a mechanical manner from a photo relief. It shows mechanical tonal analysis, through the medium of 65, 110, 130 and 150 lines per inch, produced with a V-shaped cutter of 90 degs. included angle. The photo relief presented a maximum variation of .0023 inch, which represents a part of



the depth of the engraved lines in the high lights; the remaining part is accounted for by the slight groove in the shadows, or "blacks" of about .0005 inch, making a total of .0028 inch.

The width of a groove in the high lights is twice the total depth, or .0056 inch, which, when subtracted from the pitch of a 150-line screen, .0066 inch, is equal to .001 inch, being the width of the ridge or printing surface between two parallel grooves. In this connection it is interesting to note the analysis of a recent print of one of Timothy Cole's wood engravings. In the nearest approach to "white"

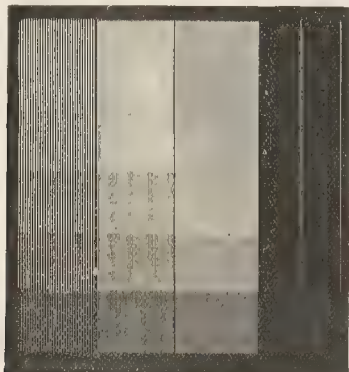


Fig. 5.—Mechanical Engraving.

represented by single parallel lines at eighty-five per inch, the width of printing ridge is .003 inch. The pitch is .00675 inch and the ridges at this point represent 25.5 per cent. of unit area (1.85 by 1.85) as black.

The next tonal step toward "white" is found where the ridges are crosshatched, producing a square dot. At this point the lines per inch are ninety and the pitch is .011 inch. The black dots are .003



Fig. 6.—Mechanical Engraving.

inch square and comparable to unit area (1.90 by 1.90) represent 8.1 per cent. of it as black, the inverse being 91.9 per cent. white.

Daily newspaper publishers are using larger-sized engravings, so that the dots of .006 inch diameter in the high lights bear so much smaller proportion to unit area with coarse line screens than would the same size of dot to a finer line screen, consequently the percentage of white is greater in the case of coarse or few lines per inch than with many per inch.

In order to stand the mechanical strain of presswork and stereotyping without staged etching, it is not practicable to reduce the black dots much below .005 inch in diameter, hence the trend to coarser

lines; deeper etching and larger-sized subjects, so that individual dots bear a smaller proportion to the total number of dots used, consequently making them less noticeable.

The data herein set forth is not given as a finality, but is offered to half-tone workers as a contribution to the art, with the hope that it may draw out other observations along the lines of this most fascinating subject.

It is, of course, obvious that the deductions are based upon too small a number of observations to give absolute scientific stability to the conclusions drawn, yet it is believed, aside from possible errors, that enough has been pointed out to show to others how interesting and profitable to future workers investigations of this kind may be made, when researches are carried out more extensively.

N. S. AMSTUTZ.

## Exhibitions.

### HAMBURG AMATEUR PHOTOGRAPHIC SOCIETY.

AN exhibition of work by members of the Hamburg Amateur Photographic Society is being held in the Hamburg Art Gallery closing on Monday next, April 30. Altogether there are 152 exhibits, the largest exhibitors being Dr. Ed. Arning (president), Herr R. Dührkoop, Th. and O. Hofmeister, who contribute 21 prints; H. W. Müller, Robert Starck, and Bernhard Troch. The multi-colour prints shown by the Hofmeisters and Herr Müller are very striking by their harmonious effects, although monochrome prints in their neighbourhood suffer by juxtaposition to the brilliant colours. "Harzdorf," by H. W. Müller, is a beautiful rendering of a typical German scene, and it is difficult to realise the skill and labour which must have attended its production. The exhibition, however, is not by any means confined to gum. A number of prints are in carbon and platinum, and there are also some conspicuously good results on Velox and Matt albumen papers. In a short note in the catalogue Herr Theodor Hofmeister states the position of the photographic worker of multiple gum and his claim to be judged by what he produces. He says "Multi-colour gum printing has nothing in common with photography in natural colours or three-colour photography. Whilst in three-colour photography the colours are obtained by superposition of three positives in the fundamental colours—blue, yellow, and red—from three negatives, in gum printing the choice of colours is left to the printer, and only one negative is used. Hence there is much greater opportunity for the individual impression of the pictorial worker."

"It has been said that multicolour gum printing aimed at but did not attain natural effects, but the truth is that in multicolour gum-printing absolute truth to nature is not aimed at: the colours are so chosen that a purely decorative effect is obtained. This method of printing is merely a means for the pictorial worker to express colour effects and impressions, and has therefore a character of its own, so that a comparison with other media of making pictures, such as painting, etching, etc., cannot be made. Multiple gum-printing, as an absolute newcomer, must be measured by its own standard. It may be of interest to state that frequently fifteen or more printings are necessary to attain the desired effect. Tempera colours are exclusively used, and it is important to note that only those are chosen which are stable to light and air. As there are no chemicals in the pictures, the latter represent an absolutely hard, permanent film of colour and gum. Bleaching of the colours or other changes in the prints is therefore excluded. Duplicate prints, on account of the complication of the printing, are only possible in the way a painter might repeat his work. It is quite possible, however, for the expert to obtain several pictures differing in feeling and colour from the one negative."

### BOLTON AMATEUR PHOTOGRAPHIC SOCIETY.

THIS society's exhibition was held on April 18, 19, and 21 in the Victoria Hall, Bolton, and proved an unqualified success. It was opened on the first day by Alderman Wm. Nicholson, J.P., the chair being occupied by Ed. Blackburn, Esq., J.P. Many outside workers having taken advantage of the arrangements made with the committee of the Northern Photographic Exhibition for the forwarding on to Manchester of pictures destined for that exhibi-

n, the open class was very well represented. The members' class, while hardly so large as might be expected from a society with so large a membership roll, showed a marked advance in quality on previous years, the novices' class in particular including some very creditable exhibits. The judges were Messrs. C. F. Inston, R.P.S., and A. A. Bellingham, and their awards were as follows. Section 1, open classes—Class A (landscape, seascape, and river scenery): silver, F. Judge; bronze, H. A. Blades. Class B (portraiture, figure, and animal studies, and still life): silver, Miss H. Stevenson and E. Seymour; bronze, W. Duxbury. Class C (architecture): silver, J. P. Howe; bronze, S. C. Stean. Class D (lantern slides): silver, E. Seymour; bronze, H. Wormleighton. Section 2, members' classes—Gold medal (presented by Jas. Lord, Esq., for the best picture in Section 2), H. S. Prince. Class E (any subject, pictorial or technical): silver, H. Mills; bronze, W. Midgley and J. M. B. Stubbs. Class F (lantern slides): silver, M. B. Stubbs; bronze, J. Pilkington. Class G (any subject for members not having previously taken any award): silver, T. W. Cross; bronze, T. Shaw. Apart from all financial consideration, the exhibition's value as stimulant of the pursuit of photography in Bolton and district unquestionable, and the joint exhibition secretaries, Messrs. W. Midgley and H. M. Kellam, are to be congratulated on the result of their efforts.

# CHEMISTS' TRADES.

THE twelfth exhibition organised by the "British and Colonial Druggist" was opened in the Royal Horticultural Hall, Vincent Square, Westminster, on Monday last, and closes to-day (Friday) at 10 p.m. The large hall is chiefly filled with the stalls of the wholesale drug firms, and the enterprise of these trades' representatives proves at times a little disconcerting to the non-chemical visitor. One is unprepared to be the recipient of bursts of confidence from immaculately frock-coated gentlemen who address one in a stage-whisper such inquiries as "Are you interested in castor oil?" or "Can I show you this new tooth-brush?" We hasten to seek out the photographic stalls in the exhibition and discover Messrs. Houghtons, Limited, making a large show of their well-known apparatus, with the addition to the series of hard-index negative files of one very neat numerical series of card-envelopes for film negatives, in which the film is kept flat, and is instantly removable from, and replaced among, its fellows. The Rotary Photographic Company, Limited, divide their space among three-colour carbons, paper negatives, and prints on "Silvo," alk. (bromide emulsion), and their new collodion paper.

Mr. J. E. Lockyer exhibit a great variety of amateurs' chemical specialties. Messrs. Chas. Zimmermann and Co. show all things "Agfa," and some very striking prints on collodion papers used in their combined gold-platinum bath, a procedure which, as they take the opportunity of emphasising, is in every way as simple and reliable as the self-toning papers. They also show a very neat pocket-folding camera, of Ernemann's. Mounts and cameras in many patterns are exhibited by Chas. Tyler and Engstrom Bros., who, with the four firms we have noticed, make up the photographic exhibitors. Yet the exhibition is one where a pleasant hour may be spent amid brilliant, and, we may add, seductive surroundings, and within sound of the strains of a very excellent orchestra discoursing popular music.

OWING to great pressure on our space this week, a number of articles, including that on "The Use of the Spectroscope," by Mr. Wall, "A Note on the Motion of the Pendulum," and others, are held over until the next issue.

The report of the Stackman v. Paton copyright case must also stand over until next week.

THE Kodak Company have arranged to give at their gallery, 115, Oxford Street, each afternoon, between 3.30 and 4.30 (Saturdays excepted), a free, interesting, and comprehensive explanation and demonstration of the whole simple system of Kodak daylight photography, from start to finish—taking the picture, developing the negative in daylight, and making the finished prints. This information is imparted in the brightest and most interesting way, choice results taken with the various Kodaks being shown by the lantern screen.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between April 9 and 14:—

EXPOSING RECEPTACLES.—No. 8,522. Improved method and apparatus for transferring photographic layer-carriers from an exposing chamber to a receptacle located under the same. Optische Anstalt. C. P. Goerz Akt. Ges. 51, Bedford Street, Strand, London.

CAMERAS.—No. 8,788. Improvements in photographic cameras. Bertram George Cooper, 36, Clarence Street, Kingston-on-Thames.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

LANERN DESIGNS.—No. 14,527, 1905. The claim is for the combination with a magic-lantern (provided with a stationary or slowly rotated transparent slide coated on one side with soot or other opaque covering) of a graving-point arranged in connection with and operated by two rods oscillated at right angles to each other through the medium of cranks mounted on separate spindles, one of which is driven direct, while the other receives its motion from the said driven spindle by means of interchangeable pulleys or wheels, together with means for automatically moving the crank-fittings carrying the oscillating rods inward or outward on their cranks. Andrew Forbes, 136, Otley Road, Leeds.

EXPOSING DEVICES.—No. 10,956, 1905. The apparatus comprises in suitable combination three working parts, one adapted to move so as to allow a packet consisting of two envelopes sliding one

Fig. 1.

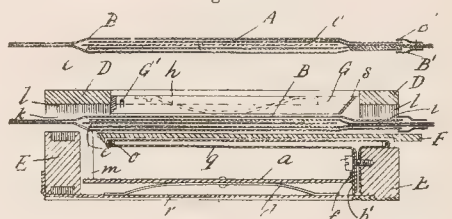


Fig. 2.

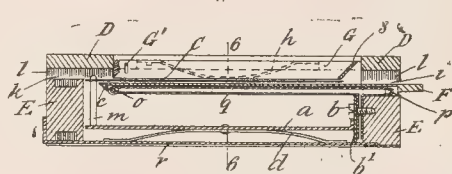


Fig. 3.

within the other (the inner one holding the plate or film) to be slid into proper position in the dark slide, another to ensure the correct placing of the film in the plane of the focus of the camera lens, and to hold it in such plane when the envelopes are being and have been withdrawn, and the third adapted to slide so as to open the magazine to allow the exposed film or paper to enter thereto, and to close the magazine again in light-tight manner. Referring to figs. 1—6, the magazine E is held by spring pressure against a frame D, from which it can be moved away to form slits i and k for the purpose of inserting the packet shown in fig. 1 into the position shown in fig. 2, in which position it rests against the slide F that forms the face of the magazine. In this position the packet is pressed upon by a frame G mounted within frame D, and urged towards the slide F by springs h. Strips of velvet l make a light-tight closure between the frame D and the walls of the magazine E. The film C has two perforations e at the edge, which is to the left hand in the figs., and the inner



envelope A is cut away to leave these perforations uncovered when the outer envelope B has been withdrawn through the slit *k*. As soon as this has happened two pins *m* fixed to a plate *a* urged forward by springs *d* interposed between the said plate and the sliding bottom *r* of the magazine enter the perforations *e* as shown in fig. 3. It is now possible to withdraw envelope A through the slit *i* without shifting the film C, which is then immediately pressed by the spring frame G and held thereby against the slide F ready for exposure. After exposure the film is to be transferred to the magazine. For this purpose the slide F is withdrawn until the projection *c* on its left hand

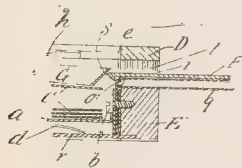


Fig. 4.

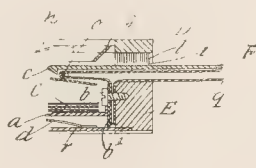


Fig. 5.

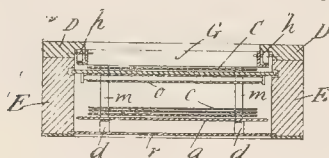


Fig. 6.

edge catches against the side of the magazine. The frame G has its right-hand side bevelled or sloping as at *s*, and at a short distance from its opposite side it is connected by slots and pins *G*<sup>1</sup> with the frame D. Hence when the slide F is withdrawn the bevelled side *s* of the frame G falls until it rests on the edge of the slide as shown in fig. 4, bringing with it the film C. The slide F is now returned, and in its inward movement slides against the bevelled side *s* and lifts the frame G back to its former position. At the same time the slide engages the film C (fig. 5), and causes it to travel down the pins *m* until it rests on the plate *a*, or on the films already in the magazine. In order that the film may not be damaged by the edge of the slide, the latter carries two rollers *o*, *p*, over which passes a band *q*, the ends whereof are clamped by a plate *b*<sup>1</sup> in the side of the magazine E by screws *b*. These screws also serve as an abutment for a fillet *f* on the edge of the plate *a* to prevent the latter from being moved too far by the springs *d*. The exposed films are removed for development by withdrawing the bottom *r* and taking out the plate *a*. Oscar Becker, 62, Jerusalemstrasse, Berlin, S.W. 19.

#### CATALOGUES AND TRADE NOTICES.

Messrs. Morley and Cooper, 271, Upper Street, Islington, London, in sending us a catalogue of cameras for the season, remind us of the special feature which they make of all classes of repairs to photographic apparatus. It is frequently a convenience to know of a reliable house to which an erratic shutter or damaged camera may be sent for restoration, and Messrs. Morley and Cooper may therefore reasonably claim the custom of photographers in this direction, and for the building of all classes of photographic and lantern apparatus to specification.

The new illustrated catalogue of Messrs. Lizars, Buchanan Street, Glasgow, is at once a comprehensive list of amateurs' requisites, and a compendium of formulæ and tables, and notes, which conveys a good deal of practical information. The list, which runs to 200 pages, is obtainable for a penny stamp.

The "Imperial Handbook" for 1906 reaches our table from the Imperial Dry Plate Company, Limited, Cricklewood, specifying, as usual the manufactures of the company, but providing also a variety of very practical advice, which may be studied with profit by users of any brands of plates and papers. In addition to containing the formulæ for the various developers recommended by the Company and a table for development by time, it offers some technical articles

on the choice of developers, on outdoor and indoor photography, on defects in negatives, hand-camera work, home portraiture, and backed plates. Altogether a budget of valuable reading, which will tempt the amateur worker to apply to the Company for the copy which is offered post free.

## New Apparatus, &c.

The Mackenzie-Wishart Daylight Slide. Made by Mackenzie and Co., 17, Douglas Street, Glasgow.

Whatever may be urged in favour of devices for changing plates such as those which form an inherent part of hand-cameras or are sold as separate changing boxes, there are many who, with good reason, pin their faith to dark slides as the only method of carrying plates or films which can be trusted to work without a hitch. The lapse of a changing mechanism from the path of rectitude may be rare, but is none the less annoying and embarrassing when it does transpire, hence the very natural preference of those who have suffered to fight shy of all sorts and conditions of mechanism for the carriage and exposure of their plates. Yet this opposition can hardly be extended to apparatus of the class of the Mackenzie-

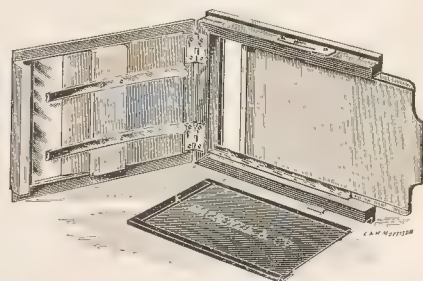


Fig. 1.

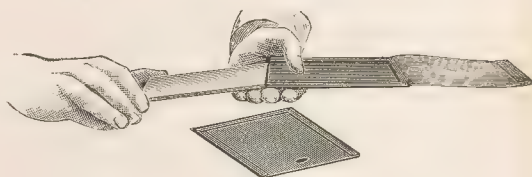


Fig. 2.

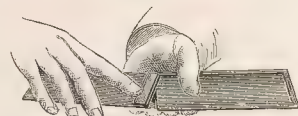


Fig. 3.

Wishart dark-slide, which is certainly innocent of working parts of greater degree of complication than an ordinary dark slide, and possesses the very great advantage over the dark slide that it reduces the bulk and weight of the apparatus needed to carry a number of plates by a degree which is greater the more plates there are, and permits the photographer to take a very considerable number of plates into the field for a moderate outlay. We noticed the Mackenzie-Wishart apparatus on its first inception, and it is now our duty to revert to it in order to chronicle improvements in it, and the introduction of a pattern specially designed for the amateur worker. Each plate, we may say to those who do not know the apparatus, is carried in a light flexible envelope slide, consisting of three parts (Fig. 2), an outer sheath, an inner one holding the plate, and a shutter working in a groove formed by the two. In the apparatus as originally made, it was not the easiest matter to insert the plate in its carrier, but greater rigidity of the latter has removed this difficulty, and we can say as the result of working at frequent intervals for more than a year past with the apparatus, that we have

and it reliable in the field both as regards safety of the plates in light, and uniformity in performance. The advantage in diminished weight and bulk is an obvious one to anyone who examines—Messrs. Mackenzie send on approval—a slide and envelope. The system should appeal to the professional photographer for the facility by which he can quickly be equipped with as many plates as unforeseen emergency may demand that he take into the field with him. We are informed that one firm possesses 150 envelopes

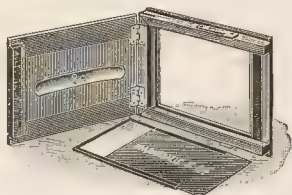
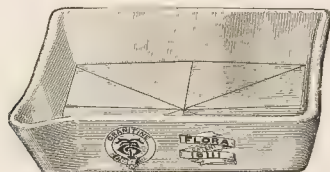


Fig. 4.

for use in one or other of two slides. The new slide is shown in the fourth figure, from which it will be seen that the envelope has a rigid ebonite shutter, which pulls completely out, the pile surface of the slide back and the plate carrier forming an efficient light trap. The complete slide in quarter-plate measures 6 x 4½ x ¾ inches, and costs 8s. We believe it is made also in half and whole-plate sizes at prices which, with other particulars, Messrs. Mackenzie will supply.

We are now able to give a drawing of the new dish of Messrs. Tunnell, which we were able to review favourably last week. It has been suggested that the dish permits of two plates



being developed or fixed at one time in a single dish, but we cannot suppose that such a proposition would be seriously considered by a photographer except under very restricted conditions of time and space.

AN exhibition of photographs by Alvin Langdon Coburn opens at the rooms of the Liverpool Amateur Photographic Association on May 1. The private view is on Monday next, April 30. A special feature of the exhibition will be a series of recent pictures of Liverpool.

THURSDAY Evenings at the Blenheim Club.—The following are the fixtures for the next two Thursday evenings:—May 3, smoking concert, Mr. E. J. Humphrey in the chair; May 10, Messrs. A. J. Hubbard, M.D., and George Hubbard, F.S.A.; "Dew Ponds: Ancient and Modern," the Earl of Rosse in the chair.

A KEIGHLEY One-Man Show at Keighley.—An exhibition of the pictorial photographs of Mr. Alex. Keighley was opened last week in the Art Gallery of the Carnegie Library, Keighley. The pictures, by Mr. Keighley's permission, have been recently exhibited in the Cartwright Hall, Bradford, and at the Corporation Art Gallery, Burnley, and their tour is now appropriately brought to a conclusion by an exhibition for the benefit and interest of Mr. Keighley's fellow-townsmen. The collection, which has been admirably and tastefully arranged, includes all Mr. Keighley's recent works, many of which have become classical in photographic circles. It will remain on view until Whitsuntide.

THE Alhambra has just secured an admirable series of photographic views of San Francisco, taken only a few days before the earthquake. These striking pictures will be included in the Urbanora exhibit every evening at ten o'clock.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

April.	Name of Society.	Subject.
27.....	Aberdeen Amat. Photo. Assn.	Resumé of Season's Work. Mr. Gray.
27.....	Sutton Photographic Club	"Hand Cameras." Mr. Hector
27.....	Photographic Society of Ireland	Macleod, F.R.P.S.
28.....	North Middlesex Photo. Soc. ...	Annual General Meeting.
28.....	Aberdeen Photo Art Club	Trip to Highgate.
28.....	Halifax Camera Club	Outing to Fortlithen.
30.....	Wandsworth Camera Club	Trip to Grestland Valley.
May.		General Meeting.
1.....	Royal Photographic Soc. ....	"Three-colour Photography by the Sanger Shepherd Process." Dr. A. Norman, L.R.C.P., L.R.C.S.
1.....	Sheffield Photographic Society	"Platinotype." Demonstrated. Rev. J. Bealand, M.A.
1.....	Rotherham Photo. Society	"Cloud Photography." Amateur Photographer Lecture.
1.....	Hackney Photographic Society	"Some Holiday Incidents." Mr. F. W. Gosling.
1.....	Cardiff Windsor Amat. Ph. Soc	Competition Night.
2.....	South Essex Camera Club	Amateur Photographer 1905 Slides.
2.....	G.E.R. Mechanics' Institution....	Examination in "Photography" by the City and Guilds of London Institute.
2.....	Cricklewood Photo. Society.....	"Marine Photography." R.P.S. Lecture.
2.....	North Middlesex Photo. Soc. ...	Lantern Slides and Print Competitions.
2.....	Edinburgh Photo. Society	"The Proper Sphere of Photography." Illustrated. Mr. Alex. Sutherland.
2.....	Everton Camera Club.....	"Composition." Mr. G. Taylor.
3.....	Tunbridge Wells Ama. Ph. Assn.	"Some Irish Holidays." Mr. A. W. Punnett.
3.....	Cardiff Windsor Amat. Ph. Soc	Opening of Members' Exhibition.
3.....	London and Prov. Photo. Assn.	"Funnies Heard at the Dealers Counter." Mr. Ernest Human.

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at 51, Baker Street, W., on Friday, April 20. Present: Messrs. F. A. Bridge, Alfred Ellis, S. H. Fry, William Grove, E. H. Hall, P. Lankester (Tunbridge Wells), A. Mackie, D. Prodger, Edgar Scamell, Lang Sims, and R. Fellows Willson.

Letters were read from Messrs. G. P. Abraham (Keswick) and T. Rowe (Eastbourne) thanking the committee for their election.

Mr. William Grove was re-elected hon. secretary and treasurer. A discussion took place upon a suggestion of the Editor of THE BRITISH JOURNAL OF PHOTOGRAPHY that, following the lines of the recent exhibition of work of the Professional Photographers' Association of America, the Association should undertake to organise a similar exhibition, each member to be invited to contribute one work, the exhibition to be held at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY. It was finally decided to carry out the suggestion, and that a circular be issued to members inviting each to contribute an unframed picture typical of his style of work, the outside size of mount not to exceed 12 x 10 inches, or 120 square inches.

A letter was read from the Actors' Association inviting the committee to receive a deputation from that body to discuss questions of copyright in photographs of members of the dramatic profession. It was decided to invite the deputation to meet the committee on the date of and previous to the next committee meeting. The committee authorised the removal from the list of members of all those who had not paid last year's subscriptions. Attention was called to an important decision on photographic copyright, referred to in the current number of THE BRITISH JOURNAL OF PHOTOGRAPHY, but discussion upon it was deferred until a report of the trial was available.

Mr. Lang Sims brought forward the question of invitation and free sittings, and it was pointed out that in the present state of copyright law, under which, to obtain copyright in the photograph, the photographer is obliged to take the negative without receiving valuable consideration, it was impossible to deal in any satisfactory way with the matter.

THE first open exhibition of the recently formed Photographic Association for Crief and District was opened in the Porteous Hall last week. There was a large and interesting collection of pictures, including some fine examples of seascape and river scenery.



## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held April 24, the president, Major-General Waterhouse, in the chair. A paper by Mr. W. A. Scoble was read by the Secretary on the "Red Sensitiveness of Dyed Films," which detailed his experiences in photographing the infra red lines of certain arc spectra. A concave diffraction grating was used with a curved film, and as a check also a two-prism spectroscope with a flat film, a 100-volt Nernst lamp being used as a source of light for the two. The spectrum was photographed in two sections, the violet up to the orange, and thence into the infra red. Comparative curves of the sensitising action in this region were shown of all the new isocyanines, together with alizarine blue S which was found to give the greatest speed and greatest red sensitiveness, extending to wave-length 8,700 about. The great disadvantage of this dye was that the solution would not keep and the sensitising action was uncertain, even with freshly prepared dye. The final method adopted for the preparation of the dyeing solution was to dissolve one part of alizarine blue S, in 500 parts of alcohol with ten parts of ammonia, and then add 500 parts of water; the solution thus made must be carefully filtered and used as soon as possible.

Mr. C. E. K. Mees was interested to note that Mr. Scoble, like other workers, had come to the conclusion that the best red sensitiser was pinacyanol. Mr. Scoble's experience of alizarine blue S appeared to be exceptional, as no one seemed to have used the dye with any success except Mr. George Higgs, and even Mr. Scoble had to admit that it was erratic, and gave only a small proportion of good results. Mr. Mees criticised adversely the curves given Mr. Scoble for sensitiveness, saying that they were not from measurements. He deprecated the publication of guessed curves as a frequent means of spreading errors in photographic techniques.

Mr. S. E. Sheppard suggested that workers on the sensitising properties of new dyes should pay attention to recent work on pseudo-solution and the colloidal state as likely to throw light on many discrepancies.

Mr. A. J. Newton could not agree with Mr. Scoble in his experience of dicyanine, which did not possess the gaps in the green alluded to in the paper. However, the dye was too slow to be of any practical use.

Mr. C. P. Butler, referring to the different experiences with alizarine blue, suggested that the cause lay in the dilution of the dye and the use of ammonia. He thought that an examination of these two factors would lead to greater constancy of result.

The Chairman said that attention should also be given to the purity of the ammonia; the behaviour of an impure sample with the dye was quite different.

A paper by Drs. J. H. Smith and Merckens, of Zurich, was then read by Dr. J. H. Smith. It dealt with a new tissue or paper for the printing of natural colours in one operation by the bleach-out process. Dr. Smith said that the recent exhibition of colour photography at THE BRITISH JOURNAL OF PHOTOGRAPHY had shown the very widespread interest taken by the public in the subject, and had also demonstrated the difficulties in the way of the regular practice of three-colour work. It might be possible for a professional photographer to take up such work with success, but the processes at present available were beyond the powers of the average amateur. The Lumière starch-grain method was a step in the desired direction, and he (Dr. Smith) some years ago worked out a somewhat similar process, in which, however, instead of an irregular grain, he employed a geometrical arrangement of filter made in hexagons which completely filled the plate like the cells of an honeycomb. He had lately found means of putting this method into practice, and he hoped to have it at the disposal of photographers before very long. As regards printing processes, however, the bleach-out method, by its great simplicity, was quite ideal. In the past it had not been very successful. Neuhaus and Wörel had not achieved much success with it. In conjunction with Szecepanik, the lecturer had made a bleach-out tissue with separate films, but the authors had now worked out a new method of preparing a tissue at one coating, which gave greatly improved results. They had also invented new dyes which permitted of a more sensitive and permanent tissue. The exposure of the tissue was made in two stages, during the second the tissue being backed with blotting paper containing peroxide of hydrogen. This

ensured the complete bleaching of the red dye. A number of results on the new tissue were exhibited and examined with interest by those present.

A short discussion followed, in which Messrs. E. J. Wall, H. Maclean, E. T. Butler, and W. Gamble took part.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION. — On Thursday, the 19th, Mr. L. Thornton, the inventor of the new Mattos printing paper, lectured upon and demonstrated that paper. He said that from that day they were introducing further brands of the paper, and as his idea had been all along to use only English-made paper as a base, the whole of the ten grades were of home manufacture except one, No. 5, which was French, this one being of an exceedingly fine surface. The paper was now obtainable in white, cream, buff, and French grey, and, with the exception of the one already named, the raw papers were made by Whatman and Hollingsworth. The paper was as pure as it was possible to make it, being made of specially picked rags of very long fibre, and sized with pure gelatine, and he claimed to be the first maker of photographic papers which were pure English throughout. As at present issued, there was not any bronzing in the printing, and there was very little loss of depth in the toning, most workers, in fact, when first using these papers were apt to overprint. In connection with this fact, Mr. Teape (the chairman) said that he had that evening put out to print a sheet of the paper at 5 o'clock, and had the finished result by ten minutes to seven. A large number of untuned prints were here passed round, and surprise was expressed at the depth of printing, it being generally thought that they were not carried deep enough. They were, however, followed by a series from the same negatives, printed to the same depth and toned, which undoubtedly showed that the printing given had been quite sufficient to give a good print and of very soft nature, and in connection with this Mr. Thornton warned members against over-toning. For the gold and platinum bath he preferred to mix the two salts together, and said a bath so made would keep indefinitely. Salt was added to the bath because he did not wash the prints before toning, and he thought that to kill the free acid in the paper by this method, together with soda carbonate in the fixing bath, was better than washing. The following gold bath gave beautiful rich brown tones, and it would be noticed that it contained a large excess of borax:

Stock solution A:	Borax .....	180 grains.
	Soda acetate .....	180 grains.
	Citric acid .....	15 grains.
	Water .....	35 ounces.
Solution B:	Gold chloride .....	15 grains.
	Water .....	35 ounces.

Keep in separate bottles, and mix ten parts of A with two parts of B just before use. Mr. Thornton, however, greatly preferred the gold-platinum bath as follows:—

	Salt .....	45 grains.
	Citric acid .....	90 grains.
	Potass chloroplatinite .....	15 grains.
	Water .....	20 ounces.

To this was added 1oz. of the gold stock solution above. Tone and fix in

	Hypo .....	20 per cent.
	Soda carbonate .....	2 per cent.

By first plunging the prints into a 1 in 20 solution of ammonia and then toning in the gold bath, the prints would slowly tone to a pure sepia, and would not go beyond this shade of brown. Prints of old paintings were here passed round, and the nature of the paper base, together with the peculiar brown shade that had been obtained, made them scarcely to be distinguished from old engravings. By fixing alone good browns could be obtained, whilst a mixture of ammonia and hypo gave a beautiful brown tone very suitable for pictorial work and portraits. The older the paper was the better it worked and the better the tones. He never, if it was avoidable, used paper less than four weeks old. The papers were of what was known as the salted class. The chairman and Mr. Ernest Human passed round prints on the paper, Mr. Human remarking that from what he had seen and heard during the evening he had come to the conclusion that he had rather over-printed. Mr. Thornton, however, said that to his mind the prints were very fine, at the same time complimenting Mr. Human on his nega-

Mr. Hector Maclean, in proposing a vote of thanks to Mr. Thornton, said he wished personally to express his great approval of the beautiful range of tones obtained upon the paper, and he thought that they were of such a nature which would, he was sure, confer a great benefit upon the professional photographer who would only try the paper. Whilst the professional had such paper at his disposal, it was, he was sure, very unwise not to experiment with it, as he was certain that it would mean both more business and be money to them in the long run. Mr. Freshwater, in seconding, said the association were much indebted to Mr. Thornton, and he thought that the beautiful results were far ahead of any other printing-out process at present known. The chairman agreed fully with all that had been said, and added, at his opinion the paper was, without doubt, one of the best he had tried, and he was greatly surprised at the ease with which work was worked.

## Correspondence.

- \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.  
\* We do not undertake responsibility for the opinions expressed by our correspondents.

### BLEACHING BROMIDES.

To the Editors.

Gentlemen,—With reference to your reply, April 20, 1906, to R.D., on Toning of Bromides, having experienced the same difficulty myself, I should like to offer my explanation of the matter if you will allow me.

The formulæ I use is as follows:

A. Potassium ferricyanide .....	100 grains.
Potassium bromide .....	100 grains.
Water .....	10 ounces.
B. Sodium sulphide .....	50 grains.
Water .....	10 ounces.

Determined to find the reason of prints bleaching but failing to appear when put in sulphide solution, I made a little experiment, printed, developed, and fixed, six prints from one negative, same exposure, etc., for each. I then gave them half an hour's washing. Three prints I put direct, without drying, into the bleaching solution. The other three I put to dry. The three that were put in the solutions without drying, bleached all right, but when put in the sulphide solution failed to re-appear. The other three prints, when thoroughly dry, were put into the bleaching solution, washed, and then put into the sulphide solution. These three came up grand. I therefore came to the conclusion that the prints must be washed and dried before toning.—Yours respectfully, J. ALLEN.

39, Cynthia Road, Bath.

April 21, 1906.

### THREE-COLOUR PORTRAITURE.

To the Editors.

Gentlemen,—It may interest both you and your readers to know that I have obtained perfect results during the present month in the studio with an exposure of 10 seconds (inclusive), lens working at f/3.5.—Faithfully yours,

R. BECKETT AND SON.

The Grove, Hackney, London, N.E., April 24, 1906.

### NEW COMPANIES.

MAYALL and Company, Limited.—Capital, £2,000, in £1 shares. Objects: To acquire the business carried on at 126, Piccadilly, W., as Mayall and Company, Limited; to adopt agreements (1) with Lucy M. Barraud, and (2) with Lucy M. Barraud, A. Parkes, C. H. Barraud, and W. P. Parkes, and to carry on the business of photographers, photographic artists, etc. No initial public issue. The first directors (to number not less than two nor more than four) are: A. Parkes (managing director), C. H. Barraud, and W. P. Parkes. Qualification, 100 shares. Remuneration, 5 per cent. of the net profits divisible. Registered office, 126, Piccadilly, W.

## News and Notes.

ROYAL PHOTOGRAPHIC SOCIETY.—The lecture which was to be read by General Waterhouse on May 8 has been postponed, and a paper, entitled "A New Formula for Expressing Density in Terms of Exposure," by Mr. H. J. Channon, will be read in place of it.

The exhibition of work of the Birmingham Society will be opened at the premises of the Royal Photographic Society on Monday next at 8 o'clock, when an address prepared by Mr. Harold Baker will be read by Mr. P. Bale Rider.

PHOTOGRAPHY in Charity.—Always ready to assist in any charitable cause, the members of the Norwich Ladies' Camera Club have arranged an exhibition and series of entertainments on behalf of the Jenny Lind Infirmary for Children, and the inaugural ceremony took place on April 19 in the Thatched Assembly Rooms. The exhibits consist of two hundred excellent photographs, which, with one or two exceptions, will be sold and the proceeds devoted to charity. The photographs, which were artistically hung along the walls beneath the windows, were non-competitive, and included many subjects. All were excellently finished, and of a very high standard. Particularly noteworthy was a series of views from the Nile, taken by Miss Edith Willis and Mrs. Willis, the club secretary; while Miss Edith Willis also included an interesting series of photographs from Oberammergau. Some admirable views of Swiss scenery were exhibited by Miss Mary Willis, Miss A. Mace, and Mrs. Mottram. Other exhibitors included Miss Alice H. Brown, Miss Ethel Coleman, Mrs. E. T. Boardman, Miss Katie Chamberlain, Miss Emma L. Boardman, Miss Nancy Gibson, Miss Dorothy and Miss Violet Hotblack, and Miss Mary Cozens-Hardy, the subjects ranging from architecture to Broadland scenes. Although the photographic display is alone well worth a visit, the promoters felt that some other form of entertainment should be arranged for the benefit of those who were not keenly interested in the art, and, with the co-operation of a number of ladies and gentlemen of musical and dramatic taste and talent, some capital concerts and theatrical performances have been organised.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.  
\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.  
\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.  
\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

J. Jarrett, Ewart Lodge, Jamoson Road, Bexhill, Sussex. Two Photographs of the Official Inauguration of the Bexhill Electric Trams.

A. McGregor & Sons, 48, King Street, Kilmarnock. Three Photographs of Dr. A. Rolland Rainy, M.P.

E. A. Basevi, 38, Hills Road, Cambridge. Photograph of the Rev. E. H. Benson

TREATING Prints.—I shall be glad if you can inform me of any method whereby P.O.P. prints can be treated so as to make it difficult for them to be reproduced. I have not much confidence in the lay Press when it refers to photographic processes. I enclose you a cutting that has prompted me to trouble you. I shall look for your reply in "Answers to Correspondents."—JEWDRISHUS.

It has been stated that if a name or word be written across the print with a strong solution of sulphate of quinine in acidulated water that it will show when photographed, but in our experience such is not the case with gelatine plates, although it may serve in the case of wet collodion. We think the paragraph is a relic from the fifties and sixties of the last century.

FINGER PRINTS.—I have become very interested in obtaining photographs of finger prints. I should like to know what powder



is used in bringing out the image on an article, and how it is transferred to a paper and then photographed. Is there any book on the subject, and where obtained; if not, could you instruct me in any way.—B. R. J.

We have had no experience in this work, and can only suggest that the impression should be intensified by dusting some impalpable powder, such as bitumen, over it. The surplus having been dusted off, that adhering to the impression could be fixed by heat. In the case of finger prints being made, we may quote from Dr. Francis Galton's directions as follows: Ink a piece of glass plate with printer's ink by means of a printer's roller, applying the ink very uniformly and thinly. The coat of ink should be so thin that when the inked plate is held between the eye and the light its tint should be of a smoky yellow, very far from black. Press the finger first on this inked glass and then on a porcelain palette, such as is used by painters in water colours. The extreme whiteness of the palette contrasts well with the impression upon it, and makes photography easy.

**QUICK CHANGE.**—We should say the market value of the apparatus is very small. You might dispose of it to a seaside firm or travelling photographer.

**PLATINUM.**—1. Could you kindly let me know if matt albumen paper toned in platinum bath *alone* is permanent? Bath used is potass chloroplatinate and phosphoric acid. 2. Also what is the cause of grainy sepia platinum prints? Is it due to paper getting too dry or thin negatives, even if printed in subdued light? I use developer at proper heat, 150-160 deg. Would chalky water cause it?—E. P. L.

1. The results should be perfectly permanent if the usual precautions for platinum toning are observed, chiefly ample washing between toning and fixing. 2. Too cold a developer is the most usual cause. A water containing lime is not likely to give rise to trouble if the precipitate which is produced by the oxalate is allowed to settle.

**RELIEF NEGATIVE.**—Some years ago I saw a small fine plaster medallion cast from a special photographic negative of a man's head and bust in beautiful relief. May I ask if you know of a business firm who produce such medallions or who will produce the deeply relieved negative from which they can be cast?—F. BEWLEY, 24, Bewley Street, York.

Several methods of producing reliefs have been brought, but none which is photographic throughout. Messrs. Marion, we believe, still supply prints in relief, but perhaps some of our readers can reply to our correspondent's specific question.

**THE BLEACH-OUT COLOUR PROCESS.**—In the number of April 13 of THE BRITISH JOURNAL OF PHOTOGRAPHY, page 282, I see that Drs. Smith and Merckens, of Zurich, have discovered a process for printing coloured photographs, and you speak of bleach process. Would you be kind enough to say to your readers in what the bleach process consists?—READER AT BRUSSELS.

See the report of the Royal Photographic Society's meeting on another page.

**RETOUCHING (Reply to H. F.).**—Your work is fair considering the extent of your experience, and in time you should become a good retoucher. In every case prints before and after retouching should be sent, otherwise it is impossible to judge how the character and likeness have been retained. Your large head is the best of the series, but be careful not to pinch the corners of the mouth, and also see that the heavy shadows round the eyes are considerably lightened, when excessive, as in this case. Your touch on the two other samples sent is too equal in pressure and insufficiently blended, and, therefore, spotty in effect.

**CLOUD BACKGROUNDS.**—I shall be glad of information through your correspondence as to the following:—What dyes or chemical preparation are used for making cloud backgrounds? What I have seen used has been of a purplish shade, producing deep shadows and soft graduation, and applied with a brush as used for cleaning boots.—ERNEST F. USHERWOOD.

Mix together whiting and lampblack to the shade desired, and then add to the mixture about a third of its weight of dextrine strain unbleached calico on the frame, and make thoroughly wet. Lay the frame on the floor and dust the mixture over, and well work into the fabric with a clothes or

shoe brush. By making two mixtures, one containing more black than the other, they may be blended with the brush so as to produce good clouds. In place of the whiting and lampblack any dry colours may be used.

**STAINING STUDIO FLOOR.**—1. I am about to furnish a new studio, and want the floor done with a centrepiece with the wood stained a nice dark colour, forming a broad border round the studio. Could you give me a receipt for a cheap, easy made stain? I think I remember of you giving one in the JOURNAL a couple of years ago. I think it was simply an acid or some chemical in water to stain a dark walnut colour. If you can give this would you kindly say it it would be best to be varnished or polished after staining? 2. Would a piece of red felt do for centre of floor, as I do not want an expensive carpet, or would linoleum be better with the dark stained border?—"STAIN."

A good stain for the purpose is:—Brown hard varnish,  $\frac{1}{2}$  gallon; methylated spirit,  $\frac{1}{2}$  gallon; burnt timber in powder, 1 lb.; burnt sienna, 1 lb.; and lampblack, 2oz. to a quarter of a pint, according to the shade desired. Mix thoroughly. After applying it is better to varnish. Wood stains are to be purchased at most oilshops, and are very cheap. A useful little book, price 6d., is published in the "Useful Arts and Handicrafts" series, or "Dyes, Stains, Varnishes, Etc.," Dawbarn and Ward, Farringdon Avenue. The number in the series is four. You will do well to get it. 2. We should prefer linoleum, in preference to felt, for the centre, because on that the camera stand would travel much better than on the looser fabric.

**GELATINO Chloride Paper.**—I have been trying to coat small quantities of P.O.P., and after floating the sheets on the sensitising tray I notice numerous small, bright points showing like specks of silver on the faces of the coated sheets. Some of these apparently dry out, but some larger specks remain. Could you kindly enlighten me as to what they really are, and give me a remedy? Looking at the sheets immediately after cooling in front, the specks are not noticeable, but upon holding up to gaslight at an angle they appear like bright points upon the face of the paper, the sheets with this exception being perfectly clear.—BARYTA.

This defect is due, we believe, to minute air bubbles, which are either in the emulsion or cling to the surface of the baryta paper, and when the paper is lifted off they rise to the surface, but cannot escape, because the gelatine has set there. If the emulsion is allowed to stand some little time before the paper is floated and the surface skimmed, we think this trouble may be got over.

**H. HARRISON.**—The terms mentioned on p. 676 of the "Almanac" apply in the case of a sitting where the copyright is to remain with the photographer.

**RETOUCHING (reply to E. M.).**—Very good, yet open to improvement. For this paper and subject a bolder and softer grain would give a more effective result and overcome the general hardness of the working. The high light on cheek is too much like a lamp ray on a dark road, and should be better diffused. The lighting by face line gives a rather swollen appearance to the cheek, and the chin calls for nicer modelling. With care and attention to every detail there is no reason why you should not become a first-class retoucher.

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TWILIGHT

R. DÜHRKOOP.





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## SUMMARY.

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ect registration, with a portrait made in the studio, has been  
ked out by a Swiss inventor, Herr Dischner. Only one plate  
sed in obtaining the composite negative. (P. 346.)

t the Northern Exhibition at Manchester the two first awards  
e fallen to Mr. R. Dührkoop, the second going to the picture  
"Twilight," reproduced last week in illustration of the exhibition  
Dührkoop's work now being held at these offices. (P. 351.)

he copyright case of Stackemann v. Paton, recently heard in  
High Court, puts a new construction on the term "good or  
able consideration." Mr. Justice Farwell held that certain  
essions to the photographer may be "good consideration."  
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Ve regret to announce the death of Mr. William Grove. (P. 345.)

Ve give the report of the discussions at the Convention of the  
S. of New York on free sittings and school rates, etc. (P. 347.)

fr. Pennell at the Society of Arts last week was good enough  
say that "all artists were agreed that three-colour work had  
ays been rubbish and always would be." (P. 342.)

achine for reproducing the tones of a photograph in straight  
s is among the patents of the week. (P. 353.)

ow to use a pendulum for measuring shutter speeds. (P. 350.)

## EX CATHEDRA.

### Mr. Dührkoop at Manchester.

We have to congratulate Mr. Rudolf  
Dührkoop on securing the first two  
awards at the Northern Exhibition at  
Manchester. The first goes to a picture which we do  
not recognise by its title, but the second falls to the indoor  
portrait study of "Dämmerung," or "Twilight," which we  
reproduced last week by way of providing a souvenir  
of the present exhibition of Mr. Dührkoop's work which  
we are holding at these offices. By one of those fortunate  
chances which seldom fall in the path of the technical  
journalist, the copies of THE BRITISH JOURNAL OF PHOTO-  
GRAPHY containing this reproduction arrived in Manchester  
a few hours before the judging. We are afraid we cannot  
lay the flattering unction to our breasts that the incident  
was a specimen of what Lord Curzon calls "intelligent  
anticipation of events before they occur," but we have had  
the satisfaction of knowing that Manchester was able to  
turn to its B.J. for a review of Dührkoop's work and some  
particulars of the man at least ten days before any other  
photographic paper could print a line upon these topics.  
We may add to the notices which have already appeared of  
the Dührkoop Exhibition at our offices that even apart  
from the photographs, the selection of mounting papers  
employed by Mr. Dührkoop have been considered by some  
visitors as deserving of a close study. It may also interest  
our readers who have visited the Exhibition to know that  
the Hamburg Corporation have awarded a gold medal to  
Dührkoop for his collection of portraits, "Men and Women  
of Hamburg in the Twentieth Century." The issue of  
"Das Atelier" which makes this announcement reproduces  
fifteen of the 200 portraits which are to be seen in a  
portfolio at the exhibition at our offices.

\* \* \*

### The Lumière Colour Process.

A letter from M. Leon Vidal informs  
us that he has again visited Lyons, and  
that MM. Lumière were kind enough to  
show him a series of thirty or forty  
lantern slides by their new colour process, of which he  
speaks most enthusiastically as to the results. The latter  
included landscapes from nature, still life, interiors, sun-  
sets, and other scenes. In one Alpine view taken at  
Châmoûnix the summits of the mountains were covered  
with snow, which showed up against a brilliant blue sky  
flecked with white clouds, so that our correspondent says  
"it is impossible to conceive of its being rendered better."  
He promises a big future for the process, for, having been  
present at the development of a plate, he testifies to the  
simplicity and certainty of the operation. This plate had  
been made ten months, and was exposed on the day that  
M. Vidal saw it developed. The development is the same  
as with all other plates; the negative is then reversed,



developed in white light, and fixed. After washing and drying, the image is seen in all its colours. When examined in the hand there is no appearance of grain, and even when projected it is difficult to see the grain. Apparently the preparation of these plates has been so far advanced that it is now merely a matter of routine. This makes a tremendous step in advance, for all the colours are faithfully reproduced in one exposure on one plate.

\* \* \*

#### Picture Postcards.

In a recent paper by Mr. Frederic T. Corkett read before the Society of Arts some rather startling figures with regard to the picture postcard trade were given. It appears that in 1903 no less than 613 million cards were posted in Great Britain alone, while the total for Great Britain, Germany, Japan, and the United States was over three thousand million. The numbers have no doubt increased since 1903, and it is interesting to note that of the number now published in Great Britain two-thirds are of photographic origin, one firm alone issuing a million bromide cards a week, mainly of theatrical celebrities. It appears that the 2d. bromide cards and three-colour reproductions have the greatest popularity, though they are not the cheapest. The lecturer remarked that some of our manufacturers use a fourth printing in the case of the colour cards, which fourth printing, if carefully done, pulls the subject together and greatly benefits it. But he had found a great tendency to overdo this fourth printing, which requires very careful adjustment. British collotype cards appear to fail to reach the standard of the German productions by the same process, and Mr. Corbett is of opinion that the best work is none too good for the public who always appreciate quality better than cheapness.

\* \* \*

#### Mr. Joseph Pennell on Three-colour Work.

In the discussion on Mr. Corbett's paper Mr. Pennell made some remarks on three-colour work that will no doubt be received with mixed feelings by three-colour workers. He said: "The result of the reproduction of the old masters by the three-colour process was absolute rubbish; in fact, all artists agreed that three-colour work had always been rubbish and always would be." We have some recollection of certain artists expressing quite different opinions. Mr. David Murray, R.A., for example, quite recently said that he had "found great delight" in Cassell's publication, "The Nation's Pictures." He did not say the colours were perfect, but they served to recall the actual pictures to those who had seen them. "Some of the colour reproductions were extremely beautiful," he added, and this emphatic statement does not at all agree with Mr. Pennell's sweeping assertion that all artists are agreed that three-colour is always rubbish, nor with the rash prophecy that it always will be rubbish. Plenty of rubbish has been produced, but Mr. Pennell is very unfortunate if this is the only class of three-colour work that he has come across. There is also plenty of rubbish produced in the way of painting, but we do not judge the value of the craft of painting by the rubbish. As to the particular use of three-colour work in recording the work of either the old masters or the new, it is undeniable that this modern method of delineation in colour has already achieved notable successes, even though the process is not yet brought to perfection. As records many three-colour results are superior to laboriously produced copies made with the brush, for an expert copyist is seldom a good artist, while a good artist will seldom be a faithful copyist. We once met a man who had devoted his life to the copying of one picture, Leonardo di Vinci's "Last Supper." For many years, he told us, he had only pro-

duced copies of that picture, and therefore knew every detail of it; but when we compared his latest copy with the original there was so little real correspondence that we could barely regard it as a copy at all. It was of Leonardo as seen through the medium of the copyist, of Leonardo's touch, drawing, and colour were all absent from the copy, though it was the work of an expert of many years experience. Monochrome photographs of the two pictures are before us as we write, and the differences are marked. The photograph of the original is of much greater interest and value than that of the copy, and a good three-colour photograph of the original, if up to the standard of the best now obtainable, would, in our opinion, be of much greater artistic value than the copy itself, though it might cost fewer pence than the latter would pounds.

\* \* \*

#### Strenuous Press Photography.

The Titanic struggle between the Russians and Japanese in the war which is now almost forgotten—so soon is a great event blotted out by its successor—has had for one of its effects the issue of quite a small library of books illustrated and otherwise; but perhaps no volume gives so graphic a description of the whole course of the war from the departure of the Russian Embassy from Tokyo to the assemblage of the peace deputies at Washington, as a book of photographic reproductions published by "Collier's Weekly" under the editorship of Mr. James W. Hare, by whom a very large number of the photographs were taken. Mr. Hare, who is a son of Mr. George Hare, the veteran camera maker, was with the Japanese throughout the campaign for "Collier's," and (equipped with the war correspondents) carried his life in his hands over and over again in the use of the cameras with the firing line. The series of photographs which he has now brought together are more eloquent than words, putting before one the grimness and tragedy of war brightened by occasional examples of its humour. There is nothing to throw light on the heroic methods which must have been taken to secure many of the negatives save a word of acknowledgment that the "work was greatly facilitated by the use of the films and developing machines of the Eastman Kodak Company."

\* \* \*

#### The Tanning of Gelatine in Development.

A correspondent has called our attention to the fact that the paper by MM. Lumière and Seyewetz on page 285 of our issue for April 13 is confirmatory of one by Messrs. Haddon and Grundy which appeared in our issue for June 5, 1896, page 356, entitled "The Cause of the Relief in Gelatine Negatives," in which they tested the tanning properties of several of the developers. As a matter of fact, the title of the former paper might well have been used by Haddon and Grundy, for their paper is better thus described than by the title they used. With regard to the non-tanning action of glycin and paramidophenol, Haddon and Grundy infer that their oxidation products have no tanning action and are colourless, and that they do not oxidise when exposed to air even in conjunction with an alkali. In order to prove whether the oxidation products of these two developing agents did tan when oxidised, they used bromine as the oxidising agent and then on driving off excess and neutralising the free acid the dark brown solutions rendered gelatine insoluble even in boiling water, after only a few minutes' action. Whilst the well-known French chemists' researches include rather more developing agents, it is a matter of regret that they did not refer to the work of Messrs. Haddon and Grundy.

### "GOOD OR VALUABLE CONSIDERATION."

PRECEDENT as are the provisions of the law of copyright in literary and artistic works, a new source of doubt as to the precise position in which the photographer stands respecting his copyrights is created by the judgment in the recent case of *Stackemann v. Paton*, heard in the High Courts before Mr. Justice Farwell on April 4. Mr. Stackemann, the plaintiff, against whom judgment was given, took a very pessimistic view of the ruling of the learned judge in a letter which appeared in our issue of April 20. The case is one which certainly puts photographers on the *qui vive* as to the validity, in the eyes of the law, of practice which they have been accustomed to look upon as beyond question. Yet a consideration of the judgment will show that at the position taken by the learned judge is not as adverse as it looks at first sight. Nevertheless, it supplies the strongest warning that photographers must leave no precaution untaken in safeguarding their position regarding copyright in transactions in which copyrights created by them may be of value.

The case, according to the reported evidence, is as follows:—The plaintiff, Mr. Stackemann, trading as the Photographic Tourists' Association, was in the habit of taking photographs of boys' and girls' schools in various parts of the country. His method was to cause his aveller to pay a visit to the school, requesting permission to take series of photographs solely at the firm's risk and submit proofs. On permission being given, the photographer attended and obtained a series of interior and exterior views from the negatives of which proofs were submitted and copies supplied to the order of the proprietor of the school. The Photographic Tourists' Association also printed and supplied prospectuses containing reproductions of the photographs, and they relied on one source of their profits on the sale of such prospectuses. The two photographs which led to the action were each taken in this way. One was the exterior of a preparatory boys' school at Harrow, where a series of photographs were taken, including several interiors of rooms, a group of boys in running costume, and the boys' cricket eleven arranged in the field as if playing a match. In the case of the girls' school at Weston-super-Mare, the series included a photograph of some of the pupils in theatrical costume, and the interior of one of the bed rooms.

These two photographs subsequently appeared in advertisements of the respective schools published in *Paton's List of Schools, 1905*, the proprietors of the schools having sent to the publishers photographs taken by the plaintiff, from which they (the publishers), had made half-tone blocks which were printed in the list. At the time of the publication of the List the plaintiffs had not registered the copyright in the photographs, but they had afterwards done so, and the infringement which led them to bring the action was the subsequent sale of one copy of the List.

The point at issue in the case was whether the plaintiff had, or had not, received a good or valuable consideration for taking the photographs. If he had not, the copyright belonged to him; if he had, the copyright was the proprietors' of the school. This follows from the important proviso in Section 1 of the Act wherein the author of copyright is the owner also, *except*:—

"the negative of any photograph shall be made or executed for or on behalf of any other person for a good and valuable consideration, the person so executing the same shall not retain the copyright thereof unless it be expressly reserved to him by an agreement in writing, signed by the person for or

on whose behalf the same shall be so made or executed, but the copyright shall belong to the person for or on whose behalf the same shall have been made or executed."

From the evidence in the case, it is seen that no monetary consideration was made to the photographer for the taking of the photographs in the first instance, and therefore, according to all precedents in the courts, the copyrights in the photographs were the photographers'. The learned judge, however, laid an opposite construction on the evidence. In his opinion, the act of admitting the photographer to the school and permitting him to take photographs on the chance of selling them to the proprietors was a good consideration. He held that the fact of the photographs being made without any obligation to purchase did not affect this view of the case. Such a provision might be introduced into any contract, and he was not able to believe that it was the intention of the parties that the plaintiff should be allowed to sell copies of these photographs to the public. Mr. Justice Farwell thought that the case was not on all fours with that of *Ellis and Marshall (1895)*, where it was held that the sitting given by Miss Mary Moore to Mr. Ellis was *not* a valuable consideration, and where it was the intention of both parties that the photographer should have the copyright. In the present case it was held that the concession to Mr. Stackemann was a "good" consideration, and a judgment was given for the defendant.

This judgment, the learned judge pointed out, was not inconsistent with those in *Ellis v. Marshall* and in *Boucas v. Cooke*, though it is difficult, we must confess, for a layman to reconcile the last ruling with the two previous ones. Nobody will suppose that the concessions made to the plaintiff by the school proprietors were as valuable in a monetary sense as the permission granted by Miss Mary Moore to Mr. Ellis. Yet according to the judgment, the latter was not a good or valuable consideration, whilst the concession to Mr. Stackemann was at least, a "good" consideration. The learned judge, unless we are mistaken, is the first to draw this distinction between "good" and "valuable" consideration. And the only deduction to be drawn from his remarks are that the monetary value has nothing to do with determining the existence or otherwise of "consideration" to the photographer. In the *Ellis* case there is no valuable consideration, because the parties were agreed as to whose the copyright was to be. In *Stackemann v. Paton* there was "good" consideration because it was inconceivable that the photographer should have leave to sell copies of the photographs. We cannot help feeling that this is a very nice distinction indeed. The only consolation we can extract from it is that it clearly inculcates the necessity of there being, in such transactions, a precise understanding in writing, as to the proprietorship of the copyright. This might be done by getting the sitter, at the time of sitting, formally to assign the copyright to the photographer. This transference might be recorded on a simple printed form something to this effect:—

I, the undersigned, hereby assign the copyright in the photograph—or photographs—taken to-day of me by Mr. .... to him.

Signed.....

If practice be made of such assignment, the agreement, if stamped with a sixpenny stamp, could be produced in court as evidence. Such is the lesson of the recent case which unsettles, if it does not disturb, the position of photographers in regard to the copyright in photographs taken at invitation sittings.

There is one other lesson which the plaintiff in the case



we hope will pardon us for alluding to. It seems to us that the action was a tactical mistake. The damage which the plaintiff sustained by the publication of the two photographs in the defendant's list was a very slight one. We do not know to what other quarters the plaintiff looked for profit from his alleged copyrights in the photographs beyond the sale of prints and prospectuses to the schools, but we think it very unlikely that action would have been taken by the proprietors of the school against a paper which had reproduced a photograph supplied by the plaintiff. As a

point in tactics, and making the natural assumption that the plaintiff was satisfied as to his proprietorship of the copyrights, it would have been well to have overlooked the use by the school proprietors of the photographs in their own advertisements. The opposite, however, was done, with the result we have stated above. The case is certainly as "nice" as one as we can recall in copyright law, and we shall be anxious to notice the judgment should it come before the Court of Appeal.

## THE USE OF THE SPECTROSCOPE.

### II.

THE most convenient form of prism spectroscope is undoubtedly the direct vision instrument, for it is not only small, but can be fitted to any camera, or may be affixed to any light-tight box to which a dark slide can be fitted.

To use a phrase which is somewhat of an Hibernianism, the prism in these instruments is built up of three or five prisms, two of flint glass and three of crown, or one flint of very wide angle and two crowns. The explanation of the action of this train of prism is that one particular ray passes straight through, and this may be the green E or the yellow D ray, whilst the other rays are refracted to both sides of it, and the spectrum is therefore seen in a straight line with the slit.

I am not aware whether such prism trains are obtainable in England, though they probably are, but as a complete direct vision spectroscope can be obtained at prices varying from one to three pounds from Penrose and Co., it is hardly worth while fitting one up for oneself.

Between the prism and slit is, of course, a short focus collimating lens, which acts in precisely the same way as that described in the last paper—that is to say, it renders the rays parallel before falling on the prisms. For visual work there is generally a small eyepiece lens fitted, but for photographic work this is not necessary. Some of these spectroscopes have a supplementary tube carrying a very fine photographic scale, which is useful for visual work, as it can be shifted by means of a screw so as to make any number coincide with a given Fraunhofer line. This, however, I do not recommend; it adds to the cost, it is useless for photographic work, and with a little practice one soon recognises the principal lines at a glance, so that a scale is quite unnecessary.

Some also are fitted with what is known as a comparison prism, which is a total reflection prism that covers half the slit, so that one can obtain two spectra of different light sources at the same time. Whilst this is useful, it is not an essential, for one can obtain, as will be seen later, four or five spectra on one plate, and considering the present price of dry plates there is no necessity to be sparing of them. This prism, however, acts in the following way: When the spectroscope is directed to the sky and the comparison prism covers half the slit, our spectrum is just half the width it would be if the whole of the slit were used; but we can place a bunsen burner by the side of the spectroscope and in line with the comparison prism, and we shall obtain then, above or below the spectrum of daylight, the spectrum of any salts burnt in the bunsen; or if we use a vacuum tube we can obtain the bright lines of the gas in the tube. This enables the coincidence of lines to be very easily compared.

These spectroscopes can be obtained with a flange which can be fitted to any camera, but it will be found much more convenient either to build a wooden box specially; or one

of the old wood sliding-body wet-collodion cameras which can sometimes be picked up very cheap, will answer perfectly. In case, however, anyone wishes to make one, the following dimensions will serve: Extension of camera, 7 in., and the other dimensions 5 in. and 4 in. respectively, or such as will allow of any quarter-plate dark slide being fitted. The front must, of course, be made to shift either up and down or sideways, according to whether the longer side of the plate is horizontal or vertical.

There is one important point, and that is that either the front must possess considerable shift, or else the dark slide must be shifted, if more than one spectrum is required on the plate. It is immaterial which is adopted, but for those who are somewhat clumsy with carpenters' tools the former is preferable. The exact size of the front in such a case can only be calculated out after seeing the width of the spectrum and how far it is necessary to shift the spectroscope, so as to leave a narrow unexposed line between two adjacent spectra, but this it is easy to do by examination of a sheet of ground glass placed in the dark slide, and if the position of the front be marked for each movement it will be very easy to place it always in the same position.

There is one other point which is important. The axis of the spectroscope must not be placed centrally, as all our photographic lenses are, for the extension of the violet end of the spectrum is much greater than that of the red, and the consequence is that in most cases if it be placed central the red end will be cramped up close to the middle of the plate and the violet stretched beyond the other edge, and therefore lost. As a rule the spectroscope should be fixed about one inch above the centre of the front to one side or the other, or, of course, above or below it, according to the position of the longer side of the plate.

Mr. Ives made his camera with an angled back, so as to obtain a spectrum of the same width and sharpness throughout, and this is advisable, though not essential, for one soon comes to recognise a standard action in the violet, which is the end that must be swung out more than the red.

There is also one other accessory to this spectroscope, and one that I also advise for all forms, and that is a condenser in front of the slit. In Tallent's spectroscopic camera, which will be referred to later, this takes the form of an ordinary magnifying or reading glass mounted in an open framework, but the form I have used is a spherocylindrical spectacle lens of 5 in. focus mounted in an ordinary P.O.P. cardboard tube. With an ordinary lens the surfaces of which are segments of spheres the spot of light thrown on the slit is circular, whereas if a lens one surface of which is ground to a cylinder be used, and this surface be presented to the source of light, one obtains practically a line of light on the slit, and it is only necessary

make this line a little wider than the slit to obtain very satisfactory illumination. The idea of enclosing this condenser tube is merely to shut out side light, so that one can take the camera out into the open and point it to a white wall or blue sky, or work in a room in full daylight, and use a bunsen or incandescent gas flame, and not have stray light reaching the slit. This is a refinement, but as the condenser and tube costs complete not much more than a bellows it is worth using.

Practically these are the only two prismatic spectrographs that can be used for ordinary work. As I have already said, these spectrographs are intended for beginners and for general photographic work. For such work as the recording and measurement of wave lengths, the spectrum analysis of chemicals, or for the study of the infra-red or ultra-violet spectrum, then much more elaborate instruments are required, and those who want to undertake this work will know as well as or better than I do where to obtain the necessary data and instruments, and possibly also the money wherewith to buy them.

There is one very grave disadvantage in the use of prismatic spectrographs, if the user is ignorant of the particular point. In all spectra formed by a prism or prisms there is a cramping together of the red end of the spectrum and an undue extension of the violet, the result being that unless this particular distortion is known and allowed for totally misleading conclusions can be drawn from such spectrograms. There is also an undue absorption of the violet or ultra-violet end of the spectrum, which varies with the character of the glass. Some years ago when I obtained from Schott, of Jena, seven small prisms of a particular heavy flint glass, which gave great dispersion, intending, in conjunction with a friend, to make an automatic spectroscopic instrument. The prisms as we received them were of a diamond slit—that is, roughly cut to shape by a diamond wheel—but required accurately polishing to the required angle. We started, and after nearly six months' hard work, for we knew nothing about prism polishing, we had something that satisfied us. We set up our train of seven prisms, and then found that even with sunlight we could barely see the G line, so great was the absorption in the violet, and that spectroscopically we "got no forrarder." I occasionally look at the only one of the prisms that I have now left, and smile when I think of our wasted labour, to say nothing of my money.

With most direct vision spectroscopes the absorption of the

ultra-violet is pretty complete up to the end of the visible violet or the H line, and with some considerably weakened even beyond this; but provided one is content to accept the results given by increasing exposures on a plate, which is accepted as the standard, then there will be no difficulty in reading other results on other plates if the exposures be adjusted to their speeds, and the question of orthochromatising is in hand. If, on the other hand, the adaptation of yellow screens be undertaken, then this absorption of the ultra-violet may totally vitiate the results, for a yellow dye may be found which will give the required effect in the spectrum and yet fail in that it lets through that ultra-violet, which is absorbed by the spectroscope.

With the direct vision spectroscope no lens is required to throw the spectrum on the plate, though if one be used much sharper definition will be obtained, but as this lens introduces not only extra expense but also more glass and consequently greater absorption of the ultra-violet, it is better to omit it.

Having got so far, we may now consider one or two points which should be observed in practical work, and which apply both to the prismatic and diffraction grating spectroscopes. The first point as to the slit width. In Tallent's spectroscopic camera the slit is provided with a scale, and it can therefore always be opened to the same division, but for a slit which has no scale the best thing to do is to cut a very narrow strip off the side of a film negative, a cut film, not rollable; then open the slit, insert the strip of celluloid, and then close up the jaws till they just grip the celluloid, but so that it can be just pulled out. The slit is then just wide enough to obliterate all the lines except little *b* and *F*, which are seen very faint and diffused. Another method, which is visual and less certain, is to open the slit fairly wide, then close it down till the lines are distinctly seen, and then open up again till the lines just disappear. There is in this latter method more chance of error than the former, rough though this is.

Sometimes it will be found that one or more distinct black lines will appear running right through the spectrum, and not across. These are invariably caused by dust on the edges of the slit. The best way of cleaning the same is to take a small piece of soft wood, such as a match, pare the end down to a fine wedge, and insert between the jaws of the slit, and close the latter down till they grip the match fairly tightly, and then move the match up and down. This clears off the dirt.

E. J. WALL, F.R.P.S.

**DEATH of Mr. William Grove.**—It is with the very greatest regret that we record the sudden death on Monday last (April 30) of Mr. William Grove, the well-known photographer, of Baker Street. Mr. Grove had been suffering from a cold and had not been feeling well for some little time past, but there was no reason to suppose that his slight ailment was to take a suddenly fatal development into pneumonia. The deceased gentleman was of a quiet, reserved disposition, but willing on all occasions to give his service freely for the good of the profession of which he was an old and honourable member. He had been secretary and treasurer of the Professional Photographers' Association since its formation, and also served the Copyright Union in the capacity of treasurer. He will be missed from ranks where he rendered these public services, no less than from those where his personal qualities had made him a wide circle of friends. The funeral is fixed for Friday at Highgate Cemetery.

**THE "Barnet" Easter Competition.**—The following were the successful competitors:—First prize, G. H. Haycox, Worcester; 2nd prize, Easton Lee, Newcastle-on-Tyne; 3rd prize, W. J. Jones, Treatham Hill; 4th prize, G. A. Towers, Rugby. Honourable Mention: G. H. Haycox, A. M. Poole, S. W. Shore, John Lax, J. R. Richardson, J. Bannatyne, Rev. G. Larder, A. G. Thistleton, E. J. Jarvis, Thomas Summerson, R. Fraser, C. H. Jackson, C. E. Hether-

ington, Thomas Young, G. H. Kemp. Messrs. Elliott write that the general quality of the work was very much above the average, and gave a little more difficulty in placing the competitors than is usually the case. They will be announcing further competitions at an early date.

**MADAME LALLIE CHARLES**, society photographer, of Regent's Park, we gather from the papers, has experienced the enviable sensation of reading press notices of her decease. She took the course which, we believe, is now expected of all persons placed in this position. That is to say, she wrote stating that the report was "grossly exaggerated." Mark Twain scarcely guessed, perhaps, how soon his phrase would become universal.

**DESCENDING** a steep bank at Chester-le-Street one day last week, a Bensham photographer named John Sidaway collided so violently with a trolley or roller that he was rendered unconscious, and one of his legs badly injured.

"A New Terror to Aliens" is the phrase which the "Daily Chronicle" kindly refers to the new regulation made by the Secretary for Scotland that any alien awaiting deportation, who is confined in any prison until the Secretary of State has decided upon his case, may be photographed and measured in the same way as a convicted criminal prisoner.



## NATURAL BACKGROUNDS IN STUDIO PORTRAITS.

THE combination of a suitable background representing some natural scene in the portrait taken in the studio is more in demand from the photographer than may be thought by those who hear only the outcry against backgrounds of all kinds, except the severely plain. True, many good photographers have discarded all backgrounds but those of plain cloth, and with good results. Yet that is not to say that a background full of detail should not be fitting to a portrait. One series of portraits which occurs to us as we write is that of British mountaineers taken by Messrs. Elliott and Fry, in which

paintings. The transparency is held in a frame within the camera by means of which it can be pressed film to film into contact with the plate in the dark slide when the shutter of the latter is withdrawn. The attachments to this carrier frame permit of it being turned down on to the bottoms of the camera, as shown in Figure 3, the adjustment being made by the lever outside the camera. This movement, from horizontal to a vertical position in contact with the plate, is made with certainty in an instant. With the exception of a black and a white background, there is no other special apparatus required.



Fig. 1.—Arrangement of the Lighting for the First Exposure of the Sitter



Fig. 2.—Position of the Transparency When Making the First Exposure Under the Lighting Shown in Fig. 1.

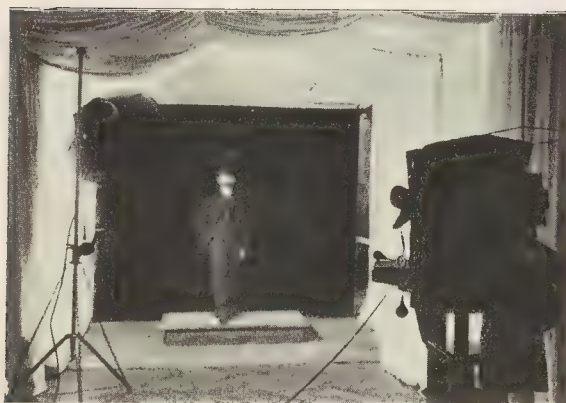


Fig. 3.—Arrangement of the Lighting for the Second Exposure of the Sitter.

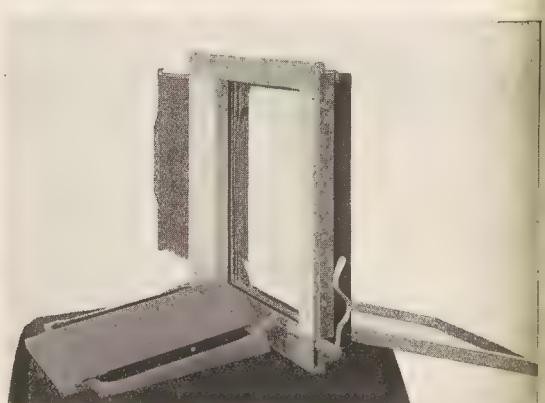


Fig. 4.—During the Exposure Under Lighting as in Fig. 3 the Background Transparency is thrown forward as shown here.

the subject is chosen against an appropriate background of mountain or pass. We are not sure, but we believe in these photographs the man was photographed against a plain ground, the scene afterwards drawn to suit, and the two combined in a new negative. Such a method, and others which are known and practised, are cumbersome and expensive in comparison with a new system which we here describe and illustrate. It is the invention of a Swiss photographer, Herr Dischner, and has been brought to our notice by Dr. J. H. Smith, of Zürich, the holder of parti-proprietary right in the English and other patents. In the Dischner method the background, which is to appear in the photographs, exists only as a positive transparency on glass, the negatives for such transparencies being made from natural scenes, or, if thought desirable, from drawings or

The *modus operandi* will be understood from the figures. The sitter is posed in the ordinary way, his position on the focussing screen being viewed with the transparency in position, upside down as shown, in order that he may be disposed in harmony with the background. He is then illuminated from behind through a white screen, and a very brief exposure given with the background in contact with the plate. The result is an impression of the background, except where the image of the sitter falls; here the plate remains unexposed. A dead black ground is then let down, the studio (artificial) light switched on to illuminate the sitter in the usual way, and a second exposure made without the sitter having moved from the position first assumed, and with the background transparency thrown back. The total time of the two exposures, is

pointed out, need not be more than three seconds, when the operator and his assistant are accustomed to working the process. The results by the new method, which by courtesy of Dr. Smith we saw in this issue, speak more than columns of words for the success of the process, and for the highly effective use which can be made of it. The life and movement of a big city or river introduced as a background to portraits which need suffer from none of the tech-

method will permit of scenes being photographed in the studio against the scenery actually used on the stage. The separation of the operations of photographing the actors and the *mise-en-scène* will benefit both. The final result of combining the two through the medium of the scenery-transparency should be more realistic than a group without scenery taken in the studio, and technically much superior to the actual scene photographed on the stage.



Figs. 5 and 6. Reproductions of Photographs made of Sitters in the Studio with Introduction of the Natural Background by the Dischner Method.

cal defects of those taken out of doors, introduce a new note into photographic portraiture, and provide facilities by which photographers of all classes should be able to benefit. It is surely superfluous for us to point out how the photographer, say in a seaside resort, will be able to represent his sitters on the sands, or in the vicinity of the "show place" of the district miles, perhaps, from the town. It is conceivable also that in theatrical photography the

We may add that the method above described is patented in all countries, and therefore is not available for use by a photographer, privately even, under penalty for infringement. The apparatus, and appurtenances, however, are to appear on the market before long, and those who feel interested in the process may address enquiries to the representative of Dr. Smith's interests in this country, Mr. Oliver Dawson, 254A, High Holborn, London, W.C.

## AMERICAN PHOTOGRAPHERS IN CONFERENCE.

### THE CONVENTION OF THE PROFESSIONAL PHOTOGRAPHERS' SOCIETY OF NEW YORK.

FOLLOWING on the presidential address of Mr. Dudley Hoyt, before the Convention in New York of the P.P.S. of N.Y., we are able to give this week from the "Photographer," the official organ of the Society, a report of the discussion of some of the questions in the light of which the Society had issued to its members some weeks before the Convention. It will be seen that the discussions, as is most inevitable in such cases, leave the question pretty much where it was, but the views of the Americans will nevertheless be found of serving of perusal by English photographers. The problems to be solved are common to both countries, and it may be beneficial for

certain of them to be discussed in our own columns in their special relation to conditions in this country.

An error of a single letter in our notes of last week led to an apparently grave charge against our good friend, Mr. Pirie Macdonald, of which we hope we were judged innocent by anyone who noticed it. The employment of "his" instead of "its," made us suggest that Mr. Macdonald was using the Professional Photographers Society for his private ends. The exact opposite is the case; Mr. Macdonald has devoted a large share of his time and earnings to the ends of the Society.

#### FREE SITTINGS.

Under what circumstances is the photographer warranted in offering a free sitting?

Mr. Gessford: I believe the photographer is warranted in offering a free sitting under all circumstances. It does not necessarily imply because you give a free sitting that you are willing to give away a

dozen or two photographs. Very often a free sitting results in a deal amounting to 30 dols. or 40 dols. That is my own experience.

A Member: I may give my experience in that direction. I have





NATURAL BACKGROUNDS IN STUDIO PORTRAITS.

A Specimen of the result of the Dischner Process described on another page.

made for the last five or six years photographs of aged people over sixty, free of charge, and present them with one photograph. I had been many times troubled with requests to photograph people who were dead, and an idea struck me that if I photographed them when they were old, and kept the plates, I might have something to do after they were dead. By following this plan I have obtained and have a very valuable lot of negatives of old folks over sixty. Very often they drop off, and in the course of time I have very good orders for them.

Mr. Bradley: I should think this would prove an interesting subject. Can't we hear more of it?

Mr. Farrington: My experience has been somewhat like that of the last gentleman speaking, although I have made the age seventy instead of sixty. Over seventy anyone who desires can come to my studio and have a sitting and have one photograph free; and I have received many orders.

Mrs. Beals: Do they require a birth certificate? (Laughter).

A Member: I find it sometimes pays to offer free sittings—not necessarily to give away pictures. For a new man starting in a new place it pays pretty well.

Mr. Waide: It is my experience that it is oftentimes wise to give what might be called free sittings, but I do not consider the kind that I have made as free sittings. It is human nature for people to think more of things they get for nothing than of something they pay for, and at times when you can give them something of that sort they will deliberately go out and work for you, and, as Mr. Ray just stated, for a man just starting out it is very wise to give people something that they think they are getting for nothing, and they are willing to go out and work for you.

Mr. Pomeroy: These photographers have begun by photographing

the aged. In Kansas City I commence at the other end. I issue a circular and send it to each mother after a child has been born. The birth notices are printed in our paper each day, giving the address, and I send the circular, congratulate them on the birth of the new-born babe—"May it live long," and so forth—and, if they wish, I will make its first photograph free. I consider this one of the best ads. I have.

Mr. Parkinson: I don't think it is in good taste to send agents to hotel arrivals and make a practice of inviting everybody that comes to your city to come to your studio and have a free sitting, although I do not question any man's right to do that. It is a business, and friendship is friendship, and we have a right to do whatever we please in that regard. I give a sort of a free sitting quite often, and then I make the pictures and show them to the man, and he often gives me an order, for which I only charge him 20 cents. Sometimes I am very good to them—I give them pictures for 15 cents, because I took it without any intention of their buying it, and I have often thought I ought to do that oftener than I do.

What I arose to say specially was something that Brother Waide made me think of. My experience has been that the people I charge the biggest price to, if they are fairly satisfied, do the greatest amount of work for me. The deadheads take the pictures and they do nothing, as a rule.

Mr. Core: Before we get too enthusiastic on this free sitting game, it might be well to say something on the opposite side. We are in a dilemma right now, and that is with regard to copyright. There have been so many photographers ambitious to have photographs published that we are only too glad to furnish them on the slightest provocation to the newspapers, etc., and now that thing has reached such a stage that we are trying to guard against the very thing that

created. The satisfaction of seeing your picture and name in a magazine was considered ample compensation for your trouble. This

scheme is all right, but it wants to be tempered with a good deal of judgment, in my opinion.

### SPECULATING LARGE PLATES.

"In the Long Run, Does It Pay to 'Speculate' Larger Plates or Pictures?"

Mr. Hollinger: My business is altogether speculation. I don't care whether you think it pays or not—outside of duplicates our business is altogether speculation. I don't care what people want I just make what I think I can sell. I make all sizes, and I make everything on speculation. They never pay a deposit, and I don't

care what they want, and we just depend on tempting them to buy what we make. I make all sizes, without caring anything about it. I just measure up the customer and do that, and we do that every day. That is what I call selling pictures on their merits and tempting people to buy. I tell you here to-day whatever you decide I will never do anything else but the way I am doing.

### SCHOOL RATES.

"How can a Uniform and Equitable Rate be Fixed on School and Class Work?"

A Member: I would like to ask if that means uniform for every photographer in the United States, the State of New York, or the City of New York, or just in one particular school or college, or what meant there. Mr. Hoyt, will you explain?

The President: Well, I will tell you what we have done in Rochester. We came together on a question of that kind. There was a lot of school work and no returns; it did not mean anything only a lot of work, but at the same time we felt that if we could get that work somebody else would not. The result was that we supplied a demand for no profit, and with that in mind we came together on one fixed price, that each photographer was to state a price that he was willing to make for a certain number of sittings; and after stating the price, which would be such as he felt would be the lowest possible price that he would care to give under any conditions, and

in giving that price the others did the same thing, and in that way they formulated a minimum rate, and there was to be a discount for the number of pictures asked for or number of sittings. Now, if there were more sittings than contracted for—for instance, a class came in and said we want a price on a hundred sittings, there would be one hundred in that class, and the result was to bind them and know what we were dealing with and make it a business transaction. The committee from that class should bring a list, and with that list one dollar for each person that was going to sit, and wherever they decided to go they deposited that dollar in their name. The result was it was a business transaction to commence with, you were sure of so much business to commence with. Then you would give them your discount for that number; but where there was no list the regular prices prevailed. That is the condition of school work in Rochester to-day.

## THREE - COLOUR AT THE CROYDON CAMERA CLUB.

The syllabus of the Croydon Camera Club announced a conversational meeting, and Mr. S. H. Wratten and Mr. Mees found the topic, the former having kindly made arrangements for testing the members' light-filters and safe-lights, and the latter giving an impromptu and interesting address on various points connected with three-colour work and orthochromatics.

### Three-colour Filters.

Starting with diagrammatic representations of the spectrum, the varying sensitiveness of different plates were shown, from the "ordinary"—on which the ultra-violet and invisible end had as much action as the entire visible spectrum—to the modern bathed plate, sensitive well into the red. In three-colour work, Mr. Mees pressed a decided opinion, that the best practice was to divide the spectrum sharply into three parts, with but small overlap. No set of commercial filters he had seen were correct, the red letting through considerable amount of green. How undesirable this was might be seen by a simple example. Suppose a red geranium and its foliage were to be reproduced in colours, then, in the case given, both the red flower and its green leaves would record through the red filter, grading the green to a more or less brown hue. With a really sensitive plate, a very deep screen was not only unnecessary, but detrimental. The weak point in three-colour work—viz., exposure, is directly dependent upon the efficiency of plates and filters. Up to the present, assuming the very best conditions, and a one-exposure camera, two seconds might be roughly taken to represent the minimum time requisite for a portrait in the studio. Out of doors he had obtained a satisfactory record through a correctly adjusted shutter in 1-25 second, on a pinacyanol-bathed plate.

### Spectrum Test of Filters.

Various sets of three-colour screens were then tested by means of the spectrum projected on the screen, including the "Rotary," "Pinatype," "Staleys" (Dr. Miethe's), and others. The cheapness of the last-named should certainly appeal to those who wish to make a trial trip in three-colour work. It was hardly possible to judge of the respective merits of the filters thus shown, one set having, say,

a better red filter than another, whilst being somewhat inferior in regard to green, or blue, as the case might be. "Black" in a filter, Mr. Mees said, was to be avoided, as it damped the spectrum generally; it was, however, purposely introduced into the blue filter to bring the exposure within manageable limits. The spectrographs, of Wratten's bathed pinacyanol and pinachrome plates, and the new Verichrome, were next shown. All showed distinct traces of gaps, though the majority of these, Mr. Mees stated, only appeared when artificial light was used, not when daylight was the illuminant. The pinacyanol plate had a characteristic gap in the green, but is nevertheless the best for three-colour work, owing to its high red sensitiveness. The pinachrome plate showed the usual excessive sensitiveness to blue, and then ran with a fairly level band into the orange. For landscape (monochromatic) work, a simple yellow screen would only be necessary to damp, or keep back, the blue. The Verichrome appeared to have much the same attributes as the last-named, but was not so fast in the yellow or orange.

### The Screen for General Work.

The best screen to employ for subjects not having much red was a dyed film of tartrazine, of such a depth as to require an approximate increase of exposure  $\times 10$  for the usual commercial ortho plate. With the new Verichrome, the same screen would drop to 4, and with the pinacyanol and pinachrome-bathed plates to 3. It was quite easy, the lecturer said, to give an apparently increased colour sensitiveness by dyeing the film of the plate, at the same time slowing its speed. A filter would, however, answer every purpose, with the advantage that it might be removed when very short exposures became obligatory. A number of commercial and home-made ortho screens, or light-filters, were next tested. The pot-metal, with one exception, all contained a large proportion of black, as did, somewhat curiously, a stained auramine one. The tartrazine and naphthol yellow screens were undoubtedly the most efficient. The last, Mr. Mees said, cut the blue too abruptly. Picric acid screens darkened on exposure to daylight.

In the discussion which followed, Mr. C. E. M. Bennett said he should object to developing the pinachrome plates in total darkness,



as advised. Could no light be used? Mr. E. A. Salt inquired whether "colour" could be correlated to wave length? The question of monochromatic rendering was in many cases difficult, notwithstanding arguments to the contrary. He very much doubted whether a red and blue of equal luminosity, and in juxtaposition, could be said to be satisfactorily rendered in monochrome by a plain level tint. He noted that in three-colour work Mr. Mees thought it best to divide the spectrum somewhat sharply. Why was not a fair amount of overlap permissible? Mr. Mees, in reply, said with the bathed pinachrome plates a very little light might be used, just sufficient to see dishes, etc. A blue-green light would be as good as any; a red light should not be used. The pinacyanol plates must be developed in total darkness. In answer to Mr. Salt, he said that colour, *per se*, would not be identified with wave length. In the case of monochrome reproduction of equal luminosities of red

and blue, he should differentiate by making the red the lighter of the two. An engraver would render both alike. He agreed that colour rendering in monochrome was difficult if tonal values were to be preserved. Its interpretation required a skilled photographer and artist in one. It was preferable for the three-colour screens to cut fairly abruptly; a better colour rendering was obtained than in the case where much overlap was allowed.

At the instance of Mr. H. P. C. Harpur a most cordial vote of thanks was accorded Mr. Mees and Mr. Wratten. The latter, in responding for both, said the time would come—indeed, it had already come—when one might use orthochromatic plates for every class of work (except copying black and white), with undoubted finer all-round results. It was, however, necessary to learn how to get the best out of them, just as photographers had to master the idiosyncracies of the ordinary dry plate when first introduced.

## ANALYSIS OF THE MOTION OF THE SIMPLE PENDULUM.

[THE following article, written in reference to the recent discussion on the pendulum method of determining shutter speeds, will, it is believed, be found valuable as pointing out the conditions under which the pendulum can be used with accuracy.—Eds., B.J.P.]

The writer has frequently noticed what erroneous ideas are commonly held as to the motion of a simple pendulum, and the columns of the B.J. have recently given examples of these misconceptions. With a view of giving a lucid account of this motion, an analysis of the movements of a simple pendulum, 2 ft. long, and swinging in an arc 30 degs. each side of the centre line, is given.

It is usually stated that for all practical purposes the "period" of a simple pendulum is constant whatever be the amplitude of the swing. This statement is only partially true for an amplitude of a few degrees, and when a larger swing is given is wholly inaccurate.

The "period" of the pendulum (by which term is understood the time that elapses from any position of the pendulum to the time that it has returned to the same position travelling in the same direction)

is approximately stated thus.  $T(\text{secs.}) = 2\pi\sqrt{\frac{l}{g}}$

Where  $T$  = the period in seconds.

$\pi = 3.1416$ ,

$l$  = length of pendulum in feet.

$g$  = force of gravity at the place of experiment 32.2 is sufficiently approximate.

It must be mentioned here that  $l$ , strictly speaking, is the length of the equivalent simple pendulum, but if the plumbob be a small, round, and heavy object, and the suspending cord be very fine,  $l$  may be reckoned from the point of suspension to the centre of gravity of the plumbob.

Now, this approximation is only good enough for such short swings that would be quite useless for shutter testing.

A much closer approximation to  $T$  is

$$T = 2\pi\sqrt{\frac{l}{g} \left\{ 1 + \frac{1}{4} \sin^2 \frac{B}{2} \right\}}$$

where  $B$  is the angle of swing measured from the centre line of suspension.

This formula is good enough for 30 degs. of swing each side of centre line, but for greater swings the formula is more complicated, as further terms must be introduced, and for a rigid computation elliptic functions must be brought into use.

To find the linear velocity of the bob of the pendulum at any moment of its swing, it will perhaps be best to state the case as follows (a statement which is not made strictly scientifically, but which avoids the use of the integral calculus).

One may say that the linear velocity of the centre of gravity of the bob of a pendulum is the same as that attained by a weight dropping from rest (in vacuo) through the same distance that the pendulum bob has moved vertically. This may be recognised by imagining the falling weight to be constrained to move in the arc of a circle by a cord, and hence converted into a pendulum.

Now a falling weight is acted on by a constant force gravity ( $g$ ) and hence has a constant acceleration,  $g$  feet per sec. per sec. Consequently, starting from rest, at the end of  $t$  secs., will have attained a velocity  $V$  feet per sec.  $=gt$  ( $a$ ) and will have fallen say " $h$ " feet. Now as the acceleration is constant the average velocity will have been  $\frac{1}{2}V$ .

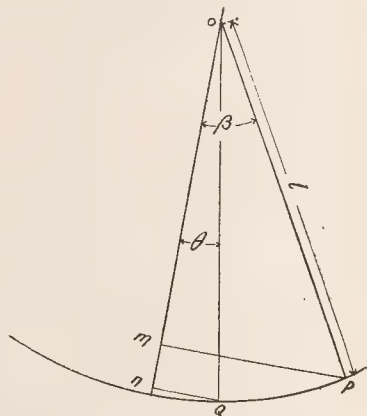
Hence average velocity  $\frac{1}{2}V \times t = h$ .

$$\text{or } t = \frac{2h}{V} (\beta)$$

Substituting this value of  $t$  in ( $a$ ) we get

$$V = \frac{2hg}{V} \text{ or } V = \sqrt{2hg}$$

$h$  may be found as follows



$$h = mn.$$

$$mn = On - Om.$$

$$= l \cos \theta - l \cos \beta.$$

$$= l (\cos \theta - \cos \beta).$$

$$\cos \theta = 1 - 2 \sin^2 \frac{1}{2} \theta.$$

$$\& \cos \beta = 1 - 2 \sin^2 \frac{1}{2} \beta.$$

$$\therefore mn = h = l \left( 2 \sin^2 \frac{\beta}{2} - 2 \sin^2 \frac{\theta}{2} \right)$$

Substituting this value of  $h$  in the formula for  $V$  we find

$$V = \sqrt{2 \times 2gl \left( \sin^2 \frac{\beta}{2} - \sin^2 \frac{\theta}{2} \right)}$$

$$V \text{ feet per sec.} = 2\sqrt{gl \left( \sin^2 \frac{\beta}{2} - \sin^2 \frac{\theta}{2} \right)}$$

If we wish to convert the velocity into radians per second we must divide by  $l$  giving velocity in radians per sec.

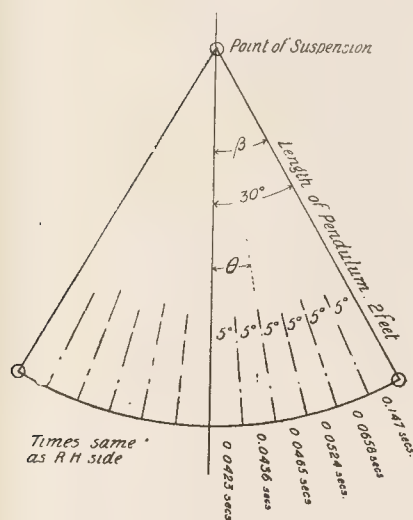
$$= 2\sqrt{\frac{g}{l}} \left( \sin^2 \frac{\beta}{2} \sin^2 \frac{\theta}{2} \right)$$

If degrees per second are desired this must be multiplied by 57.3. From this a table has been calculated for the given conditions showing the time taken by the pendulum to travel over each 5 deg. of arc. It will be noticed that the last 5 deg. takes between three and four times as long as the first.

③ Time of executing 5° of arc.

0°	0.0423 seconds.
5°	0.0436 seconds.
10°	0.0465 seconds.
15°	0.0524 seconds.
20°	0.0658 seconds.
25°	0.1474 seconds.
30°	

$\frac{1}{2}T = 0.3980$  seconds.



The period of the pendulum swinging in these conditions is 1.593

calculating from the usual formula  $T = 2\pi \sqrt{\frac{l}{g}}$  the period would

be given as 1.565 secs. or an error of 2%

For the guidance of any photographer who may wish to test his meter by this method, it may be mentioned that to avoid giving initial impetus to the bob it should be held in its position of rest and swing by a piece of cotton and released by touching the cotton with a match.

The writer is sure that with ordinary care and adherence to the methods and dimensions given, a most accurate determination of meter speed can be made.

Propos of the method of testing speed by revolving a bicycle wheel it may be as well to state two precautions to be observed to render the result fairly accurate.

The valve should be wholly removed, so that the wheel is in motion in all positions.

A number of revolutions should be timed, say twenty, and the exposure made at the tenth thus eliminating any effect of friction and wind resistance.

HARVEY COLLINGRIDGE, B.Sc., A.M.I.C.E.

## Exhibitions.

### THE NORTHERN PHOTOGRAPHIC EXHIBITION. MANCHESTER.

THE Northern Photographic Exhibition (Manchester) was formally opened by the Right Hon. the Lord Mayor of Manchester on Friday, the 27th, at 7.30. Many weeks of patient labour by many sub-committees were—under the guidance of the executive—brought to an issue which must be pronounced highly successful. We understand that the judges marvelled at the amount and quality of the work submitted to them, for upon the walls are to be found not only the cream of the best exhibitions held in this country, but also much new and striking work, both British and foreign.

The Northern Exhibition is not sectarian. It is not a "Royal" show only. Neither is it a "salon" show only. It is both. It is catholic, and we understand that it is the determination of those in authority to maintain this catholicity as a distinctive feature.

When an exhibition is worked by sub-committees certain risks are run, risks of omission and risks of overlapping. At Manchester, however, the work of each sub-committee was so clearly defined at the outset that all have worked together with the perfection of the wheels of a clock. The sub-committees were as follows:—Hanging; Catalogue; Lantern; Advertising and Press; Plaque; Lectures; Reception; and Finance. This latter consisted of the chairman and general secretaries of the exhibition, together with the secretary of each sub-committee, so that the entire expending powers of all departments were focussed and controlled. When work is thus divided, and when each committee has only as much to do as it can do well, it is not a matter of surprise that so fine a show has been got together without undue "booming."

The pictures are very pleasingly arranged. They are 478 in number, and are, perhaps, rather crowded. The lantern slides are admirably shown, being arranged in the form of a square, with powerful electric lights inside the square. They can thus be viewed with perfect ease, notwithstanding the general lighting of the room. The bulk of the work sent in is, as might have been expected, British, but there are also contributions from Italy, Germany, Austria-Hungary, India, and Spain.

The catalogue, like all "Northern" catalogues, is very handsome, and contains twenty-four illustrations of excellent quality. In this matter the executive have been indeed generous, almost prodigal. It is well worth the sixpence charged for it.

As the catalogue does not take account of photographic processes it is difficult to say how favours are distributed, but we imagine that the new toning formulae for bromide papers have given that process a new lease of life.

We do not here pretend to give anything like an adequate review of the pictures as a whole—there are too many good things to admit of that in the space at our disposal. We must be content to notice only a few which are either really prominent, or have been made so by having honour thrust upon them. It is remarkable that the award list in the pictorial section contains the names of no travel-stained, plaque-laden picture, and this may be taken as an indication of the freshness of the whole exhibition. R. Dührkoop has many fine exhibits. He has better work here than "Hermelin," which receives a plaque, but he has nothing more clever than "Twilight," which receives a like honour. Not that the latter was beyond improvement. There is a high light on the collar of the male figure and another upon the wall, both of which are obtrusive. We shall certainly hear a great deal of Dührkoop if he continues to support British exhibitions. Miss W. H. Aitchison has found the "soft" side of the judges with her "Ghetto." It is a delicate piece of work of the chalk-drawing type, representing an arched street, with the distance in sunlight. It is a likeable thing, but not specially impressive. "A Lonely Road," by Basil Schön, is a delightful bit of pure unadulterated photographic work. It is both forceful and impressive, and the "loneliness" of it needs no title to indicate its motif. The snow and the light falling upon it from an opening in the trees are admirably rendered, and the whole is presented with conspicuous good taste as to mounting. J. C. Batkin takes the fifth place—for the judges have placed the successful pictures in the order of their merit in



the award list—with "A Rift in the Fog." This is great. It is one of the finest things we have ever seen, or, rather, we should say, it could easily be made such by a very slight modification. The picture presents the old contest between light and fog. Both combatants are in dead earnest. So far as the battle has already gone we cannot say which will win, but our hopes are set on the light. Cabs and buses move along in the shrouded day, and it is just in the nearer cab and figures that we would prefer modification. These seem to jump a little out of their proper planes and to come too near us.

"Ileene," by R. R. Hirst, is not an unpleasant face, though it is tearful and sad. It is not a specially striking picture in an exhibition where so many things are so good. But, after all, art is a very personal thing, and we are not so unreasonable as to demand that judges shall look at all pictures through our spectacles. The popular judgment—of which we think little in these matters—will regard "Ileene" as lucky.

"A Muslin Gown," by Mrs. Barton, has been treated with rare grace in being awarded the seventh and last plaque in the pictorial print section. Frankly, we do not understand this award. A lady stands clad in a muslin dress. She seems ill, or, at least, ill at ease. She seems, further, to be endeavouring to support her weight with both hands, which rest—one on something on the right of her, and one on something on the left of her. The something on the right may be a dressing-table, the something on the left is not distinguishable. The *locale* may be a bedroom, but if so it is rendered as the interior of a cave. A dense—almost detail-less—blackness surrounds the figure. In the matter of subdued shadow detail the difference between Mrs. Barton's print and Dührkoop's "Twilight" is exactly as the distance from the North Pole to the South. The two are together in the exhibition. Some malicious "hangman" must have done this.

We should like to have referred to many more, but that is not possible in this notice. We must, however, congratulate Mr. Marshall on his "Seaborne." It is not every man who can see the pictorial possibilities of a cargo of coal lying upon a quay. On the face of it that is all it is, but the treatment has made it much more. In Mr. J. M. Whitehead's "The Night Cometh" there is more than sentiment, there is also exquisite technique. He does not seem to have attempted to make the unwilling sun to shine just out of that patch of sky and just on to this patch of earth as Mr. A. Horsley Hinton seems to have done in his picture "In Airedale," producing a distinctly artificial and stagey effect. The sun has a way of his own, and when we interfere with him it is often to our own hurt.

The pictures were judged and the awards made by Archibald Cochrane, Ernest Marriage, F.R.P.S., and Frank M. Sutcliffe. We append the official list:—

Pictorial Section Prints.—Plaque 1, "The Hermelin," R. Dührkoop; plaque 2, "Twilight," R. Dührkoop; plaque 3, "The Ghetto," Miss W. H. Aitchison; plaque 4, "A Lonely Road," Basil Schön; plaque 5, "A Rift in the Fog," J. C. Batkin; plaque 6, "Ileene," H. R. Hirst; plaque 7, "A Muslin Gown," Mrs. Barton. Hon. mention.—1, "Building the Bridge," E. T. Holding; 2, "Breakfast," Dr. E. G. Boon; 3, "A Sunlit Clerestory," S. G. Kimber; 4, "Reading," F. H. Crossley; 5, "North Aisle, Winchester," W. A. Clark; 6, "A Study in Monochrome," Dr. A. T. Lakin; 7, "Japanese Anemones," Dan Dunlop.

Pictorial Section Lantern Slides.—Plaque 1, "Fête on the Assumption," Dr. G. H. Rodman; plaque 2, "Mother's Help," Rev. H. W. Dick; plaque 3, "Sunlight in Old York Church," W. A. Clark. Hon. mention.—1, "Tree in a Mist," Ellis Kelsey; 2, "Storm Lifting," C. F. Inston; 3, "Figure Study," W. A. Taylor.

Technical and Scientific Section for Prints.—Plaque, "Pollen of Hollyhock," Dr. Rodman. Hon. mention.—"Home of Spider," H. C. Simpson.

For Lantern Slides.—Plaque, "Smelt," Dr. Francis Ward. Hon. mention.—"Pollen of Hollyhock," Dr. G. H. Rodman; "Salt-making," T. E. Leigh.

The following is the full list of lantern lectures:—April 27—opening ceremony and conversazione; April 28—S. G. Kimber, Esq., "Winchester Cathedral"; April 30—Fred W. Saxby, Esq., "Marvels of Insect Life"; May 1—Dr. Wm. Murray Cairns, "Japan and the Japanese"; May 2—Dr. John W. Ellis, "The

Pilgrim's Way"; May 3—J. J. Phelps, Esq., "Old Manchester and Salford"; May 4—Godfrey Bingley, Esq., "London to North Cornwall"; May 5—W. A. Clark, Esq., "Mediæval Architecture"; May 7—exhibition of competition slides.

## THE BIRMINGHAM PHOTOGRAPHIC SOCIETY AT RUSSLEY SQUARE.

THE opening of the exhibition of photographs by present members of the Birmingham Photographic Society took place on Monday evening last, when a short paper, prepared by Mr. Harold Baker, was read by Mr. P. Bale Rider, who expressed the regrets of the Birmingham photographers that they were not able to be present. Mr. Baker's paper consisted in a short review of photography as it has been practiced in Birmingham, a recital notably undertaken for the glory of the Midland capital. However, it should be said that Mr. Baker's eulogies were confined to the past practitioners of the art in Birmingham, and the blushes even of Mr. Page Croft would have been spared had he been present. The paper noticed the work done in the early days of photography by Dr. Hill Norris, Alfred Humphrey, O. Rejlander, H. P. Robinson, W. Willis, Alexander Parkes, and George Marlow, all of whom at one time or another were members of the Birmingham society which preceded the present one. Mr. Baker might also have mentioned the name of Laroche, who was colleague of the famous photographer, Napoleon Sarony, in Birmingham. Laroche was the defendant in the celebrated law suit in which Talbot claimed patent rights in the wet collodion process.

The reading of the paper was followed by a short discussion chiefly appreciative of the work on the walls, among the speakers being Sir Joseph Swan, Mr. J. C. S. Mummery, Dr. Grindrod, and Mr. J. C. Warburg.

The photographs on the walls include many pictures which are familiar to visitors to the London exhibitors of recent years. We understand the exhibits were selected by a committee which too upon itself in some cases to suggest to members what pictures they should show. Thus Mr. Smedley Aston is represented not only by his recent portraits in which the influence of the Pre-Raphaelite painters can be seen, but also by an early photograph of his—one of the notable productions of pictorial photography, we think—"Reminiscence" (No. 37).

We are particularly glad to make the acquaintance again of Mr. W. T. Greatbatch's beautiful work, examples of which are shown in the "Orchard" (No. 661), and "Autumn Haze" (No. 62). Mr. Cruwys Richards shows to better advantage in the present collection than he did at the recent Birmingham exhibition, for his later work in gum-bichromate has not the charm about it, in our judgment, which his earlier figure studies possess. Other workers whom it is a pleasure to meet again are Bernard Moore, C. S. Bainton, William A. Clark, George Arbuthnot, J. C. Batkin, and Miss Marian Silverston. Mr. Harold Baker contributes a few large and striking examples of his portraiture, and Mrs. Barton is represented by one or two specimens of her characteristic work. Dr. Grindrod and Mr. Harold Holcroft both members of the Birmingham Society, add to the collection of photographs, the total number of which is seventy-eight. It is a collection which represents pictorial photography of a very high order, and we can commend a visit to 66, Russell Square, to all those who study the work of some of our leading exhibitors.

## COBURN'S PICTURES IN LIVERPOOL.

AN exhibition of the works of Alvin Langdon Coburn at the rooms of the Liverpool Amateur Photographic Society was opened informally on the afternoon of Monday last, April 30. There was no opening ceremony and no speeches, but a large number of amateur photographers and their friends, several well-known Liverpool artists, a number of gentlemen interested in the promotion of art in the city, and many well-known citizens attended to give the show a good send-off.

The idea of holding this, the first provincial exhibition of Coburn's works, came from the hon. sec., Mr. C. F. Inston, who thought that the educational value of this one-man collection would be of the greatest help in stimulating many members of the society towards pictorial, as opposed to technical, photography, the pictorial work in Liverpool being unhappily rather neglected.

As soon as the idea was mooted it was eagerly taken up, and thanks to the generosity of J. Dudley Johnston, Esq.—one of the editorial workers—and the help of a few others, arrangements were on concluded with Mr. Coburn.

So much has already been written on the pictures that detailed criticism is not required. The portraits form a most striking group, whilst the well-known scenes from London, Edinburgh, Rome, and Venice, are all of great interest. Of the landscapes four snow pictures are very realistic, the rendering of the tones of the first snow being uncommonly good.

The greatest interest is naturally centred on the group of seven studies—taken especially for this exhibition—of the Liverpool Docks. What can we say of these? Here have we been living in and around these docks for years, seen them photographed from what appeared to be every point of view, and yet Mr. Coburn comes down for a short half-day and obtains "Coburnesques" such as we have never even dreamed of. All the seven are interesting; three stand out pre-eminent. Of these three one entitled "Spider Webs," the motive of which is the web of entangled rigging and its shadows on the water, is very fascinating. The other two, "The Prow" and "The Rudder," are masterpieces, and yet how simple: the one in which the bow and bowsprit of a large vessel run up the side and top of the picture, and help with the other two parts of the frame to enclose an expanse of water broken in the distance by the dim dock wall and a cloud of steam, is most effective, the interest of the picture being here the part thus enclosed. Contrast this with "The Rudder," very similar in composition, but then the projecting stern of the vessel, the rudder itself, the staging and the men form the point of interest.

We can only congratulate Mr. Coburn on what undoubtedly is his great characteristic, that he is able intuitively to seize points of view in a manner peculiarly his own.

The exhibition will remain open for a fortnight, and it is one which those interested, not only in photography, but art as well, should visit. There are many towns with photographic clubs and societies within easy distance of Liverpool, and we would urge on the members to be sure to visit an exhibition from which so much is to be gained.

C. THURSTON HOLLAND.

## Patent News.

Process patents—applications and specifications are treated in "Photo Mechanical Notes."

The following applications for patents were made between April and 21:—

COLOUR PHOTOGRAPHY.—No. 9,100. Sensitive plate for colour photography. B. J. Mills for La Soci   Anonyme des Plaques et Papiers Photographiques A. Lumiere et ses Fils, Lyons.

TABLE APPARATUS.—No. 9,370. Improvements in portable photographic apparatus, suitable for photographing and reproducing animated scenes. Henri Louis Hurt, 46, Lincoln's Inn Fields, London.

MOVING THE CAMERA.—No. 9,371. Improvements in apparatus for determining the right position of the photographic camera. Alfred Muschke, 16, Hansaring, Cologne.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PHOTOGRAPH COPYING MACHINE.—No. 25,040, 1905. The invention is a machine for carrying out a method of reproducing the tones of a photograph by straight lines, ruled on to paper, the lines varying in width according to the tones of the original. A relief is made of the photograph, and may be reproduced in harder form by electrotyping or stereotyping. It is then fixed on to a movable bed plate, like the bed plate of a planing machine, so that it can be moved to and fro under a fixed pen. Provision may be made, if desired, for lifting the pen on the return stroke of the bed. The paper on which the drawing is to be executed is fixed in position over the relief, and the bed is then drawn under the fixed pen. The pen is adjusted so that

when lightly touching the paper it draws a very fine line, and as the pressure increases, the thickness of the line drawn increases. By moving the bed under the pen and slowly traversing the pen just as is done in a planing machine, we get a reproduction in line of the original subject. The continuous tone of the original subject is thus mechanically broken up into lines of varying widths. It is much better to draw on paper held absolutely flat on the bed of the machine and get the varying breadth of line by causing the relief to travel beneath a stylus at the same time as the paper travels beneath the pen. The varying thickness of the relief communicates a motion to the stylus which is by some means communicated to the pen and

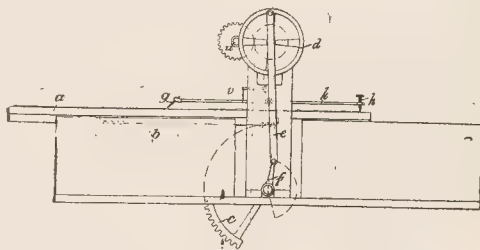


Fig. 1.

causes it to draw a fine or a thick line according to the thickness of the relief at the moment beneath the stylus. In the machine shown in Figs. 1 to 3, the relief image and the drawing paper are fixed side by side on the reciprocating table, a, the paper being on the left hand side and the image on the right hand side (Fig. 1). The table is reciprocated by the rack, b, and geared sector, c, operated from the driving wheel, d, by the connecting rod, e, and crank, f. The pen, g, and style, h, are mounted at the ends of the lever, k, pivoted about a transverse axis in a bracket, l, which slides freely on a transverse bar, m, of square section, a spring, v, being attached to the lever tending to lift the pen from the paper. Near the ends of the bar, m, are fixed brackets, n, n, supporting a transverse screw rod, o, meshing

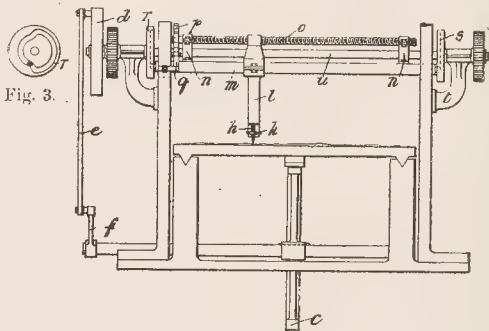


Fig. 2.

with a screw-threaded hole in the bracket, l; the rod, o, carries at one end a ratchet wheel, p, adapted to engage with a pawl, q, carried on the framework of the machine and caused to press on the ratchet wheel by a spring. The bar, m, is capable of a slight vertical movement, being mounted in vertical slots in the framework of the machine, and is also provided with rollers at its ends engaging with groove cams, r, s, at the sides of the machine. The cam, r, is mounted on the driving shaft and the cam, s, on a supplementary shaft carried in a bracket, t, at the other side of the machine. The driving shaft and supplementary shaft carry gear wheels meshing with gear wheels on a transverse shaft, u, by which motion is communicated to the cam s. The operation of the machine is as follows:—The table a, starting from the right hand side of its travel moves to the left to the position shown in the figures, the image passing under the style and the



drawing paper under the pen, a single line being thus drawn. At the end of the movement of the table to the left, the cams *r*, *s*, lift the transverse bar, *m*, and so, by reason of the spring, *v*, lift the pen from the paper; the table then travels back to the right and at the end of its backward movement, the cams allow the bar, *m*, to descend pressing the pen on to the paper again. The pawl, *q*, during the upward movement of the bar *m*, and rod, *o*, passes over one tooth of the ratchet, *p*, and the downward movement of the bar, *m*, causes the pawl *q*, to turn the ratchet wheel one tooth, thus turning the rod, *o*, and moving the bracket, *l*, transversely. The table then moves to the right again and the operations are repeated. It will be seen that in the above described machine the motion of the stylus alters the pressure of the pen on the paper; I may, however, use a pen consisting of a capillary tube charged with ink, and cause the motion of the stylus to control the flow of the ink either mechanically or electrically as in the syphon recorder or in any other suitable way. This method of reproduction has great advantages in three-colour or multiple-colour reproduction as the paper can be swept under three banks of pens controlled by three different reliefs, and charged with three different inks in three directions making 120 degrees with one another without moving the paper from its bed, thus ensuring register, or, if preferred, the pens may sweep successively over the paper, which remains stationary in three directions making 120 degrees with each other. Edward Russell Clarke, 35, Leinster Gardens, Hyde Park, London, W.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—

DAYLIGHT CHANGING. —No. 18,413. Improvements relating to daylight changing for photographic plates, films, etc.: Neue Photographische Gesellschaft.

#### CATALOGUES AND TRADE NOTICES.

The 1906 price list of Messrs. W. Butcher and Sons looks as attractive in its old English binding as any photographic list we can recollect. Its contents are no less special in character as it is limited to Messrs. Butcher's own productions, a description of which, nevertheless, occupies 700 pages. The list is intended primarily for dealers, *vide* the section "Business Cards," in which are detailed the facilities provided by Messrs. Butcher for getting and selling their goods, but it is supplied to amateur applicants for 1s. 6d.

A circular, illustrating fifty patterns of photo-pendants, reaches us from Mr. J. Elliott, Market Place, Nottingham.

A new list of Messrs. Wratten and Wainwright's, Croydon, will be read with interest from the facts which it supplies respecting the firm's new bathed plates and modified "Verichrome" plates; facts bearing on exposure, screens, development, and safe-lights. Sent free.

A very beautiful portfolio of specimens of half-tone and line-engraving comes to our table from Mr. Chas. W. Harness, of 37, Princess Street, Wolverhampton. Mr. Harness photographs for catalogue and book illustration, and undertakes the production of plates of all kinds, from the coarse half-tone for newspaper printing to the set of three or four-colour blocks, of which fine examples are included in the portfolio. A trade price list for engraving work is obtainable from Mr. Harness.

THE Tella Camera Company, 110, Shaftesbury Avenue, London, W., send us their catalogue for the forthcoming season, drawing attention to their system of extended payments, and of acceptance of old apparatus in part payment for new.

THE View Album.—In an Inverness newspaper we see a review of an album of views produced by Mr. J. Porter, photographer, of Aberdeen, from which we may quote as showing the local publicity derivable from a publication of this kind. The pictures, most of them taken from fresh points of view, are sixty-four in number, and cover an area including the town of Inverness—the scenic merits of which are well represented—Culloden Moor, Strathdearn, the Caledonian Canal—an elaborate series—Beaulie, Dingwall, Strathpeffer, the Black Isle, and Nairn district. The street photographs of Inverness are particularly excellent, giving the thoroughfares, as they do, that true aspect of bustle which is always associated with the summer and autumn seasons.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

May.	Name of Society.	Subject.
5.....	Hackney Photographic Society	Trip to Waltham Abbey.
5.....	Aberdeen Photo Art Club	Outing to Bennachie.
5.....	Bristol Photographic Club	Outing to Winterbourne.
5.....	North Middlesex Photo. Soc.	Trip to Epping Forest.
5.....	Chelsea and District Photo. Soc.	Outing to Oxshott.
8.....	Hackney Photo. Society	"Photography by Artificial Light."
8.....	Birmingham Photo. Society	Mr. H. W. Bennett.
8.....	Bristol Photographic Club	Exhibition of Hand Camera Work.
9.....	Leeds Camera Club	Club Meeting at Headquarters.
9.....	Acton Photographic Society	Sale and Exchange of Apparatus.
9.....	Everton Camera Club	Lantern Evening.
9.....	North Middlesex Photo. Soc.	Half Day Outing to Bromborough.
9.....	Cricklewood Photo. Society	"Hampton Court Palace." Mr. J. Munro.
9.....	G.E.R. Mechanics' Institution.	"Focal-Plane Work." Mr. M. Hudson.
10.....	Cardiff Windsor Amat. Ph. Soc.	Social Evening. Lantern Slides and Presentation of Awards in Members' Competitions.
10.....	London and Prov. Photo. Assn.	Plates and Papers for Pictorial Work.
10.....	Richmond Camera Club	"Spectro-Photography and the Making of Light Filters, including Controlling Methods by the Abney Colour Disc."
10.....	Rugby Photographic Society	Mr. T. Thorne Baker, F.C.S.
		Annual General Meeting.
		Amateur Photographer 1905 Prize Slides. Annual General Meeting.

GLASGOW SOUTHERN PHOTOGRAPHIC ASSOCIATION.—The annual general meeting was held in the Club Rooms, 169, Eglinton Street, on Tuesday, April 24, at 8 o'clock p.m., Mr. W. S. Morren, President, in the chair. The financial statement showing a balance of £3 10s. 1d. on the year's working was considered satisfactory. The officers for the ensuing year were elected, as follows:—President, W. H. Wilson; Vice-President, Robert Wallace; Secretary, Charles Young, 217, Crown Road, Partick; Treasurer, E. J. Grant; Librarian, R. Lindsay; Council, J. Pollock, A. Neilson, R. Ure, W. S. Morren, Miss M. Somerville, and Miss E. Miller; Delegates to the Scottish Photographic Federation, the President, Vice-President, and Secretary. The outings for the summer programme were also arranged.

ROTTERHAM PHOTOGRAPHIC SOCIETY.—The Page-Croft pigmen paper was demonstrated to the members at the meeting held on April 20. The case of manipulation and the delicacy of the finished prints proved not the least of its recommendations. Mr. C. E. Davis, assistant secretary, in a subsequent address on "Plate Developing for Beginners," urged the importance of cleanliness of apparatus and carefulness in the use of approved formulae.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—At a recent meeting, Mr. F. J. Mortimer, F.R.P.S., gave a lecture on wave photography of a very educative character. As to the lens, the better the quality the better the work should be, but as the lens generally had to be stopped down to *f*/16, a good rapid rectilinear should give as fine a picture as most were likely to require. As a guide to exposure, 1000 of a second at *f*/16 in good April sunlight, and a plate about 200 H and D. should give a properly exposed plate. From much experience he considered the roller-blind shutter working in front of the lens was the best type, though on dull days a focal plane shutter would be of value. Wave photography was not meant for the butterfly amateur, as one had to run many risks of life and limb. Sea boots and oilskins must be worn, and the camera must be well protected, rather than the salt spray would ruin the metal parts in a week. In attempting to capture the big breaking roller it was well to have a companion at the end of a stout rope. As the power of the light was much the same for sea and sky, the exposure given fits both, so that clouds and sea are usually rendered on the same plate. A little foreground generally improved the picture, though composition had rather to be chanced. Development should be with a dilute and clean working developer, and stand development was very suitable.

A GOOD SUMMER PROGRAMME.—The Bristol Photographic Club have just issued their programme for the first two months of the summer season. Excursions are arranged for every Saturday afternoon and every Wednesday evening, while once a month there is a technical night at headquarters. Certain of the outings will be specially devoted to giving practical help to beginners in the field, and the monthly meetings are to afford a continuation of this.

struction in the subsequent operations of development, printing, etc.

**THE BRISTOL PHOTOGRAPHIC CLUB.**—At the annual general meeting held last week, Mr. John Fisher in the chair, the following officers were elected:—President, John Fisher, Esq., Hon. A.R.C.A. don; vice-presidents, Mr. M. B. Fowler, F.C.S., Mr. H. R. Ford, Mr. J. Steger, B.Sc.; council, Messrs. T. W. Brown, A. E. ns, H. Goodenough, J. S. Guthrie, F. Little, and W. W. Smith; secretary, Mr. George Easonsmith, Central Printing Works, St. John's Street; hon. treasurer, Mr. E. Beaven; hon. folio secretary, Mr. R. W. Coates; hon. reporter, Mr. M. B. Fowler, F.C.S.

**THE HULL PHOTOGRAPHIC SOCIETY** opened their summer programme visiting Thornton Abbey last week. The abbey claimed the test attention, and knowing that there is to be a comparison of work done at the monthly meeting next Thursday, great care was exercised in securing the best points of view. The next outing is to Beverley and its Minster on May 12.

**LYTON PHOTOGRAPHIC CLUB.**—The winter series of weekly lectures and demonstrations were brought to a close on Friday, April 27, with an address by the chairman, Mr. Hector Maclean, F.R.P.S., on "Types of Hand Cameras." The subject, to which over an hour and a half was devoted by the lecturer, was illustrated by means of a large assemblage of representative hand cameras. A good deal of information imparted was of necessity elementary, but one or two points deserve recording. One was the statement that an "instant" hand camera should be provided with two distinct types of view-finders. Of these, one should be of the form which shows a small replica of the scene or subject which the photographer is looking down upon, such as is found in the so-called "brilliant" view-finders; while the other should take the shape of the "direct" view-finder pattern, such as is usually fitted to a focal plane camera. The other matter enlarged upon related to the diaphragm shutter, and, although indicating a range of four or more snapshot exposures, was often virtually a one-speed shutter. In this connection he outlined the advantages of a new pattern shutter in which the shutter speed, instead of being "regulated" by a friction of a pneumatic brake, was varied by altering the size of the opening in the shutter blades, much as is done with the slit of a focal plane shutter. Another promising adjunct to hand cameras which he mentioned and explained was a new type of moderate power telephoto lens, which, no larger than an ordinary R.R., gave an image of dimensions equivalent to those attainable with a lens of 10in. focus, in a camera extension of only 5in.; the working aperture is  $f/9$ , the name of the lens "Bis-telar." The one shown was fitted to an ordinary 4-plate roll-film camera of about the dimensions of a 3.5 F.P.K.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—Mr. H. T. Malby favoured the above Association with a visit on the 26th ult., his lecture being in the chair. Mr. Malby's subject was a collection of lantern slides, and over a hundred of the best class of slides were shown. The first series was one taken at Mr. Malby's home, just upon the borders of Epping Forest. The lecturer said that much as Epping was decreed, there was a really fine photographic work to be done there at all seasons of the year. Mr. Malby next treated child life in the poorer parts of London and other large cities, saying that when working in the slums, it was almost impossible to obtain more than one shot per day in any one street, as the youngsters, immediately they discovered what was about, were off like wild rabbits.—(Eds.) Cloud studies were shown, most of them being in series of three to seven, taken at intervals of three minutes, the change in the formation being very marked. A series taken by the aid of a specially bent glass distorting mirror caused great amusement, some of the effects being very funny for words. Flower studies, Mr. Malby's favourite work, included the series, and in this connection the lecturer said it was imperative to have the same foliage as the flowers. He also insisted on the use of orthochromatic plates and screens for this class of work. Mr. Teape, referring to the distortion slides, asked where such mirrors could be obtained. Mr. Malby said the mirror was an expensive item, as it had both horizontal and vertical distortions. In fact, it had cost some £80 to make, though he thought that one having been made others could be done somewhat cheaper.

**MIDDLESEX PHOTOGRAPHIC SOCIETY.**—Bromide enlarging

was the subject of a lecture by Mr. H. W. Fincham on the 18th inst. A practical demonstration by means of a lantern and incandescent gaslight enhanced its value materially. A number of negatives of medium to thin density were projected on the screen, and, with a stop value  $f/11$ , the exposure required, enlarging from 4 to whole on rapid bromide paper, was about 30 seconds. For those who worked with films, the lecturer showed a method of focussing by means of a piece of veiling net sandwiched between two pieces negative glass. Amidol was recommended as a developer and made up as follows: Sulphite of soda, 1oz.; citric acid, 20 grains; bromide of potassium, 15 grains; water, 20oz. Take 3 grains of amidol and dissolve in 1oz. of water, and then add 1oz. of the above sulphite solution.

**CHELSEA AND DISTRICT PHOTOGRAPHIC SOCIETY.**—At a meeting held on April 19, 1906, at Public Library, Manresa Road, Mr. A. G. Mountford lectured on "Flashlight Simplified." He explained that he used argentine powder as, owing to its fineness, it fires quickly, practically instantaneously, and very little was needed to secure a good flash. Spread the powder in a line from 2ft. to 3ft. long—the longer the better, as good diffusion and soft lighting will thereby be secured. He recommended firing the powder by a spark from a small induction coil supplied with current from a small accumulator. The whole outfit would be obtained for considerably less than a pound.

## Commercial & Legal Intelligence.

THE statement of affairs in the estate of Eleanor Keene, of 52, High Street, Burton, photographer and widow, has been issued. The gross liabilities are £200 12s. 8d., of which £162 5s. 2d. is expected to rank for dividend, and there is a deficiency of £103 10s. 2d. Debtor states the cause of her failure to be slackness of trade, heavy working expenses, and keen competition, and she anticipated a deficiency of £141 17s. 8d. According to the Official Receiver's report, the bankrupt states: (a) That she carried on the business of a photographer, formerly carried on by her husband; (b) That she continued the business on his death, although she was advised by her solicitors that the business was insolvent; that she believes her husband's liabilities at his death were about £300, and his assets about the same amount as in the present statement; (c) That her husband, by his will, left her all his estate, but she has not proved the will, he being insolvent; (d) That she was frequently sued by creditors, and that twice within the past six months certain of her goods were seized under small executions; (e) That the only books are a rough cash book and a day book, that she became aware of her insolvency twelve months ago, or probably longer, and thinks she has been trading at a loss for some time past.

THE first meeting of creditors was held on April 19 of the Birmingham and District National Trading Company, Norwich Union Chambers. The statement of affairs showed liabilities £146. The meeting was adjourned until April 27.

**A LIKENESS CASE.**—At the City of London Court, on April 26, Mr. Aaron Lissack, 46, London Wall, claimed 19s. from Messrs Emberson and Son, photographers, 62, Cheapside, money paid for a photograph. Plaintiff said that the photograph was inaccurate and the workmanship bad. Defendants said that the photograph had been approved by the plaintiff, and was quite satisfactory. Plaintiff said his face was blurred. The Judge found for the defendants, with costs.

**THE SALE OF A BUSINESS.**—At the City of London Police Court, on April 26, Messrs. Taylor, photographers, Queen Victoria Street, claimed £8 10s. and £3 14s., in two actions, from Mr. H. J. Blount, 63, London Road, Derby, as damages for breach of contract. It seemed that the plaintiffs disposed of their business at Derby to the defendant under a contract which said, "All orders taken by the vendors during the last twelve months and those on the books at this date which are incomplete shall be taken over and executed by the purchaser." The defendant refused to fulfil some of the orders, and as a result the plaintiffs were sued for the return of the deposits. The plaintiffs now claimed those sums as damages for breach of contract. The defendant said that the plaintiffs had no business to pay the money claimed. The Judge found for the defendants in both cases, with costs.



In the Birmingham Court of Bankruptcy, on April 27, Mr. Registrar Whitelock made a receiving order in the matter of Arthur Henry Seeley Draycott and John Arthur Draycott, of 64 and 65, New Street, and 138, The Parade, Leamington, photographers and art dealers, trading as The Draycott Galleries. Mr. Walter J. Rabnett is solicitor in the proceedings.

**PHOTOGRAPHIC JOURNALISM.**—At the City of London Court, on April 26, Mr. C. F. W. Sage, 16A, Bouverie Street, E.C., sued the "Daily Express," Limited, for £19 as damages for breach of contract. Mr. Turner appeared for the defendants. Plaintiff said that in July he was employed by the defendants to "get out" their photographic page. He was to be paid a salary of £3 a week for six months. That was paid to him for six months, but the arrangement had been terminated. There was, however, he maintained, a conversation to the effect that he was to be paid a commission on a scheme for selling pictures to other papers, and his case was that the defendants had broken the contract. The defendants were not called upon, the Judge remarking that no case had been made out.

**SUNDAY Trading.**—Walter Charles Cork, a Bradford photographer; Arthur Bell and Elizabeth Perry, confectioners, of Baildon, were summoned at the Otley Police Court on April 27 for Sunday trading at Baildon. Cork sent a postal order for 5s.—the maximum penalty—to the superintendent of police, and asked for an acknowledgment. Cork was fined 5s., including costs, and Bell and Perry 2s. 6d., including costs.

**GUNN AND CO., LIMITED** (Photographers, London).—Issue on March 22 of £300 5 per cent. debentures, part of a series created November 29, 1904, to secure £1,000, charged on the company's property, present and future, including uncalled capital. No trustees. Total amount previously issued of same series, £700.

**ENLARGEMENT Fraud.**—Last week, at Bolton, Robert Francis Demmock, photographer, of Accrington, was sent to prison for three months for obtaining a shilling by false pretence from a lady. He obtained the money on the pretence of enlarging a photograph.

**A POISON SUMMONS.**—John Smith, a Harrow watchmaker, was summoned at Edgware last week for selling a photographic intensifying solution containing 40 grains of corrosive sublimate without labelling the bottle "poison." A science master at Harrow recently found in the possession of one of his pupils a bottle of the intensifier not labelled poison. He communicated with the Pharmaceutical Society. Mr. W. S. Glyn-Jones appeared for the Pharmaceutical Society, and defendant, who pleaded that he sold the article as received by him, was fined 5s. and 8s. 6d. costs.

**A TRIUMPH of Diction.**—We are pleased to see the laudable measures taken by our contemporary, "The Amateur Photographer," to educate and improve the photographic novice. The offer is now being made of a plaque (designed in Glasgow), replicas of which in silver and bronze are to be awarded in a series of beginners' competitions. The design of the plaque is described by our contemporary in the following passage, which is, perhaps, as beautiful a thing in its way as any writing on art in photography which we have had the pleasure of perusing:—

*"The subject represents Photography seated at the feet of Art, having laid down for the moment she too must go, where, above the liar to her craft, whilst her sister points the way the camera and other appliances peecutemple of knowledge, the sun shines."*

It must be difficult to imagine the merit of a photographic work which deserves an award answering to the above description.

**"R. A. P."**—A writer from a southern seaside resort informs us that a photographer practising there possesses, as an appendage to his name, the initials, "R. A. P." We are unable to say what precise diploma these letters denote, though it may be stated that in view of the close prices charged for the photographer's productions—six photographs on a postcard for 1s. 9d.—the other photographers in the town may be pleased to anticipate "R.I.P." as a correct title.

THE full programme of tours in Holland and Germany, conducted by Mr. W. F. Slater, has now been published, and can be obtained from him at 86, Longhurst Road, Lee, S.E. To those desiring a photographic holiday, relieved of all the cares of travel, the tours organised by Mr. Slater can be heartily commended.

## Dews and Notes.

**ADHESIVE Dry Mounting Company, Limited, v. The Adherent Film Company.**—In Mr. Justice Kekewich's Court, in the Chancery Division, counsel, on April 11, said he had a motion on behalf of the plaintiff company in an action brought by them against the defendant company for alleged infringement of two letters patent. It had been arranged, with his Lordship's sanction, that the motion should stand over until Monday, April 30. Mr. Justice Kekewich assented.

**DARK Rooms for Tourists.**—The editors of the "Photographic Monthly" ("The Photogram") notify us that they have in preparation the fifth annual directory of dark rooms available for tourists throughout the world. They invite owners of dark rooms who may



WHERE THIS SIGN IS SEEN A DARK ROOM IS PROVIDED FOR THE USE OF TOURISTS. A LIST OF SUCH DARK ROOMS ALL OVER THE WORLD IS PUBLISHED BY THE EDITORS OF THE PHOTOGRAPHIC MONTHLY 6 FARRINGTON AVENUE S.E. LONDON E.C. AND A COPY MAY BE SEEN WITHIN.

not be included to apply to them for entry in the directory. To favour, a copy of the directory itself, and copies of the dark-room sign, shown on a reduced scale herewith, are offered free of charge to those who will undertake to keep the sign displayed and the directory available for reference.

**A CELLULOID Accident.**—Mr. J. W. Wakelin, of Braintree, writes to the daily papers as follows:—My daughter was sitting writing near a lamp, when a comb made of celluloid caught fire. As a result it burnt nearly all her hair off, and simply roasted her scalp, causing awful agony. But for the unremitting attention of two doctors and a hospital nurse, my daughter would undoubtedly have lost her eyesight, if not her life. In the interest of suffering humanity I am making this public in the hope that something may be done either to stop the sale of, or, at least, to stamp as "inflammable" these articles, so that the public may know what they are purchasing. My daughter had not the least idea that she was buying a dangerous article when she bought the comb.

**THE Late Mr. Arthur Holborn.**—We regret to announce the death after a short illness, of Mr. Arthur Holborn, of Graphic House, Stokes Croft, Bristol. Mr. Holborn, as a photographer, has been well known in Bristol for more than forty years. He has also, in former years, branches at Thornbury and other places. Mr. Holborn was a Freemason, being a member of the Moira Lodge. His excellent personal qualities were generally recognised, and the announcement of his death will occasion a wide feeling of regret and deep sympathy for his widow and family.

**ROYAL INSTITUTION.**—At the annual meeting, held on May 1, following gentlemen were unanimously elected as officers for the ensuing year:—President—The Duke of Northumberland; treasurer—Sir James Crichton-Browne; secretary—Sir William Crooke; managers—Sir William de W. Abney, the Right Hon. Lord Alton, the Right Hon. Earl Cathcart, Dr. A. H. Church, Dr. Elgar, Dr. D. W. C. Hood, Mr. M. Horner, Sir William Huggins, the Right Hon. Lord Kelvin, Mr. H. F. Makins, Dr. Ludwig Moir, Sir R. Douglas Powell, Bart., the Right Hon. Lord Sanderson, Mr. Alexander Siemens, and the Right Hon. Sir John Stirling; visitors—Dr. J. Mitchell Bruce, Mr. Dugald Clerk, Sir John George Craggs, Mr. H. Cunynghame, Mr. G. F. Deacon, Mr. E. Dey, Rev. J. H. Ellis, Mr. R. K. Gray, Mr. C. E. Groves, Mr. F. Henriques, Mr. A. C. Ionides, Mr. C. E. Melchers, Mr. E. Merton, Mr. H. Swithinbank, and Mr. G. P. Willoughby.

SERIES of summer courses are announced as just commencing at the Manchester Municipal School of Technology. Three are on engravings, portraiture, and printing processes; whilst a fourth treats of a branch of work in which we are glad to see systematic instructions being given, viz., catalogue illustration. The lecturer is Mr. W. H. Wainwright, and the syllabus includes:—"General arrangement and design in relation to the subject matter. The typography and press-work suitable for different methods of illustration. Cover design. The photography of different objects, as machinery, furnishings, garments, millinery. The preparation of drawings and the printing of photographs for 'process' reproduction. The methods of reproduction, line, half-tone, tri-colour and collotype printing. The printing and binding of catalogues. A small catalogue will be prepared during the course as an example." We should like to see the designing and carrying out of photographic advertisements receive special attention in the schools of photography. It is a very remunerative branch of photography, pursued at present by a comparatively few men, who naturally see no reason to talk about

the suicide of a photographer named Abraham Booth, aged fifty-one, of West End, Stapleford, occurred last week. According to the evidence at the inquest, the deceased drank some of the chemicals in his business, and died shortly afterwards.

THERE is now on exhibition in the Art Gallery at Kingston a photographic panorama of San Francisco, by the late Edward Muybridge. It consists of thirteen prints, each 16in. by 22in., and is a very fine piece of photography. It is probably the only copy in this country. "Photography Simplified" is the heading to a series of chapters arranged in the "Queen" by Mr. Snowden Ward, with illustrations by Mrs. Catharine Weed Ward. The first instalment deals with printing as the simplest introduction to photography.

THE Photographic Society.—In addition to the paper to be read by Mr. H. J. Channon on May 8, a demonstration of a new self-developing paper will be given by Messrs. John J. Griffin and Sons, Ltd., of Glasgow. Scottish Federation.—Sir John Ure Primrose, Bart., LL.D., has been elected to the presidency. He is connected with at least a dozen different societies, the Glasgow Southern Ph.A. and the Glasgow Amateur Ph. A., and is an ardent photographer. His retirement in connection with the opening of The Salon at Glasgow, even though he is labouring under the multifarious duties pertaining to the Lord Provost of Glasgow, are probably not forgotten by the Federation. What is freed from his civic duties, he is taking a more active personal interest in the work of the societies.

THE Kodak Travelling Exhibition is now making a tour in the northern parts of England. The following are the places to be visited on the occasion, and the dates during which the exhibition remains:—Huddersfield, April 23, 27; Southport, April 30, May 4; Preston, May 7, 11; Burnley, May 14, 18; Burnley, May 21, 25; Darlington, May 28, June 1; York, June 5, 9; Darlington, June 12, 16; Leeds, June 19, 23.

## Correspondence.

*Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given. We do not undertake responsibility for the opinions expressed by our correspondents.*

### INTENSIFICATION BY THE CHROMIUM PROCESS.

To the Editors.

GENTLEMEN,—I am afraid that Mr. Thorne Baker, in his series of papers on "The Theory and Practice of Intensification," has gone far astray in his explanations of the theory of the chromium process. This method of intensification was very carefully investigated by Mr. D. J. Carnegie and myself a year or so ago, hence I am able to speak positively with regard to matters that Mr. Baker has treated from very speculative points of view. In his second article it is stated that "the 'bleached' image, after

washing, may be re-developed with an alkaline reducing solution, when certain chromium compounds are precipitated upon the original silver and sub-haloid image, thus giving very considerable intensification to the negative." And also that "the redeveloper quickly decomposes the precipitated chromate, with the result that oxides of chromium adhere to the silver particles, and cause the intensification." I cannot understand what Mr. Baker had in mind when he referred to "precipitated chromate," and these two separate explanations are not exactly in accord with each other, while neither is anywhere near the truth. The chromium compound, which is a brown oxide, is formed during the act of bleaching the image, and the agent responsible for its reduction from the bleaching solution is the original silver of the image. The developer plays no part in the production of the compound, and has very little subsequent effect upon it. It reduces it to a lower oxide, but this effect is very partial and almost imperceptible in the case of an image containing both silver and oxide, though if the brown oxide is isolated it is speedily reduced to chromic oxide by any developer.

We are also told that the chromium oxides are precipitated between the granules of silver, and that "very small, if any, interaction takes place between the chromium oxides and the reduced silver particles." This statement is made on no better evidence than that afforded by examination under the microscope, which would not be likely to reveal such conditions, even if its magnification somewhat exceeded 1,200 diameters. The more rational test of analysis will soon show that the oxide is not simply precipitated between the granules, but is so intimately associated with the silver that the two substances cannot readily be separated. There is, no doubt, a definite molecular relationship between the quantities of original silver and reduced oxide, though the proportion of the latter that remains in the image is materially affected by the fact of its reduction taking place in an acid solvent solution. There is not likely to be any interaction between the oxide and the reduced silver, but it is just possible that some loose chemical combination exists between the silver and the chromium compounds produced in the bleaching process. This point, however, we could not settle definitely. Mr. Baker gives figures from which he assumes that intensification is greater in the under-exposed than in the well-exposed parts of the image; but this assumption is not warranted by his figures, which show that the highest density has received exactly the same intensification as the fog strip. In the lowest two and in the highest strips the intensification is practically equal, and the falling off in the second and third strips suggests only an experimental error.

With regard to the practical application of the process it would be interesting to know why Mr. Baker assumed that the use of calcium chromate would accelerate the action, and why in his list of "modern" formulæ he uses potassium chromate instead of the bichromate. I think it has before been pointed out to him in your columns that the use of chromate is only an undesirable and expensive way of arriving at the same result as that obtained with the bichromate, which is certainly the salt used in most "modern" formulæ. I must also point out that the developer he gives (hydroquinone and caustic soda) is the least desirable out of the many available. It is slow in its action and often leads to frilling and also to slight staining if the development is prolonged and carried out in bright light. Sodium carbonate is the safest alkali to use, but it is best to avoid alkaline developers and use amidol.

With regard to the permanganate process, I experimented with this about two years ago, and came to a conclusion quite opposed to that of Mr. Thorne Baker. The solution, even when fresh, generally decomposed spontaneously, and deposited a manganese compound indiscriminately over the over film, and in the few cases in which I obtained clean results there was practically no useful intensification; no more than can be produced by many processes of simple redevelopment involving no metallic addition to the image. Mr. Baker claims very great intensification in the case of negatives, though his measurements show an almost negligible amount in the case of experimental strips. This suggests only that the photometer is a better judge of density than is the human eye. For some not very obvious reason he recommends two entirely different formulæ for the permanganate process in Chapters II. and III.

With regard to mercurial intensification, the statement that sodium sulphite does not re-blacken the image but produces a brown colour-

abstract of Messrs. Carnegie's and Piper's papers, which originally appeared in "Amateur Photographer," is given in the BRITISH JOURNAL ALMANAC, 1904.—Eds. B.J.P.



ation is not in accord with my experience, for at one time I specially favoured this particular process for negatives on account of the clean black images that I obtained with it. It is strange that the only really reliable mercurial process, mercury and ferrous oxalate, has not even been referred to. Mr. Baker mentions in his first article, as a recent method of intensification, "the conversion of the silver into a haloid, which will darken on exposure to light." It would be interesting to know of such a process, but I never yet met with it. Though I have frequently used such methods for diminishing density, I am not acquainted with one that increases it.—Yours, etc.,

Blackheath, April 28, 1906.

C. WELBORNE PIPER.

#### BLEACHING BROMIDES.

To the Editors.

Gentlemen,—Your correspondence on sepia toning interests me, and I may perhaps be allowed to submit a few notes, at the same time preserving brevity.

Experience in this direction began for me in January, when two enlargements of views from Epping Forest were toned, and proved successful such that they now hang framed in a study. Since then I have thus treated some dozen pictures, ringing the changes on the extent of bleaching, and hence the depth of tone in a finished print. The fact remains, however, and it appears to support the truth of Mr. Allen's inference that the prints are invariably dried previous to toning, although soaking is occasionally resorted to in order to flatten the photographs under treatment and ensure even bleaching.

My pet formula, if citing another will aid in solving the problem, is (for any picture up to 12in. by 10in.):  $\frac{1}{2}$  oz. 10 per cent. solution potass bromide,  $\frac{1}{2}$  oz. 10 per cent. solution potass. ferricyanide, water to the least possible workable amount, wash for five to ten minutes, after bleaching to the extent desired, and redevelop in sodium sulphide 5 per cent. solution.

With assurances that I esteem your paper in not for ever dosing its readers with "How to develop" or "Why P.O.P. is toned," subjects which seem to be enjoying a term of publicity in modern journals.—I beg to remain, yours truly,

STANLEY BARNARD.

12, Queen's Road, Ilford.

April 28, 1906.

#### THE RECENT COPYRIGHT CASE.

To the Editors.

Gentlemen,—The copyright decision of Mr. Justice Farwell mentioned in your columns opens up many possibilities to those who think that photographers, like railway companies, are food for plunder. If an owner of any show place in a neighbourhood gives permission to a photographer to take a series of views, as owner of the copyright there is nothing now to stop him selling or transferring the same to anyone and thus rob the author of the whole fruits of his skill. I hope the profession will support an appeal against this decision. At time of writing I have a similar case on hand.—Yours faithfully,

F. NEWELL.

Manningtree, Essex.

#### MEASURING SHUTTER SPEEDS.

To the Editors.

Gentlemen,—I see that you are publishing in your next issue an article on the pendulum, and should be glad if you could find space for this letter, which endeavours to clear up the controversy over Mr. Watkins's method of testing shutter speeds. It appeared to me to be commercially sound and useful, and I wrote to you on the 3rd inst., as I wished to test its accuracy mathematically, and was unable to do so with your formula  $\frac{s-w}{2\theta\sqrt{2l}}$

It will be within the recollection of your readers that the method Mr. Watkins adopts is to fix the camera on the upper member of a compound pendulum to compare the short dashes on the plate, obtained by photographing the sun at different shutter speeds, with the base line traced across the plate by the sun in one second of time—i.e., in one swing of the pendulum.

Your correspondents seem well up in the theory of the pendulum, but none of them have applied their formulæ to the specific case given by Mr. Watkins in your issue of the 30th ult., where the base-line was 93.9 mm., representing one second, and the dash for

the exposure 4.2 mm., both less 1.1 mm., the diameter of the sun. The length of the corresponding simple pendulum 994 mm., and the total angle of swing 40deg. 15min. Time of exposure is stated to be 1.47th of a second and a small fraction by three methods.

The following proof may be interesting, showing that the above shutter speed is correct, that "the underlying principles are sound, and that it is capable of giving results of as high a degree of accuracy as there is need for," to quote your correspondent, Mr. Carnegie.

The dashes show by their length the angles through which the camera swings while the shutter is open, and these angles may be read directly by an evenly divided scale, whatever part of the plate they fall upon, but are longest and least liable to error if read at the middle of the plate; but I will adhere to Mr. Watkins's figure.

The velocity of the pendulum at midswing is given by  $V = \sqrt{2gh}$  or by  $2\theta\sqrt{2l}$  in your formula, and equals 3.58 ft. (1,094 mm.) per second.

$\frac{h}{l}$  = the versine of half the angle, and  $l$  the length of the simple pendulum  $\theta = 40^\circ 15'$  min.

The circumference of the circle of which  $l$  is the radius =  $9\pi \times 3.1416 \times 2 = 6245$  mm. The travel of the bob in one second

$$\frac{40^\circ 15'}{360} \times 6245 = 698 \text{ mm. } (\theta l = 994 \times .702)$$

The dash given by the exposure is to the travel of the bob during the exposure as the base line on the plate is to the total swing of the bob:— $3.1 : \pi :: 92.8 : 698$ .

The travel during exposure  $\pi = 23.3$  mm. (.076ft.), which  $\div 10$  the velocity per second, gives the exposure as 1.47th of a second.

By your formula corrected

$$\frac{s-w}{2\theta\sqrt{2l}} = \frac{.076\text{ft.}}{2 \times .702 \times 2.553} = \frac{.076}{3.587}$$

the exposure is also 1.47th of a second, so that in both ways we get the same result as Mr. Watkins. I give the result by your formula as it will appear more convincing, but I may add that it compares two things that have no direct relationship, nor you say in your editorial note that all dimensions must be taken in feet. If used as stated by you the exposure would

$\frac{3.1}{1094} = \frac{1}{354}$  th of a second. The sun does not travel over the plate

3.58 ft. a second, but at .453 ft.

Your formula should read  $\frac{(s-w) 7.5}{2\theta\sqrt{2l} \times 305}$  I take 7.5 to be the

ratio of the two members of the compound pendulum, and 305 (millimetres in one foot) to bring the factors to the same units. It was this discrepancy that occasioned my first letter.

I have arrived at these figures without reference to Mr. Watkins but I hope they may be of assistance to him.—I am, Gentlemen, your obedient servant,

C. J. BOSANQUET.

Claverley, Blackheath Park, S.E., April 20, 1906.

#### PHOTOGRAPHIC TERMINOLOGY.

To the Editors.

Gentlemen,—In the second of Mr. T. Thorne Bakers' articles the "Theory and Practice of Intensification" (B.J., April 13, 1906, p. 284) the "readings" of some H. and D. strips before and subsequent to intensification are given. Both from the context and the former article, as well as the curves, one would gather that the readings were to be considered as "densities" in the sense proposed by Hurter and Driffield and since standardised in sensitometric usage—namely, the common logarithms of the opacities—i.e.,

$$D = \log_{10} O = \log_{10} \frac{I_0}{I}$$

where  $I$  is the intensity transmitted,  $I_0$  the intensity incident. But the numbers given are of a magnitude quite inconsistent with this view, a density of 4 to 5 (H. and D.) being the utmost measurable, whereas Mr. Baker's readings go up to 19.8. Are they H. and D. densities multiplied by ten? For the sake of clearness, and the interest of the standardisation of sensitometric quantities, I think it would be well if this point were made more definite.

Catford, S.E.

S. E. SHEPPARD.

# Answers to Correspondents.

*Matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

*Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

*Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 1, Wellington Street, Strand, London, W.C.*

*For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

## PHOTOGRAPHS REGISTERED:—

Essex, 59, London Road, Liverpool. Photograph of Jack Taylor and Sandy Young, Everton Football Club, Shaking Hands, with the English Cup in front on Table. Photograph of Jack Taylor, Captain, Holding the Cup. Photograph of Jack Taylor, Mr. Bainbridge, and Sandy Young, Standing, with Cup on Table. Photograph of Jack Taylor and Sandy Young, Everton Football Club, with English Cup.

Worthy, 169, Park Road, Oldham. Photograph of a Tram Car being used at a Wedding Equipage.

Essex, 8, Gainsboro' Street, Sudbury, Suffolk. Photograph of Sir C. Bart.

Wicks, 4, Springfield Road, Brighton, Sussex. Two Photographs of the vessel in the Church of St. Mary, Newick, Sussex.

Wicks, 41, Mosley Street, Barnoldswick, Yorkshire. Photograph of F. C. M.

Lees, 28, Corporation Street, Manchester. Photograph entitled, "An 1st at Work."

**AS STRETCHERS.**—Kindly give the name and address of maker or dealers in the cheap canvas stretchers now used for 20 x 16 romide enlargements. Some time ago I saw an advertisement in the B.J.P. of a firm advertising them for sale, but not having the back numbers am unable to trace it.—J. H.

Griffiths Steam Works, 26 to 31, Eyre Street Hill, Hatton Garden, London, E.C.

**ING.**—I have been a printer for some years and have not had much printing-in to do. Could you give me a few hints as to how to go about it, both as to printing-in and printing-up of sizes?—J. B. BERTRAM.

We cannot answer your query usefully in the space available in this column. You should get a text book, such as Burton's "Photographic Printing Processes" (Marion and Co.), containing instructions.

**K.**—1. There is none. 2. You can purchase sensitised albumen paper which will keep for a reasonable time. Messrs. Griffin are makers of such a paper.

**O.**—I should be much obliged by your kind advice on the following matter. A room, facing east, 40ft. long by about 7ft. wide, and 8ft. 4in. high, could have two of its windows thrown together, making glass 12ft. long and right up to the ceiling with about 2ft. at the floor unglazed. Can satisfactory pictures be obtained in such a room as a studio—single figures, children, and groups? It is not possible to let light in on the top, as there are rooms above.—T. R.

Although the room will not really make an ideal studio, it will make one in which excellent work can be done, with but little trouble in the working. In making the alterations, we should recommend that the glass be carried up as high as is possible.

**STION MAKING.**—I have lately—i.e., for the last five months—been attempting the manufacture of my own process of lantern slides. A certain amount of success has attended these efforts, but I am desirous of getting a few hints about the principle of long and short scales of gradation, and how much combined silver is really necessary; also, how speed varies with heat, and whether a prolonged gentle heat is preferable to a shorter time at higher temperatures. If you could introduce me to any literature or articles in back journals, dealing with such technical points, I should feel greatly obliged.—S. B.

One must go back practically about twenty years to find any series of articles on emulsion making in our pages. Possibly our querist might obtain, second-hand, a copy of Abney's

"Photography with Emulsions," or, if he can read German, Eder's "Handbook" (Vol. III.) would be of very great value to him. As a rule, a longer scale of gradation is obtained with increase of proportion of iodide in the emulsion, and also by reducing the amount of gelatine during mixing. As to the amount of combined silver, this, of course, varies with the speed of the emulsion, but 1½ grains of silver haloids to the quarter-plate is ample. We do not understand why our querist should want to know about speed if he only desires to make lantern and process emulsions, because speed hardly comes into play. Still, long-continued gentle heat is better than short high temperatures.

**PULLIGNY LENS.**—I shall be glad if you will inform me through your correspondence column of a simple means of obtaining the necessary correction of camera extension to secure sharpness with a Pulligny anachromatic single lens. I have purchased some lenses unmounted, from the makers, and although I can obtain a very fair result by racking in a trifle after focussing, I should like to know if any other more accurate means can be used. Could a coloured screen be used in focussing which would be removed on exposure?—F. E. H.

The correction for the non-coincidence of the actinic and visual foci, as it is usually called, may be very easily made by racking the lens and focussing screen towards one another by about one fifty-fourth of the extension of the camera. In their work on these lenses, MM. Pulligny and Puyo state that one blue-violet screen, as used for three-colour work, is hardly sufficient to give enough correction, and that two such screens make the focussing a matter of difficulty, owing to the great absorption of light. It is also possible to fit on the front of the lens tube a supplementary lens, or "bonnette," and these the makers will supply.

**W. HILL.**—You will find reliable formulæ on page 971 of the "Almanac" for 1906.

**H. EDWARDS.**—There is no such work in existence in English. Abney's "Photography with Emulsions," which has long been out of print, is the only one that is at all likely to be useful.

**INQUIRER.**—1. Is it out of the question to get a satisfactory group of 600 on 12 x 10 plate? 2. Would white paint be satisfactory to subdue light on studio clear glass, which is north light, or can you suggest something? Also, what colour blinds?

1. We should say it certainly is too large a number. We should advise you to take the group on two or more plates, and from them make combination prints or negatives, as recently directed in these pages. 2. We should consider the paint too opaque; better to use starch paste for temporarily obscuring the glass. You may use white blinds.

**ROYAL STANDARD.**—You are at perfect liberty to do as you like with your photographs. The fact of the view point being on private property does not affect the case.

**LIABILITY FOR RATES.**—Will you kindly answer the following, thanking you in anticipation? I took premises at £50 per annum (rates, etc. extra) for one year expiring March 25, 1907. Since I came my wife has been very unwell, and I learn the place does not suit her. If I leave the house, say, in a month, or at a later date, can they compel me to pay the rates, etc., for the remainder of the term if I hand over the keys to the landlord or agent?—C. WHITE.

You will be liable for the rates only during your occupancy of the premises, and not for the full year.

**DAMAGED NEGATIVE.**—I shall be glad of your advice on the following subject: A traveller called on me for an order for enlargements. I gave him an order and handed him a half-plate negative, the firm acknowledging the order, and asking for a guide print. I sent one, but it was a very poor one, although it served as a guide. The enlargement came home, and it occurred to me not as it should be, so I wrote off for the negative. The firm sent me a copy negative from the poor print. I wrote asking for the original. They told me it was damaged through the post. I told them that under the circumstances I could not accept the enlargement, as it was from a copy and not original, and was not, in consequence, what it should be, and asked them what they were going to do. They wrote regretting the accident to the negative, and offered



to make another enlargement, and hoped that would meet my view. Now what I wish to know is, am I bound to accept another enlargement (by the way, as it cannot now be made from the original it cannot be improved upon) or any at all, and as I did not send the negative through the post, can I claim compensation for the damaged negative? I forgot to add that the firm has written me that "no one regrets the accident more than we do, but we are not responsible for damage done in transit." Let it be understood I gave the negative to the traveller of the firm.—T. H. H.

According to a well-recognised "custom of trade," those executing an order are not responsible for damage to negatives in transit or during the execution of orders. An accident has unfortunately happened, and the firm have offered to make all the recompense that can reasonably be expected from them. Of course, the thing is annoying to you, but accidents, at times, are unavoidable.

**BOLD PRINTS ON P.O.P.**—I should be much obliged if you will be kind enough to let me know, through your paper, whether there is any formula for toning P.O.P., which helps to give brilliancy and contrast to prints from soft negatives; when the prints are required for reproduction this is an advantage, or is there on the market any P.O.P. specially prepared for answering the same purpose?—G. B.

One toning bath is very little better than another for this purpose. The best way to obtain greater brilliancy on ordinary P.O.P. is to print very faintly and develop with one of the acid developers or by the alkaline method of the Paget Company. The lighter the printing the greater the contrast obtained. A special P.O.P. for great contrast is the Rembrandt, for which Houghtons, Ltd., are the agents, we believe.

**RIGHT TO PHOTOGRAPH.**—Will you kindly reply to this query? We have a canal passing through this town, owned by a railway company. The towpath is open to the public. Can this railway company prevent me taking views from towpath and publishing them as pictorial postcards?—CONSTANT READER.

Certainly not—that is, if the towpath is a public thoroughfare. Even if it is not the most the railway company can do is to order you off as being a trespasser. If you secure the photographs you cannot be prevented from publishing them as postcards, or in any other form you may desire.

**PORTRAITS WITH NATURAL BACKGROUNDS.**—In your journal this week there is an article on "Portraits With Natural Backgrounds." Will you kindly let us know if the prints are painted over with ordinary moist water colour gamboge, and if so, we wish to know if the prints do not cockle in the centre by reason of the moisture?—LOWTHIAN BROS.

The gamboge usually employed is such as is sold by chemists, or by most good oil and colourmen. The prints do not cockle to any extent, and even if they did the paper would be pressed flat in the printing, and so cause no trouble. Only a thin coating of the gamboge is required.

**OUTDOOR OUTFIT.**—I am thinking of having a complete outfit, suitable for taking shop fronts, large buildings, school groups, and all classes of outdoor work. Will you kindly give me advice as to what kind of lens would be suitable and what size camera? I am open to pay a fair price for same.—MIDGET.

The best lens would be one of the anastigmat type, working at about  $f/6$ , if price is not an object. The next best would be one of the rapid rectilinear type, which has an aperture of  $f/8$ . As regards the size of camera, that, of course, must depend upon the size of the pictures you desire to produce. We should advise you to get price lists from the lens makers, and the manufacturers of apparatus, whose advertisements you will find in another part of the journal. From them you will see what will best suit your requirements—and pocket. We should advise you to get at least a whole-plate size, and we would suggest a camera possessing a close wide angle movement, and facilities for raising the front when the bellows is only moderately extended.

**A CAMERA WANTED.**—1. May I ask for information concerning the following, through the medium of your widely read journal? I want to know whether it is possible to obtain, and if so, where, a hand and stand folding camera, half-plate or postcard size,

which will take wide angle as well as long focus lenses, which will be perfectly steady when used on a stand for zontal, as well as vertical, views. What I mean is a camera something of the type of Butcher's "Minimum," or of Houghton's "Tudor" cameras, but, unlike these, so constructed as to the lenses already mentioned. In my experience all cameras of this class can only be used for vertical pictures, inasmuch as, when placed on a stand for horizontal ones, they vibrate the slightest movement of wind or shutter, and moreover, cannot be used for wide angle exposures. I may add that about to take a prolonged journey for photographic purposes and for special reasons it is necessary that the camera used be of the lightest and smallest. 2. May I further ask if any reader can tell me of any practical method of using flat half-plate in a double back (other than the various "packs" now on the market), so that they do not cockle up? So far I have not been able to use these films, much as I would otherwise like in consequence of their habit of refusing to lie flat, and the getting injured and out of focus.—VIATOR.

1. You had better get a folding camera of square build (reversing back), of which both the makers you name sell several patterns. You can obtain these with the necessary wide angle movement. 2. Any large dealer will supply both carriers and cut films for half-plate size. If no larger than this you can get them to lie flat. Naturally you will have some difficulty in carrying the thin pack films flat in dark slides.

**A COUNTRY-IN-TOWN Exhibition.**—Last year we called attention to an interesting project in the shape of a "country-in-town" exhibition, and it has now been definitely decided to open it at the Whitechapel Art Gallery, from July 5 to the 19th. Mr. Carrington is the president, and Mr. J. C. Medd chairman of the Executive Committee, while Canon Barnett, of Toynbee Hall, is the treasurer, and Mr. Wiltred Mark Webb (of the Selby Society) hon. secretary. The exhibition will consist of five sections. In the first will be living things, such as plants which have been or might be grown in London and in London schools, aquaria, vivaria, and bee-hives. Pictures and models from London and other urban centres will come into a second division and show the planting of streets and open spaces, children's gardens, playgrounds, town gardens, garden suburbs, and railway embankments. The third section will be given over to material appliances. The fourth will consist of plans specially drawn for the improvement of certain areas in London, while the last will deal with city life in Japan and other countries. As no charge will be made for admission to the exhibition, the committee would be very glad of contributions towards its cost. These should be sent to the treasurer, while all offers of help in the organisation of suggestions for exhibits should be made to the hon. secretary at the "Country-in-Town" Exhibition at Toynbee Hall, Whitechapel, E.

THE shop window of Mr. T. Wilson, photographer, New England, Peterborough, caught fire last week, but the flames were extinguished before much damage was done. How the fire originated is not known. The sun was shining very hotly on the window when the accident occurred.

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## SUMMARY.

**Professional Colour Photography.**—To-day the St. James's Studio and Rotary Photographic Company is to be opened, exclusively for photography, in Old Bond Street. An article, illustrating the enterprise, records similar steps on the part of the Plymouth Photographers, Heath and Stoneman. (P. 366.)

**An international exhibition is proposed for Paris next year with co-operation of the "Chambres Syndicales."** (P. 361.)

**A photographer whose premises were flooded by the sea, involving damage of much furniture and apparatus, failed to recover damages from his landlord on the ground that the protecting sea wall had not been kept in repair.** (P. 367.)

**He show case, charges for sittings, a standard minimum rate for photographs, are among the topics discussed by the P.P.S. of N.Y.** (P. 368.)

**Precautions needed in home-sensitising carbon tissue are dealt with in connection with the adaptation of the sensitising to the negative.** (P. 363.)

**Diffraction grating spectroscopic cameras are discussed by Mr. E. J. Wall in the third article of a series dealing with the use of the spectroscope for photographers.** (P. 364.)

**Diffusion of definition in portraiture is warmly commended by an American writer.** (P. 370.)

**The syllabus of courses of instruction in photography has been published by the Victoria University, Manchester.** (P. 370.)

**Another film envelope has been patented; also a clockwork release and instantaneous shutter.** (P. 371.)

**The Photographic Survey of Surrey reports a year of progress. The classification of the photographs collected by the Survey is given on page 370.**

**Eighteen hints on retouching were given in a paper by Mr. H. Gordon Stollard before the North Middlesex Society.** (P. 374.)

**Humours of the dealer's counter occupied the L. and P. last week.** (P. 374.)

## EX CATHEDRA.

### The Royal Academy.

Since it has become fashionable amongst critics to lament, year by year, that the current exhibition at Burlington House reaches a lower level in the degradation of art than its predecessor, we shall perhaps be thought peculiar when we venture to say that we find the present show quite up to the average, and thoroughly representative of English art to-day. This does not mean that we find nothing there undeserving of its place; nor that we do not think a few of the older men might with advantage rest on their laurels rather than submit themselves to damning comparison with younger artists. Of course, there are many things that are an offence to people who can discriminate between the artistic and the vulgar; but even some of the worst of these are clever technically—a deplorable complication. Next week we shall publish some impressions on the exhibition as fully as space will allow; but in the meantime we cannot refrain from alluding to what is the crying shame of the collection. For absolute incompetency and vulgarity the two life-sized portraits of the King and Queen, painted for the Canadian Houses of Parliament, are not to be excelled. In this matter, however, the Royal Academy must not be blamed. This pair of specially displayed and draped exhibits are exceptional cases from which selecting committees must withhold their jurisdiction. King Henry the Eighth commissioned Holbein to make the royal portraits; King Charles the First commissioned Vandyke; King Edward the Seventh, if he did not actually commission, at least commands the exhibition of masterpieces by Colin Forbes!

\* \* \*

### Exhibitions in Paris.

By the same post which brings us an English prospectus of the Exhibition in course of organisation by M. Gastine, we receive a circular issued jointly by the "Chambres Syndicales," announcing an international exhibition of photography to be held in Paris next year under the patronage of the "Chambres," and with the co-operation of the Photo-Club and the Société Française de Photographie. An exhibition committee has been formed to prepare the scheme which is to take effect in the early part of 1907. Apparently the announcement of the proposed exhibition is made at this early date with the desire not only to allow the project to be known in all parts of the world, but also to increase the difficulties of those who are carrying out the arrangements for the exhibition, our references to which has led to the publication of several communications from M. Gastine. If the aim of the Syndicales is that the exhibition proposed for July next should be abandoned, we are afraid they will be disappointed, for the Government support which, we are assured, has been accorded to M. Gastine,



will be sufficient to provide the material for a large exhibition. The whole question is not one which keenly interests the British photographic public, although it will be curious to watch the lively warfare upon which our Gallic neighbours seem intent.

#### A Question for Tenants.

A case of importance to photographers in seaside resorts came before the Folkestone Court the week before last. A firm of photographers sued their landlord for £100 for destruction of property lost through the sea wall in front of premises occupied by the plaintiffs not having been kept in proper repair. The house in question was 25 feet away from the wall, but the latter breaking down under a heavy sea, the house was undermined, and the rear portion of the premises fell, taking with it much furniture and photographic equipment. The judge summed up for the defendant on the ground that the sea wall was not part of the demised premises, and a jury of builders assessed the damages of the plaintiffs, in view of an appeal, at £20. The case is one which shows the necessity of a carefully drawn up agreement when taking premises on or near a sea front.

#### Camera Shyness.

In a recent lecture before the L. and P., Mr. Malby, in referring to attempts to snapshot children in the slums of London and other large cities, said that it was almost impossible to obtain more than one shot per day in any one street, as the youngsters, immediately they discovered what one was about, were off like wild rabbits. This behaviour seems to us so utterly uncharacteristic of the British London child that we are impelled to think that Mr. Malby must have experimented in distinctly alien quarters. In a good many East-end slums British children are rarities, but where they abound we never noticed any particular shyness of the camera, excepting on the part of the girls, and even they are not usually shy enough to run away, only sufficiently so to put on the most idiotic expression they can command and stand as stiffly as possible. As for the boys, one boy speedily becomes many if a camera is on view, and with many boys about photography soon becomes impossible. Camera shyness is, however, very prevalent with foreign children, and even with their elders. We once strolled through a French market-place with a camera, innocently expecting that something in the way of a good subject would present itself. But the subjects worth faking were scarce, for the most prominent objects in view were umbrellas which were always turned in our direction. The great interest taken by the London street urchin in every unusual proceeding is often most embarrassing. One artistic acquaintance of ours hit on an excellent remedy for this inconvenience, which remedy took the form of a well-bred British bulldog of imposing aspect at the end of a long string attached to the artist's stool. The ground inside the circle commanded by the bulldog was then sacred ground that no stranger ever ventured upon, however great his curiosity.

#### Colour Photography in Horticulture.

One sign of the intensified interest which growers of flowers and fruit are evincing in the possibilities of colour photography was provided by the delivery of a lecture on the subject before a recent meeting of a horticultural society on the south coast. Colour photography is peculiarly the need of the florist and seed merchant, for the obvious reason that the exhibition of his products to customers at a distance is a matter of extreme difficulty on account of their perishable character and fragility. Hence those who are taking steps to embark on colour

processes in a business way will probably find firms such as these the easiest to do business with, and such work as they will have to give out is fortunately not the most difficult, and can usually be undertaken in a bright outdoor light.

#### Photographic Survey in Surrey.

The published report of the Photographic Survey and Record of Surrey shows the excellent lines along which the work of the survey photographers has been done, and might well be studied by other photographic bodies desirous of taking up this most commendable application of photography. The work of the survey is split up into six sections—architectural, art and literature, anthropological, geological, natural history, and passing events—each of these sections being under the direction of a committee capable of advising individual workers. Proof of the success which has followed this sub-division of activities is found in the fact that the number of entries in almost every section has increased over last year's, and the scheme, it would seem, secures the description of photograph which may be profitably preserved. As a guide to other societies, we reprint on another page the classification adopted by the Surrey people, commending it as applicable to almost any district.

#### Photographic Record Specialised.

Last year we referred to the work of E. S. Curtis, an American photographer who for some years past has entirely devoted himself to the portrayal of Indian life and character with the camera. This self-allotted labour will absorb his time for several years yet, but it is interesting to note that an exhibition of Mr. Curtis' photographs recently held in Washington has been visited by President Roosevelt, and has attracted the notice of Mr. Pierpont Morgan, by whom the sum of £15,000 has been guaranteed to see the work completed. Writing to us some time ago, Mr. Curtis informed us that in regard to reproduction of his work in the magazines he had stood out against current editorial notions of what should be paid for the right of reproduction. He had taken the stand that such work was worth as much as original productions of the best artists, and the magazines have used his work on these terms.

#### The Camera in Advertisement Designing.

The relative positions of the lithographic artist and photography have recently undergone reversal; the "handmaid of art" having become, in the showcard-producing industry, the lady superior. It cannot be denied that attempts to enlarge and colour complete photographs have been almost invariably dismal failures; but the modified methods now in vogue seem to give absolute satisfaction to the makers of soap, meat extracts, and other commodities. An idea of the "motif" having been settled upon, the next step is to photograph the figure required—child, winning damsel, or what not. This is done without any effort to complete the *mise en scène* by suitable background and accessories. All such work is left to the artist, who makes an enlarged drawing in colour, whilst obeying his instructions to preserve the exactness of expression of faces. Faults of pose, clumsiness of hands, largeness of mouths, and other photographic misfortunes, it is also his duty to amend. The result is a highly tickled-up piece of realism in gaudy colours, which does very well for tobacco and starch, though it would, perhaps, scarcely satisfy poster-users such as the North-Western Railway Company, whose latest posters are the high-water-mark of poster art, and for popularity run Millais' "Bubbles" very close. Cheapness is probably the chief recommendation of the new method.

## PRINTING PROCESSES.

## XXI.—CARBON.\*

the previous articles on this process it was assumed that the tissue used was purchased ready sensitised, and there are some positive advantages attending this. One of them is that it can be relied upon as being in good condition when received; another is that the trouble, little as it is, involved in the sensitising and drying, is saved. Still another is that tissue sensitised in the making—that is, by bichromate being added to the pigmented gelatine before the paper is coated—keeps much longer than that which is sensitised by its immersion in a solution of the salt. The tissue as supplied ready sensitised by the manufacturers, is adapted for negatives of what may be termed average type, and, therefore, is not so well suited for the use of a widely different character—say, exceedingly fine or abnormally hard—as tissue which is specially sensitised to suit them. The tissue that best suits the former class is one sensitised in a weak solution of the bichromate, and that most suited for the latter, in a strong one. Good prints can be obtained from quite feeble negatives of tissue weakly sensitised, and harmonious ones, from negatives that possess even very harsh contrasts by suiting the tissue to them in the sensitising. What may be described as a weak bath is one of about 2 per cent. strength, and a strong one from 5 to 7 per cent.

The stronger the bath used the more sensitive the tissue will be, and the shorter the time it will keep in good condition. Conversely, the weaker it is the less sensitive will be the tissue, and the longer time it will remain in good working order. It may be taken that, as a rule, the commercial ready sensitised tissue is about equal in sensitiveness and character to that sensitised in a bath of about 2 per cent. strength. It is not really necessary, in practice, to have baths of varying strengths to suit different classes of negatives, as the same end may, practically, be attained by using a solution of medium strength and varying the time of immersion in it, a short immersion being equivalent to using a weak bath, and a long one equal to employing a strong solution. Again, if the superfluous solution, with a short immersion, be removed with a squeegee it will be still more weakly sensitised. What, then, should be the strength of the solution most useful for all classes of negatives have to be dealt with? About 2 to 4 per cent. will be found a useful average, for which the good formula is as follows:—

Bichromate of potash	6 ozs.
Water	... 1 gallon.
Liquor ammonia	... 3 or 4 drams.

Hot, or even boiling, water may be used in making the solution, as the bichromate is then quickly dissolved, while in cold water it is slow of solution; but the ammonia must not be added until it is quite cold. The object of the ammonia is to neutralise any free chromic acid there may be in the bichromate, which, if left, would impair the solubility of the tissue, and its keeping qualities. An excess of the ammonia does not harm, as it flies off as the tissue dries. It is well to make up a good quantity of the solution at a time, as it can be used over and over again, until it becomes quite of a brown colour. The advantage of making a large quantity at a time is that it can be decanted from sediment when used, and thus filtration each time is avoided, even when the bath has many times been used. Some workers even prefer a moderately used bath to a quite new one.

For sensitising a good quantity of the solution is decanted into a dish—say to a depth of a couple of inches or more—and a piece of the tissue immersed, all air-bells, back and front, being removed with a flat camel-hair brush or the

finger. The sensitising may be done in ordinary daylight, as the tissue is quite insensitive while it is wet. If weakly sensitised tissue is required it should be removed in about a minute or so, and then squeegeed on to the plate; if a very weakly sensitised one is desired the squeegee should be heavily applied, so as to remove as much of the solution as possible. If a strongly sensitised tissue is required, the time of immersion may be extended to five or more minutes and the squeegee used with but slight pressure, only just sufficient to equalise the solution on the back. For medium sensitiveness three minutes will be a good time. If the tissue is not dried on a plate the best way is, as it is removed from the bath, to draw it face downwards over the edge of the dish, or a glass rod fixed to it, to remove the superfluous solution from the front, and then lay it, coated side upwards, on a blotting board, which will absorb that on the back, and then lay the board on a couple of lines stretched across the room.

It should be kept in mind that temperature is a factor in the sensitising. If it be low the solution is more slowly absorbed by the gelatine than when it is higher, and allowance should be made for this in timing the immersion. In very hot weather it may be found necessary to cool the solution by the addition of a little ice, for it is a somewhat curious fact that gelatine is more soluble in a solution of bichromate of potash than it is in plain water of a similar temperature. The temperature of the solution in hot weather should not exceed 55 or 60 degrees Fahr., lower is better, or there may be a danger, with some tissues, of the coating running when it is hung up to dry, or it might, on account of its softness, be pressed out by the squeegeeing. In hot weather some workers add methylated spirit to the sensitising bath, in the proportion of about an eighth or a tenth of its bulk. This restrains the solvent action of the bichromate, and at the same time facilitates the drying of the tissues.

It may be mentioned that it is not necessary that the dish be as large as the tissue to be sensitised, provided its longest dimension is a trifle more than the width of the tissue. In this case the tissue is rolled up, immersed in the solution, and then slowly unrolled and re-rolled over and over again, of course keeping it well under the solution for the requisite time. If, in the sensitising, the fingers or nails become stained with the bichromate, they should at once be rinsed in dilute ammonia, and afterwards washed with warm water and soap. This will remove all traces of stain.

A word or two on the drying of the tissue may be said here. The drying, when the gelatinous surface is exposed to the air, must be done in a darkened room where the atmosphere is free from noxious fumes, such as those from burning gas and the like, and the drying should be completed in about six or seven hours, particularly if the temperature is high. If this time be much exceeded, especially if injurious vapours be present, the tissue may prove to be more or less insoluble, and will not keep for long. Also, if the tissue does not turn out actually insoluble, its surface may be what is termed "tinted," that is, slightly fogged. A better way of drying when small sizes—say up to 18 x 15 or so—are required to be dealt with, is, after the tissue is removed from the bath, to squeegee it on to a ferrotype plate, or a sheet of tin or zinc, and allow it to dry on that. Then the drying may be done in any ordinary room, as the coating is protected from light by the yellowness of the paper backing, and also from any injurious fumes there may be in the atmosphere. The drying, it is true, then takes somewhat longer than when both sides are exposed to the air, but that is not of much moment, seeing that the actual surface which is to bear the image is so well protected from atmospheric influences.

\* Concluded from page 264.



## THE USE OF THE SPECTROSCOPE.

### III.

WE now come to the consideration of the diffraction grating, which may be defined as a series of parallel lines ruled either on glass or metal. These are extremely expensive, and the finest are those ruled by Rowlands on metal with 10,000, 14,438, or 20,000 lines to the inch. Of late years Rowlands has ruled them on concave metal speculums, which do away entirely with the necessity of using a lens to form an image, for, of course, they act exactly like an ordinary concave mirror, and form a real image. The great disadvantage of these concave gratings, for such simple work as the average photographer is likely to engage in, is that the sensitive surface must be bent to a curve, which totally excludes the testing of plates.

The disadvantages of the plane metallic grating are that the image lies on either side of the slit and the mounting is cumbersome, extreme delicacy of adjustment is required, and, moreover, the grating is costly—far more so than any work that we are treating of deserves.

#### Diffraction Grating Replicas.

Mr. Thorp, of Manchester, has, however, been able to take casts of a Rowland plane grating in celluloid, and these are quite satisfactory in performance and reasonable in price—namely, fifteen shillings. It is these, then, that we need only consider.

The method of making these replicas was described at length in the *BRITISH JOURNAL OF PHOTOGRAPHY* for November 29 and December 29, 1905. There is not the slightest difficulty in following the directions given, and excellent results are obtainable, even when one does not go to the trouble of purifying the pyroxyline, for I have obtained very satisfactory results with a sample of commercial celluloid varnish, which had been standing undisturbed for three months, so that all the impurities had settled to the bottom of the bottle. The only thing to fear is dust settling on the wet film.

These replicas are, of course, used by transmitted light, the slit being placed opposite to the centre of the grating, and with its jaws parallel to the ruling. When one of these is examined, and the eye is placed in a straight line with the light, practically no spectrum can be seen—merely the white slit; but if the eye be moved to one or both sides the spectrum will at once be seen. This is roughly shown in the following diagram, Fig. 1, in which S is the white central image of the slit  $V^1R^1$ , the first order spectra on each side, separated by dark intervals from the central image;  $V^2R^2$  are the second order spectra, and  $V^3R^3$  the third order spectra. It will be seen that the

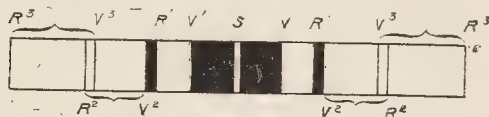


Fig. 1.

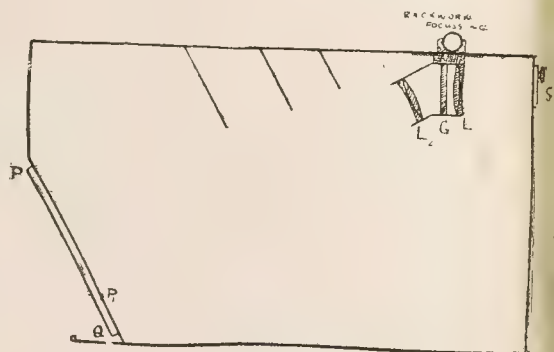
third order spectra overlap the second, and the second ultra-violet spectra overlap the red end of the first. It is important to note this, for it may give rise to photographic action in this region, and be quite misleading. A simple dodge will get over this, as will be seen later.

To anyone who has one of these transmission gratings my advice is to rig it up temporarily and project the spectra on a white card, and note whether one first-order spectrum is brighter than the other, because this may easily happen, and is due to a

peculiarity in the ruling of the original grating. It was stated by Mr. Thorpe some time ago that he hoped to make replicas in which nearly the whole of the light was thrown into one spectrum, which would be a gain from some points of view.

For our work the first-order spectrum is quite sufficient, though the spectrum in the other orders is much longer, but the overlapping is so great and the illumination so poor that we can ignore them altogether, except so far as they may give rise to scattered light in the camera.

It will be obvious from Fig. 1 that if our plate is placed opposite to the slit we shall have a white image, and may or may not obtain a spectrum on the plate, so that our camera must be specially arranged with the slit right at one side, or the top, and the plate at the bottom. This plan has been adopted by Thorne Baker, as shown in Fig. 2, in which S is the slit,  $L_1$  is the collimator lens, G the transmission grating,  $L_2$  the



Diffraction Grating.

Fig. 2.

camera lens, and PQ the position of the plate. The external measurements of this are 24 by 12 by 3 inches. This is an uncouth-looking instrument, and far too bulky for ordinary work.

#### Tallent's Spectroscopic Camera.

Tallent's diffraction camera is much handier and equally efficient for all plate and screen testing. This is shown in Fig. 3, in which D is the slit, E the collimator lens, F the diffraction grating, and C the camera lens, RCV being the dark slide which slides in grooves past a narrow aperture, which enable one to obtain five spectra on a quarter-plate.

It will be noted that the diffraction grating is mounted on a 60 deg. prism, and the purpose of this is to refract the central white line to the bottom of the camera, whence it is prevented from reaching the plate by the thick dotted screen, and to bring the first-order spectrum in a line with the slit. The whole arrangement is extremely compact, handy, and reasonable in price. The slit is adjustable, and a numbered scale can be fitted close in front of the plate, so that it is easy to identify any particular region when it has once been scaled.

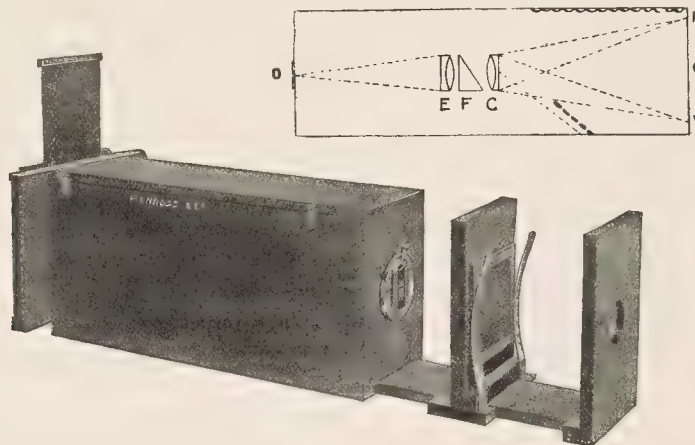
#### The Ives Camera.

Mr. Ives has also made a diffraction grating camera with replicas, in which the latter is cemented between two 70 prisms, which necessitates setting the grating obliquely to the body of

camera. The slit in this camera is placed near one of the ends of the camera, as the direct vision line, instead of being in the middle of the spectrum, is in the ultra-violet. A novel feature is the naphthol yellow screen placed in front of the slit. The spectrum from A to E, thus cutting out the overlapping ultra-violet of the second order.

of action or sensitiveness of the plate to the particular regions of the spectrum or colours, it will be obvious that the prismatic spectrograms will show much greater colour sensitiveness than the diffraction.

It is, of course, possible to translate, as it were, the prismatic action into the diffraction by comparing the density for a given



The Tallent Diffraction Spectrographic Camera.

Fig. 3.

### Properties of the Diffraction Spectrum.

It will be as well to point out here the advantages of the diffraction over prismatic spectrum. In the latter the distribution of the colours or the position of the lines is dependent on the number and the refracting angles of the prisms, and the kind of glass of which they are made, whereas, with the diffraction grating, the distribution is practically always the same. Put it a little more practically, the red end is crowded together and the blue and violet end spread out with prisms, whilst with a diffraction grating the distribution is more even. This is well illustrated in Fig. 4, which is taken from Hubl's book,

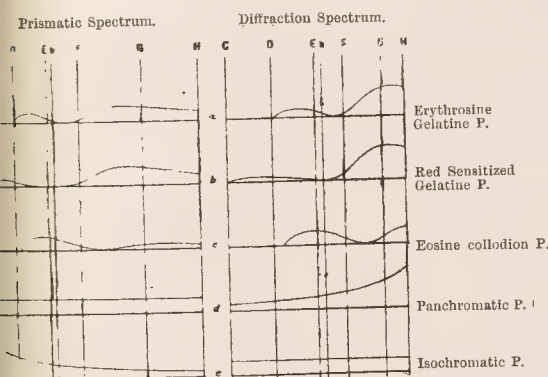


Fig. 4.

"Three-colour Photography," and is used by him to show how misleading the prismatic spectrum may be, for if we represent the photographic action of the spectrum on a plate by the usual curves, and the height of the curve as representing the amount

region, say, for instance, from C to D, and calling this  $a$  and the density  $m$ ; then, in the diffraction spectrum this region will occupy a greater space, and, calling this  $b$ , the density  $n$  must be less, for the action is spread over a greater surface, then  $am = bn$ , or  $n = \frac{a}{b} m$ . Such comparisons as this are, however, not likely to be called for.

All the remarks as to the slit width, etc., made in connection with the prismatic spectrum apply equally well to the diffraction grating camera, so that we can proceed at once to determine the actual positions of the Fraunhofer lines, and therefore of the colours.

### Mapping the Spectrum.

I am assuming that the actual position of these lines is not known; if they are, and can be recognised visually, then all that is required is to examine the spectrum with a scale, note the number of the scale agreeing with the various lines; but, assuming that one knows generally where the lines are, but not their actual position, it is extremely easy to map them out, using nothing more than a bunsen burner and a few salts, such as lithium, sodium, thallium, strontium, and potassium chlorides. Magnesium ribbon will also be required. Small quantities only of these salts are required, for if the scale is once made it can always be used. The greater the number of salts used the more correct the scale, but with a bunsen burner, common salt, magnesium ribbon, and potassium chloride we can map in really all we want, for the potassium will give us red and blue lines, sodium the orange, magnesium little  $b$ , or the green, and the lower part of the bunsen flame the well-known Swan spectrum.

With the aid of an induction-coil and a vacuum tube filled with hydrogen one can easily map in the red line C, F in the green-blue, G in the blue, and little  $h$  in the blue-violet. The cost of a hydrogen tube is not much; but if one has not an induction-coil, and has to borrow the use of one, it would be



far better to obtain one of the compound vacuum tubes suggested by Professor Collie containing hydrogen, helium, and mercury, which gives fifteen lines almost equally distributed between  $\lambda 706$  and  $\lambda 434$  and which render anything else quite unnecessary.

Mr. A. T. Newton, in "Penrose's Annual, 1906," p. 81, gives an excellent method for scaling the spectrum when one has an arc light at command. It is frequently recommended to use the iron arc, or for fine work the spark spectra of cadmium, copper, or an alloy of, cadmium zinc, and lead, but the trouble with all these is that the number of lines is so great that confusion is the result.

Again, it is often advised to use, not the wave lengths, but the oscillation frequencies—that is, the number of waves in one centimeter in vacuo, for scaling purposes, because the curve then becomes nearer a straight line, or we are advised to use the squares of the oscillation frequencies when it becomes nearer still to a straight line. These are refinements, and unless one has a table of oscillation frequencies for every wave length,

and maps this as well, there is trouble in reading off the results. It is far easier to use an empirical scale and memorise the scale numbers of the lines.

This is possibly a convenient place to support the statement previously made, that for all ordinary purposes the expression wave length 589 or  $\lambda 589$  is sufficient. Supposing we start scaling a spectrograph, and wish to be accurate, and assume that the length of our spectrum to be four inches, taking the two lines E and little b, which have wave lengths of 527 and 527.5 respectively, the separation is by actual measurement a quarter of an inch. Now, it must be a fairly closely ruled scale which will show ten divisions in a quarter of an inch; besides, if one did have such a scale, it is doubtful whether it would be of any practical value for such difference in the sensitising power of a dye, or the absorption of a filter would be negligible. Now is the expression 5270 more accurate, because such a line may be one of the three standard wave lengths, 5270.448, 5270.495, or 5270.533, and thus be due to calcium or iron.

E. J. WALL, F.R.P.S.

## PROFESSIONAL COLOUR PHOTOGRAPHY.

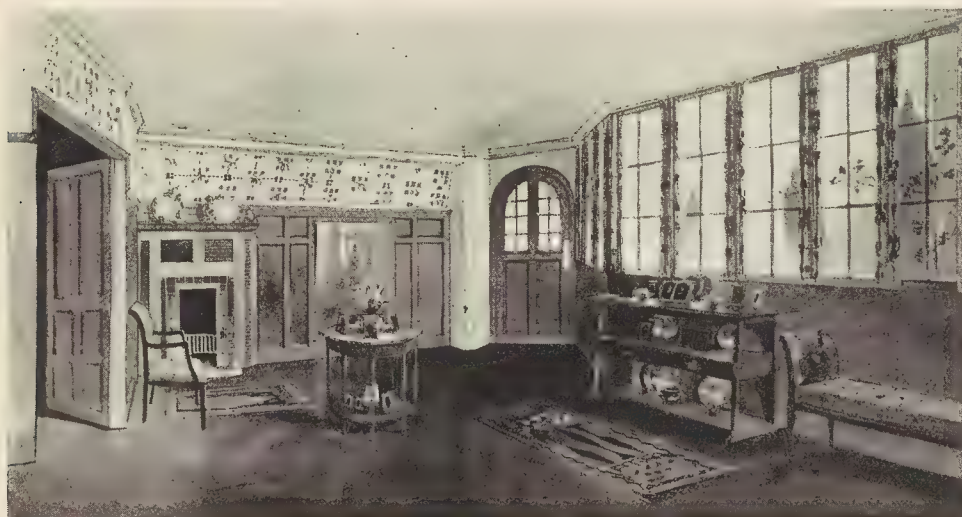
THE present issue of the BRITISH JOURNAL OF PHOTOGRAPHY may properly be regarded as marking an important step in professional photography, inasmuch as it records the opening of the studio of the Rotary Photographic Company for portraiture in natural colours and the additional fact that this modern development of the business of the professional portraitist has been appreciated as swiftly in the West of England as in the heart of the West End of London.

Indeed, a firm of Plymouth photographers, Messrs. Heath and Stone-man, can claim to have anticipated events in London by opening their studio for colour photography some week or two ago, whereas the opening of the Rotary Studio, after several postponements, is not to take place until to-day.

The Rotary Company's studio is situated in a new block at the corner of Old Bond Street and Piccadilly, the two topmost floors



The Studio in the Rotary Co.'s new Bond Street Establishment for Colour Photography.



Ante Room and Approach to Roof Garden, St. James's Studio.

which are occupied by its suites of reception and dressing-rooms studio. The St. James's Studio, as it is called, is to be devoted exclusively to colour photography, not of portraiture only, but of works of art, objects of natural or artificial origin as may be desired reproduced in colours. The process is a three-colour method in regard to which no extravagant claims are made. The negatives are made in a repeating back as shown in the photograph of the camera. The combination of plates and filters is of a kind which permits of exposures being cut down to as little as ten seconds for all three negatives, and in announcing their success in this direction we believe the Rotary Company do not claim the possession of exclusive facilities. On the contrary, they desire it to be understood that photographers who will go to the trouble and expense may adopt a practice similar to that of the Studio. In the matter of preparing the prints from the three negatives the process

employed by the Company is that involving their well-known "carbon stripping films," the use of which in professional portraiture was the subject of an article in our own pages some months ago. The results by the same process formed a notable series of exhibits in the collection of examples of colour photography which we brought together at these offices. Since then, we have no doubt, finer specimens have been obtained, and these we shall be able to allude to next week, our present notes being made prior to the actual opening of the studio, from information accompanying the ticket of invitation.

Of Messrs. Heath and Stoneman's enterprise, we can say that it is not a spasmodic effort to compete in a direction which is attracting attention at the moment. The firm has been experimenting in colour work for a year or two past, and the present process, which they are applying commercially, is an adaptation of three-colour methods to certain details of their own origination. Presumably Messrs. Heath and Stoneman prepare their three-colour prints by the carbon process, since their firm has long executed a very large proportion of its output in that printing process. At any rate, the innovation has been sufficient to stir local journalistic circles into



The Camera and Repeating Back in the St. James's Studio.



Reception Room of Heath and Stoneman's.



writing in warm though not foolish appreciation of the "Photographic Colour Portraits" of the Plymouth firm. The "Western Daily Mercury" refers in a recent issue to the accomplishment of Messrs. Heath and Stoneman as successful in the extreme, and comments on the excellent three-colour portraiture. According to the article the minimum exposure of which the process permits is half a minute, but that, we should suppose, may be still further reduced with improvements in panchromatic sensitisers.

Photographers as a whole will await with interest the verdict of leaders of the craft as to the commercial possibilities of three-colour

portraiture. It will not be supposed that portrait colour photography can be made to pay in all and every district. Even posing that the results are immeasurably superior to those produced by hand colouring, it must be some time before a public be awake to that superiority, and perhaps such a public, even more keenly awake to the superiority in the price. Indeed, entrance of three-colour into commercial photography is so utterly new that it is rash to prophesy anything of it. It will be some time before sufficient evidence will be forthcoming to permit its facilities being judged.

## AMERICAN PHOTOGRAPHERS IN CONFERENCE.

WE publish below the continuation of the report of the Convention recently held in New York by the Professional Photographers' Society of New York, at which a number of questions bearing solely on the business side of photography were put forward and discussed. The views of members of the P.P.S. on free sittings and school rates were contained in our last issue. We now give the report of the Convention, according to the "Photographer," on price cutting, charges for sittings, minimum rate, and the show case.

### PRICE CUTTING.

"Is there ever a time in the photographic business when it pays to cut prices?"

Various Members: No, no. Cut it out.

A Member: Why do they do it?

Mrs. Beals: I will tell you why I did it. This last Fall, business was dead, and I had to do something to get business in. Prices in my locality were higher than people could pay. Recently I have taken to cutting prices, and people come in, and when they come in I charge them more.

A Member: In other words, her effort was only a bluff. (Laughter).

Mrs. Beals: I sell them at prices they want, if they want that kind of work; when they get in there I show them better work, and they always take the more expensive work.

A Member: Mr. President, I think that the idea of cutting prices is something that should never be done in any case, because it belittles you in the eyes of the community. Your pictures are not worth what you ask for them, or you would not cut the price; I think under no circumstances should it ever be done.

Another Member: Mr. Speaker, what do you do in the case of schools? Everybody cuts the prices on that.

A Member: I never did. I will say, however, for your better information, that we have no big schools in our locality.

Mr. Bradley: That solves that question.

A Member: That is all right, cutting your prices, but now I want to tell you just a little thing that happened in our town. Supposing you were in business for five years, charging 15 dols. to 25 dols. a dozen for pictures. A new man comes in and he puts up photographs for a dollar a dozen. A person wants to get a picture taken, maybe to send to his mother, or sister, or some relative, and he says, "Where will I go? Well, I will go to Brown." He walks along and he sees a sign out. He heard that Brown makes very good pictures, and he has a friend of his who was very well pleased. He walks down and sees a sign, a dollar a dozen, and he says, "Well, I think that dollar-a-dozen picture will do me now, and I am going to have better ones made later on." Who is making the money? The public is making the money, and we are out.

Mr. Phillips: Just in answer to the person who has spoken, I would like to give a little personal experience. I don't want to tell my past life—

A Member: You'd better not. (Laughter).

Mr. Phillips: —but there was a little experience which happened in our town. I might liken myself to the man who had been in the town for ten years and had an exclusive business, and a new man came in and cut prices. This is what happened: We were making photographs for a certain sum, and a new man came to town and put in a studio next door in such a way that a great many people went into that entrance when they were looking for ours. That man reduced his price to one-half, for the cabinet photograph, of what we were getting at that time. Two months after he went in we raised our cabinet price just one dollar. That year saw an increase

in our business of 25 per cent. Now there is a case of actual fight and I say that the man who will make honest work—that is, he to himself—keep up his prices so that he gets compensation for his work, will be the man that will stand up in the long run, and will hear of him until he has gotten so old that he has ceased to be of use in active business. As to the man who cuts the price in photography in our town, the history of that has been that that man last just so long, and that period is a very short one. Most of the men who have been prominent in cutting prices have gradually wiped out, and we do not hear any more of them; but the firm can lay my hand on three of them—who have always stood at a higher price and a better picture, have gradually increased their prices as photography has improved and people have appreciated the firms who are in business to-day, are living well, and have a good bank account.

A Member: There is something to be said on both sides of the case. Speaking of my own personal experience, I never cut prices but once, and I leave it to the Convention whether I was justified in that case or not. I bought a business from a man at a satisfactory figure on his written agreement not to enter into business again. After completing the bargain he placed his property all in his wife's name and opened a studio two doors from mine and cut prices. As soon as he started and established his cut price, I cut immediately two dollars below him, and in the course of a week he reduced his prices to mine. That was in the summer time, and when the prices were reduced to the figure that we had reached them, business was done at a loss. I closed my gallery and took a vacation. When I came back the other man was *non est*. I was informed that he had borrowed money to leave town. I think that time I was justified in cutting prices.

A Member: As far as price cutting is concerned, yes, there are times when a person should cut prices. I went to Schenectady six years ago—this is about three and one-half years ago, and I started up a little business, but in the spring my lease expired and I had to get out. In the Fall I opened up another place. Some time ago I got sick and I was in bed four months, and my little place went to ruin, and my friends took away my camera and the little furniture I had there, and the rooms were vacant. When I came back from the hospital the landlord said, "Never mind about the money; I will pay me when you get it." I went there and I started in business. I was there two or three months and I didn't do a cent's worth of work. I made all my prices 3 dols. a dozen. Things went entirely wrong with me. I put them down to 2 dols. a dozen, and downstairs I had a sign, "Two dollars a dozen for fifteen days only," and I started to give a little brooch free, but the people would not come. I kept on there. Before long I started to do a good business there, and stayed there two years, and I made over 1,500 dollars last year.

ve one of the nicest studios in Schenectady, and I have now raised y prices. People, if they want to cut their prices, can cut them ording to circumstances.

Mr. Gaboriault: Some members have each given a little outline their lives in business. I would like to state that I have never ne any cutting. I bought a studio in Albany some five or six ars ago, and at that time they were doing a lot of this penny ante ssiness, and somebody told me, "You never can make a success of at studio; it has been a studio for thirty years, and everybody o ever went in there went out broke." Well, after I was there a le while I put out a one-dollar picture and introduced myself to the y. After six months running this one dollar picture I put out a o-dollar picture, and I ran that in connection with the one-dollar ture. At the end of the year I put out a three-dollar picture, d I ran that for a year with success. Six months later I put out our-dollar picture, with a greater success than any of them, and months later I put out a five-dollar picture, and that went; and

to-day I make more five-dollar pictures than I ever made of the one-dollar pictures, showing that you can increase your business according to your work. But if you are putting out a dollar picture, do it—do not give a three-dollar picture for one dollar. If you are putting out a five-dollar picture for one dollar, it is not fair competition.

Mr. Ray: I have tried both plans. If I were an established man in a town I would not cut prices, no matter what a newcomer did. I have found that out. But for a new man starting out, as I am, I find that it pays me to draw people in. A new man has to get attention some way. When he gets to cutting prices he does not have to cut down to one dollar a dozen. I make my limit of cutting down six dollars a dozen; fifteen dollars is what I would regularly get. At present I am getting in a great many people who would not come in at all if I asked them fifteen dollars. So it narrows down to the fact that a man who has an established trade should keep up his prices, and the new man should make his prices as low as he can.

### A STANDARD MINIMUM RATE FOR PORTRAITS.

"Is There Any Reason Why a Uniform Minimum Rate of 5 dols. a Dozen Should Not be Established by the Legitimate Portrait Photographers of the County?"

Mr. Lewis: First, I should like to ask what constitutes a "legitimate portrait photographer?" I know many men who are located in communities where five dollars a dozen is considered a good maximum price, and where a Garo or a Histed could get no more. These premises at once preclude the possibility of argument. Some of these men make photographs as low as two dollars per dozen, yet conduct their business in a straightforward, businesslike way, making portraits almost exclusively, and do not resort to schemes of any sort, a sober, honest, upright men, who do not want to be classed as other than "legitimate portrait photographers." Many of these men are doing as much for the upbuilding of the profession in their sphere as the men in the large cities who command ten times the price for their work. Therefore in answer to the question, I say, yes; there is reason why a uniform minimum rate of five dollars per

dozen should not be established by the legitimate portrait photographers of the country, or, rather, I consider it unfair to establish a rule barring from the ranks of the legitimate portrait photographers any one who makes photographs for less than five dollars per dozen, not considering his reasons, while possibly admitting another's who are turning out pictures which could be made at a profit for three dollars per dozen, but which they are telling the people are worth ten dollars per dozen, but by buying the ticket they can procure for five dollars and fifty cents per dozen. I am glad this question has been asked; I am glad to have the opportunity to express my humble opinion on the subject; and I sincerely hope we may have thoroughly defined the meaning of the term, "Legitimate Portrait Photographer." I am particularly concerned, and I believe there are others who would like to know, what is a legitimate portrait photographer, and what is illegitimate in the business?

### CHARGING FOR SITTINGS.

"Should a Fixed Charge be Made to Cover the Cost of the Sitting Where No Order is Placed? What is the Best Procedure in Such Cases?"

Mr. Lewis: I overcome that difficulty by having a price for the sitting and nothing else, at the outset. I make everything so much for the sitting and so much to print, and when people come in and ask how much pictures are by the dozen, I tell them I don't make pictures by the dozen; and if this puzzles them, I say, "We charge for the sitting. We charge three dollars for the sitting, and you select such prints as you want, and they are one dollar apiece." Unlike Mr. Hollinger's method, this is doing business on a business basis.

A Member: I always give my customers to understand that they are to pay for negatives whether they have any photographs finished or not. The price of the negatives depends somewhat on the grade

of the pictures, but I always give them to understand that there is a fixed price for the negatives anywhere from fifty cents to two dollars, and unless they are persons with whom we have accounts, we expect them to pay for negatives at the time of the sitting.

A Member: I think that the negative absolutely belongs to the sitter. You cannot take and publish or print any photographs if there is any objection to it. As for a deposit on photographs, I think it would be well at all times to get at least a dollar deposit.

The following questions attracted no discussion:—

"What Ratio in Price Should the One-Half Dozen Bear to the Dozen Photographs?"

"What is the Best Basis on which to Estimate the Cost of Production?"

### THE SHOW CASE.

"How Can the Show Case Be Made a Stronger Business Puller?"

A Member: Cleanliness and good work.

A Member: I would suggest the best thing to do for the next year to put in a certificate of the State Photographers' Association.

Mr. Shiro: Following out the suggestions that have already been made, I thoroughly appreciate myself the necessity of frequent change, and I have also found it very successful to put out a show case concerning somewhat to the season of the year. For instance, I put out case for Easter decorated with Easter lilies, and on the 4th of July decorate the case with the American flag. At Christmas time I put out what I considered a very tasty case, decorated with holly and evergreens, with a wreath in the centre and a large head back in the rear. I know that I have had orders on account of the cases.

Mr. MacDonald: I don't know that it would be of any particular interest to the majority of you to have the opinion of a New York man on this subject, but I have had a most curious experience as compared with the majority of people, as you know, in regard to show

cases. There are many of you who are living in comparatively small towns, but in those comparatively small towns they are putting up very much larger and more important buildings to-day than was the custom within, say, ten or fifteen years ago, and there is no doubt in my mind but that this proposition is going to be brought before some of you at some time or other. You are going to find that you are going to be able to get a studio in an up-to-date elevator building with a fine entrance and everything just about as you want it, but the building is going to be of sufficient importance so that the owners are going to object to your having a show at the door. That is a proposition that is going to come up among some of you some day or other; and I want to tell you that I would rather for myself be in an old-fashioned building with a good show case than the best building in New York without any, when it comes to ease in advertising. I am in a building, as many of you know, away down near the end of Broadway. My name is on a tablet with some four hun-



dred other tenants, and it is obvious that it is impossible for me to get a show case at the door. Were I able to get a show case which would be capable of showing only my regular size pictures, which are made on a 7 x 10 plate, I would be very glad to have them raise my rent a thousand dollars a year. Now that sounds like a lot of money; but I am in business for many years, and I want you to know that I could make more money out of that 1,000 dollars expenditure in the way of advertising than in any other line of advertising that is possible. I believe myself in pictures at the door; and do not let anybody flim flam you into the idea that you are so big and so strong that the absence of a case at your door is going to do you no harm. Take my word for it, it has cost me a barrel of money to prove it, and I know what I am talking about.

A Member: I think that perhaps I can give a novel way of showing pictures at the case. I knew a photographer in Leavenworth, a very successful man, and this was the method he adopted: Every week he put new pictures down in his case, with the names of some people who he knew would not object, saying that these people sat at his studio last week or some days ago. People would stop to see what the names were, and there was a continual stream of ladies in front of his studio.

A Member: With my class of trade, if I were to adopt that system, I should expect to go to my friends here and ask them if they would kindly donate me enough for my supper to-night. That is the difference of experience.

Mr. Lewis: I might say on the show case proposition that I have a store window. My place is on the ground floor, and I have been careless, as many men are, about attending to the window. Half the time there is nothing in it until someone comes along and asks me to put some more pictures in it; but I find that something after the idea suggested here of letting people find something and have some idea of what they expect to find, increases interest.

### PHOTOGRAPHIC SURVEY OF SURREY.

THE following is the scheme of classification adopted by the Photographic Survey and Record of Surrey to whose annual report we allude under "Ex Cathedra."

#### ARCHITECTURAL SECTION.

All buildings and structures of interest, whether ancient or modern. Churches, including monuments, furniture, stained glass, mural paintings, and bells. Ruins.

#### ART AND LITERATURE.

Art.—Paintings, drawings, and engravings. Sculpture and carvings (not architectural). Art work in metals. Pottery and glass. Tapestry, lace, and other fabrics. Art furniture and other objects of art. Direct photographs of persons.

Literature.—Printed books, when old, curious, or rare. Manuscripts. Maps and plans.

The Committee will be glad to receive information of the existence of objects of interest falling within their province, since a great deal that is most valuable is in private hands, and may otherwise remain unknown to them.

#### ANTHROPOLOGICAL.

Antiquities.—Prehistoric and historic (non-architectural).

#### PHYSICAL ANTHROPOLOGY.

Folk Lore.—1. Material objects. 2. Ceremonial. 3. Traditions (games, holy wells, social and religious subjects).

#### GEOLOGICAL.

Land contours, river courses, sections, fossils, rocks. It is advisable that a geologist be present when a geological photograph is taken.

#### NATURAL HISTORY.

Zoology.—1. Mammals—(a) Rare species; (b) habits; (c) homes and young. 2. Birds—(a) Rare species; (b) habits; (c) homes and young; (d) migration. 3. Reptiles. 4. Fishes. 5. Insects (including economical entomology). 6. Pond life.

Botany.—1. Trees, peculiarities of growth. 2. Shrubs and herbaceous plants—(a) Habitat; (b) peculiarities of flowering; (c) galls and other forms of parasitism.

Meteorology.—Halos. Remarkable cloud appearances. Hailstorms and frost effects. Lightning. Auroræ.

Photo-Micrography.—Astronomy.—Eclipses. Comets. Meteors, etc., etc.

#### TOPOGRAPHY AND PASSING EVENTS.

Topography.—Landscapes. Views of places of special beauty and interest. General views of towns and streets.

Passing Events.—Scenes of every-day life. Processions, carnivals, bonfires, etc.

#### ACCESS TO COLLECTION.

The collection is housed at the Public Library, Town Hall, Crodon, under regulations making it accessible to the public. It is hoped that, later on, local collections will be similarly deposited in other centres.

### DIFFUSION IN MODERN PORTRAITURE.

SHARPNESS is merely a matter of degree. The question is, what is the degree of sharpness required? That depends upon the purpose for which it is intended.

We are drifting away (writes L. Laurence in the "Photo-Era" Boston) from the "all-over sharp" idea. Great sharpness makes the portrait look as if you had a map of the skin and as though you could put a needle in each pore.

The eyes should always be sharp, but the face as a whole should be soft.

Images are made up of little discs, properly speaking, but when the discs are less than 100th of an inch in diameter we do not see the image as a disc but as a point.

One of the most important questions is, what do you consider enough softness, or what do you consider enough sharpness? If you are catering to people who want a fine, clean, sharp picture, you cannot refuse their desire, but you may take the benefit of the doubt and apply diffusion as much as you dare without harming their belief that you have given them a portrait that is sharp. It will only be a matter of time when they will appreciate your judgment.

Where you have detail clearly and sharply defined you have a clean, distinct border line which you cannot do away with unless you paint the face with lead. If you have a certain amount of softness say just a little softening of the outline, you will have done much to retain the character of the face.

By the judicious use of diffusion you can save one-half of the retouching, and you will come closer to a perfect likeness the less retouching you do. This does not, however, deprive the retoucher of a job, but their work will be facilitated and they will be able to turn out better work in a shorter time.

### PHOTOGRAPHIC INSTRUCTION IN MANCHESTER.

THE recently issued "Ordinances and Regulations" for degrees and certificate courses in the Faculty of Technology, Victoria University defines the preliminary courses to be taken by students for the B.Sc. (Vict.), and for a "certificate in technology," to be granted after a course of study of at least two years' duration. For the B.Sc. degree in applied chemistry, photography is one of seven optional subjects; the course of study, including, in addition to pure chemistry, physics (with laboratory practice), machine drawing, and paper manufacture. The syllabus for photography is:—

(a) The chemical and physical principles underlying the technology of processes in pure and photo-mechanical photography. The photography of colour. Sensitiveness and gradation of photographic surfaces. The principles involved in the construction of apparatus for photography.

(b) Technical processes used for the preparation of the more important photographic materials.

(c) Practical exercises in the analysis, examination and valuation of material used in photography. The qualitative and quantitative estimation of the constants of sensitive surfaces. The measurement of the constants and aberrations of photographic objectives.

For the "certificate in technology" the two years' course in photographic technology is as follows:—

First Year's Course:—French or German, Chemistry and Physics

tures and Laboratory; Principles of Pure Photography, Lectures; Principles of Photo-Mechanical Photography, Lectures; Practice of Pure Photography. Laboratory work.

Second Year's Course:—French or German; Chemistry Lectures and Laboratory; Principles of Pure Photography, Lectures; Practice of Pure Photography; or Practice of Photo-Mechanical Photography, Laboratory work.

Candidates before entering upon a course leading to a certificate are required to pass an entrance examination in the following subjects:—

English. (Composition with some simple questions in English literature).

Mathematics. (Subjects of the first three books of Euclid and algebra up to and including quadratic equations).

One other language. (Elementary).

Elementary science, including physics, chemistry and mechanics.

Candidates who have passed the Matriculation examination of the Joint Matriculation Board are exempt from the above.

In lieu of this special examination candidates may offer a certificate having passed any public examination of adequate standard as exempting from the whole or any part of the above entrance examination.

## Photo-Mechanical Notes.

### "The Globe" on Newspaper Half-tones.

The portrait of Dinizulu, published in a daily paper, may be an excellent likeness, but personally we should consider it lacking in detail. It consists simply of a black, oval smudge. We should advise our contemporary to save up the block. They can use it for King Menelik, if necessary, or a realistic picture of a London fog.

### The Emulsification of Asphalt.

A German patent, 170,133, June 3, 1904, has been granted to Dr. K. Mann, of Zurich, for a process of emulsifying asphalt and other substances insoluble in water. Soap and starch are dissolved in water by the aid of heat, which must be sufficient to dissolve the starch completely. To the warm mixture, asphalt, dissolved in benzole or other solvent, is added with constant stirring. The benzole vaporates and can be collected and condensed, whilst the asphalt remains finely distributed throughout the mass, and remains suspended if the mixture is stirred till cold, when it presents the appearance of an ointment, which is miscible with water. The materials necessary for making the soap, such as the fatty acids, fats, resin, etc., may be previously melted or dissolved with the asphalt. In this case the necessary quantity of alkali is incorporated with the starch paste, and the soap is gradually formed as the asphalt mixture is added.

### Zander's Four-colour Process.

In the current number of "Photographische Korrespondenz," it is pointed out that the principle involved in the Zander process is by no means new, for in an address before one of the scientific societies of Vienna on January 22, 1896, Dr. Eder said, "According to Hering there are four fundamental colours, red, green, yellow and blue. Working according to this theory all the manipulations necessary for three-colour printing may be adapted without difficulty to a four-colour system, and a four-colour print would be the result, in the production of which there is nothing actually to be overcome, and which ought to give very satisfactory results."

### PHOTO-MECHANICAL PATENTS.

Among the applications for patents made between April 23 to 28 is No. 9,726, by Donald Cameron-Swan, for improvements in the production of photo-engraved half-tone blocks.

A CAMERA Club in Bedford.—A camera club has recently been formed in Bedford and between forty and fifty members enrolled. The hon. secretary is Mr. W. H. Hodges, of 53, Beaconsfield Street, who will be pleased to hear from anyone interested.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between April 23 and 28:—

**LIGHT-TIGHT CASES.**—No. 9,448. Improved light-tight case for use in drying coatings on photographic plates or films. Thomas Frederic Crossley, 65, Chancery Lane, London.

**PROJECTION APPARATUS.**—No. 9,533. Improvements in projection apparatus. Martin Ball, 7, Southampton Buildings, London.

**REFLECTED IMAGES.**—No. 9,576. Apparatus for exhibiting reflected images. Frederick Muller, 65, Chancery Lane, London.

**APPARATUS.**—Improvements relating to photographic apparatus. Herbert Oscar Seaman and John Edward Rickards, 23, Strensham Road, Balsall Heath, Birmingham.

**PRINTING PROCESS.**—No. 9,796. An improved printing process. J. E. Bousfield, 4, South Street, Finsbury, London, for Ernesto Bianchi, Italy.

**FOCAL-PLANE SHUTTERS.**—No. 9,849. Improvements in focal-plane and other roller-blind shutters. Arthur Lewis Adams, 26, Charing Cross Road, London.

**APPARATUS.**—No. 9,987. Improvements in photographic apparatus. James Preston Cribb, 9, Warwick Court, Gray's Inn, London, W.C.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**SHUTTERS.**—No. 12,878, 1905. The invention consists of a clockwork exposing mechanism by which the shutter can be opened and closed at a given time after the movement of an exposing lever, so that the exposure is made without vibration of the tripod or other support, and so also that the operator may be able to include himself in a group. George Andrews, 30, Bosworth Road, North Kensington, Middlesex.

**FILM ENVELOPES.**—No. 10,955, 1905. This invention relates to a light-tight packet for photographic sensitised films, etc. The packet is such that it can be introduced with the sensitised surface inside it, into an apparatus constructed for the purpose, and the enveloping material of which the packet is formed may then be withdrawn from the sensitised surface to expose the latter. The packet consists of two envelopes of suitable light-tight material, such as black paper or card, capable of being slipped one inside the other. Each envelope is open at one edge only, and the film having been placed in the envelope which is to be the inner one, this envelope is introduced into the other one with its open edge innermost. When the packet containing the film has been placed in the apparatus the two packets may be withdrawn and the film left ready for exposure. The main difference between this packet and other forms of enveloping devices is that in the latter either one envelope has been entirely enclosed in the other, or a part of the enveloping material has been connected with the surface during the exposure, occupying space in the magazine into which such surfaces are generally transferred after exposure. To provide for the retention of the film in place while the inner envelope is being withdrawn, the outer one having been withdrawn first, the film may have one or more perforations which are not covered by the inner envelope, and are for the purpose of receiving as soon as the outer envelope is withdrawn, some form of detent such as spring pins carried by the apparatus into which the packet has been introduced. In order to ensure that the packet shall be light-tight the inner envelope may be provided (at that of its closed sides which is opposite to its open side) with pockets of suitable material into which the edges of the open side of the outer envelope may slide. Or the edges of the open side of the outer envelope may be gummed or otherwise fastened to the inner



envelope at this part, and may be cut open before using the packet.  
Oscar Becker, 62, Jesusalemer Strasse, Berlin, S.W., 19.

A French patent, No. 359,218, has been taken out by the Neue Photographische Gesellschaft, of Berlin, for "photographic images which become visible or which change after exposure to light." Bromide prints may be bleached in solutions of copper salts containing small quantities of ammonium, sodium, or magnesium chloride. The colourless images thus produced only return to their original form after considerable exposure to light.

## New Books.

"The Watkins's Manual of Exposure and Development," by Alfred Watkins. Hereford: The Watkins' Company. 1s.

The fact that this is the third edition of this little work is quite sufficient proof that the matter provided by the author is to the taste of photographic readers. It has been carefully revised, partly rewritten, and several additions made, notably a "snapshot beginner's chapter," specially addressed to those who commence photography with a hand camera.

Although many objections have been advanced against it, the factorial system of development has found many followers, and whilst it may be thrown over by the expert worker who strives for effects, there is no doubt that for the beginner it is extremely valuable, as it gives him advice on a point respecting which he has no experience to fall back on. We note that a new method is now published—viz., to dilute the developer with as many times its bulk of water as the factor for one developer, and to immerse a slip of a plate in this dilute developer. The first appearance of the image on the slip will be the full time necessary for the development of the plate in the full-strength developer. The slip is exposed under a grating of black paper in the camera, with the lens pointed to the sky—a plan originally suggested by the author for colour-sensitive plates.

Plain instructions are included for printing and toning P.O.P., and some useful tips are given at the end of the book, in which so far we have only seen one mistake, and that is in the table of diaphragm values, where the old Congress numbers of  $f/10$  as 1 are given, whereas the most recent decision has made the  $f/x$  system the official one.

"Die Künstlerischen Grundsätze für die bildliche Darstellung, deren Ableitung und Anwendung," by C. Baumann. Halle, a/S. Wilhelm Knapp. 5s.

The author in his preface points out that many readers will be surprised to find subjects dealt with in this book which do not appear to belong to Art, and adds that they will soon, however, be convinced that they are essential, for only by Science can Art be placed in that position which it should occupy, and that, after all, a knowledge of nature is Art. No doubt many of the present-day school of pictorial photographers will dispute this; they are not content with Goethe's axiom, "Die Natur ist aller Meister Meister," for they improve upon it so much that one cannot recognise it at all.

Proceeding on these lines, the author explains, first, the phenomena of sight, light, and the formation of shadows and colours; then the lighting in nature and its various effects, the angle of view. Having thus defined the principal laws, he connects them with photography, and gives us a readable treatise from which much can be learnt, not only directly, but also by indirect suggestion of much that is omitted.

"Magnesium Light Photography." By F. J. Mortimer, F.R.P.S. London: Dawbarn and Ward, 1s. nett.

A book on flashlight by somebody who wrote from the results of hard experience has long been wanted, and Messrs. Dawbarn and Ward may congratulate themselves in making this commendable addition to photographic text-books, instead of contributing to the deluge of manuals reiterating the stock beginner's themes in new phrases. By leaving the subject in the hands of Mr. F. J. Mortimer they have not been disappointed in their desire to offer the photographer a reliable guide to work of this kind. It is not a large book, but the text is pruned of redundancies to a degree which might

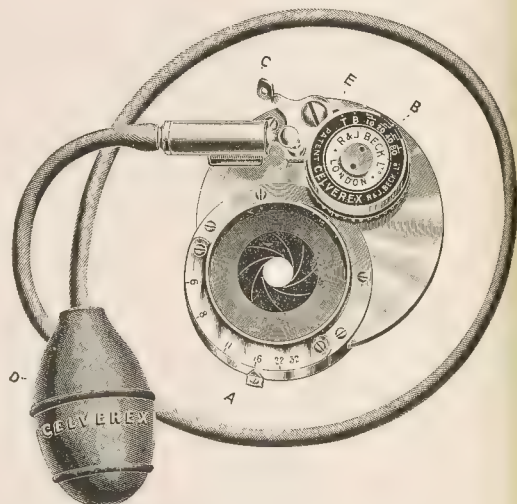
profitably be imitated more frequently, inasmuch that there are not half-a-dozen superfluous words in the book, except the preface which says nothing, but says it extremely pleasantly, as though the task of filling one page and a turnover did not in any way distract the writer. The chapters are devoted to (1) apparatus and materials, (2) subjects and lighting, and (3) the most suitable methods of treating the exposures in development and printing. Notes on the commercial lamps and powders occupy the author chiefly in Chapter I. In Chapter II. he considers lighting for daylight and other effects. In Chapter III. he gives a series of fireside studies, in a number of cases showing the reader how certain (reproduced) effect was obtained by including a half-ton photograph of the actual arrangement at the moment of exposure and a floor plan of the positions of sitter, camera, lamp, reflector, and background. This feature is characteristic of the value of the book for purposes of self-instruction.

"The Hand-Camera Companion and Guide" is a volume uniform in size and production with the recent "Library" series of "The Practical Photographer," to which it is practically an additional number. It deals very succinctly with the considerations governing the choice of a hand camera of moderate price, saying a great deal on the functions, defects, and advantages of the various parts, and not very much on the photography of common objects with the hand camera. However, that has all been said before in previous issues of "The Practical Photographer" and in other publications. The price of the book is one shilling.

## New Apparatus, &c.

The "Celerex" Shutter. Made by R. and J. Beck, Limited, 60, Cornhill, London, E.C.

In this shutter Messrs. R. and J. Beck have embodied a new and recently patented method of theirs in shutter design to the production of a shutter which should correspond accurately with the speed markings upon it. In the "Celerex" the different speeds are obtained not by putting a greater tension on the driving mechanism, but by applying a more or less powerful brake, but only by increasing or decreasing the size of the aperture by which the exposure is made.

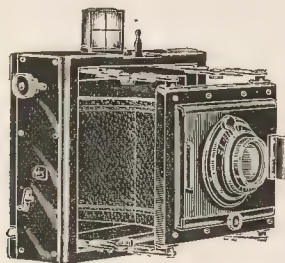


the aperture being enlarged or contracted by rotating a sector plate, the movement of which is directly connected with the scale of the speed numbers. By this device Messrs. Beck provide the user with speeds of 1-10, 1-20, 1-40, and 1-80, in addition to "time" and "bulb" exposures, a sufficient range, it will be admitted, for all ordinary hand camera work. But the most important feature of the

shutter is the accuracy of the speeds which the makers guarantee. Each instrument is tested before it is sent out, and a card of speeds enclosed, showing the difference, usually negligible, from the engraved speeds. In other respects the "Celverex" possesses desirable features. It is thin, light, and therefore may be fitted between the components of a double lens, even of those supplied with the smaller folding cameras. It carries an iris diaphragm, which can be suitably engraved to suit a given focal length of lens, and lastly, the working parts appear to be reduced to such simple proportions that the shutter may be expected to preserve its accuracy of working throughout a protracted period of constant use. The "Celverex" is made in three sizes, for quarter-plate, 5 x 4, and half-plate lenses, at the prices of £1 15s., £1 17s. 6d., and £2 5s. respectively. Messrs. Beck have also a number of their cameras already fitted with it.

The "Elite" Focal-Plane Camera. Sold by the City, Sale, and Exchange, 90 to 94, Fleet Street, London, E.C.

A convenient model of the folding focal-plane camera is supplied under this name, its appearance being generally as shown in the figure. The lens front is drawn forward very conveniently and easily on the jointed struts, which are strengthened with springs at the junctions. The front has a revolving lens panel permitting the rising front to be employed either way of the plate, and like all-metal parts of the camera is inconspicuously finished in black lacquer. The bellows



and covering of the back frame is of black grain leather, the whole external appearance of the camera being handsome. The focal-plane shutter possess a convenient series of adjustments for time and instantaneous exposures, and for altering the width of the slit from the outside of the camera. The complete camera is supplied with three double dark slides and Ross Homocentric lens  $f/6.8$ , for £8 8s. Other anastigmats, notably those of Goerz, are fitted to the camera.

The "Eidoscope" Lens. J. Fleury-Hermagis, Paris. Sole British representative, F. C. Clarkson, 4, Fenchurch Avenue, E.C., and Colchester.

We have received a specimen of one of these lenses from Mr. Clarkson for examination, the one submitted to us being of  $14\frac{1}{2}$  in. focal length and full aperture  $f/5$ , and fitted with iris diaphragm. It appears to be a symmetrical doublet, and is formed of two cemented achromatic combinations. It is said to be intended for "artistic portraiture without retouching," but is different from the anachromats we recently reported upon, in that it is under-corrected for spherical aberration though achromatic, while they were designed to give minimum spherical aberration and were only partially corrected for colour. The effects obtainable by the two types of lenses are therefore essentially different, whether the subject be portraiture or landscape. The apertures of the Eidoscope are marked in accordance with the C.I. system, with the following series of numbers: 0.25, 0.36, 0.50, 1, 2, 4, 8, 16, corresponding approximately to the series  $f/5$ ,  $f/6$ ,  $f/7$ ,  $f/10$ ,  $f/14$ ,  $f/20$ ,  $f/28.3$ ,  $f/40$ . At  $f/5$  the focus is very much blurred by spherical aberration. At  $f/10$  good focus can be obtained in the centre of the field, but curvature of the field is apparent. At  $f/20$  fairly good focus is obtainable over a 10 inch circle, though astigmatism is very much in evidence near the margins. At  $f/10$  to  $f/20$  it is recommended for landscape work, with which neither curvature nor astigmatism are of much consequence, and on small plates, say half-plates, the lens will behave in much the same way as a narrow angle rectilinear if the stop does not exceed  $f/20$ . On a fairly near test object no distortion was

obvious on a 12 x 10 plate. The single combination makes a useful long focus lens of about 31 inches focal length. The particular lens submitted to us has combinations of  $3\frac{1}{2}$  in. diameter, and a flange of  $5\frac{1}{4}$  inches, while the whole objective weighs 3 lbs. 10 ozs. It is the largest but one of the series of form listed, and is, of course, only suitable for use in a very rigidly constructed studio camera. It costs £8 12s. 6d., with iris. The smallest and cheapest lens of the series is of  $7\frac{1}{4}$  inches focal length, and  $1\frac{1}{2}$  diameter, and costs £3 7s. 6d. with iris, and £2 15s. with Waterhouse stops.

Messrs. R. and J. Beck have issued a new and revised edition of what they modestly describe as "a booklet" on telephotography, although its sixty-four pages and numerous plate illustrations on art paper justify a more ambitious title. It is, as a matter of fact, as complete and comprehensive an instruction book in telephoto work as can be bought for a moderate price, and Messrs. Beck's offer to send it post free is one to be embraced.

## New Materials.

THE Barnet Orthochromatic Screen.—Messrs. Elliott and Sons, Ltd., are offering at a low price a well-finished yellow filter put in a metal hood fitted with a spring which enables the filter to be fitted over lenses of several sizes. Tested spectroscopically this filter cuts down most of the blue-violet and ultra-violet, and, tested on a coloured subject outdoors in conjunction with a Barnet orthochromatic plate, all colours except red were well rendered in monochrome, so that the filter and plate are quite suitable for ordinary landscape work. The gap in sensitiveness in the blue-green is noticeable, and we should think that there are sensitizers now available which could be used to fill it up.

MESSRS. WRATTEN AND WAINWRIGHT'S Improved Verichrome Plate.—This plate, tested spectroscopically, shows the common drop in sensitiveness at about 4,900 A.U., but this is less marked than in the usual commercial orthochromatic plate. The sensitiveness then goes on practically evenly to 6,100, with long exposures. Two faint bands appear to indicate that the sensitiveness is conferred by one of the new isocyanine dyes. Messrs. Wratten give away, on request, a pale yellow light-filter made of stained gelatine. Tested on the spectroscope, this appears to cut down most of the blue and violet, and tested on a coloured subject out of doors, giving three times exposure without a filter, we found all colours very well rendered with the exception of reds. These were, however, well rendered when using a deeper filter and increasing exposure ten times. This plate, with the filter supplied, would appear to serve admirably for all landscape work, or for copying any subject in which reds do not occur.

## CATALOGUES AND TRADE NOTICES.

THE trade price list of W. Warren Jepson and Co., Hanover Street, Leeds, which reaches our table, contains, we find, a very full tariff of prices for bromide and other enlarging, with and without finishing, in monochrome, oils, or water colour. Messrs. Jepson illustrate their special lines in enlargements plentifully by half-tone blocks, and exhibit an extensive series of mouldings by the same means. The list is altogether a comprehensive one for all classes of trade work, and the style of its production—which is usually a pretty good criterion—speaks well for the firm's standard of quality.

THE Service Company, 292 and 293, High Holborn, W.C., send us their very full list of photographic requisites for 1906, every page of which specifies and illustrates a large number of apparatus and accessories. The list offers a very large choice in cameras and lenses.

A CIRCULAR of the various forms of assistance offered to designers of post cards, etc., is sent us by Ralph Rutley, 249, The Grange, London, S.E.

THE Bradford Photographic Society has changed its meeting place from the Grammar School to "Ye Mecca" Café, Brook Street, Bradford.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

May.	Name of Society.	Subject.
12.....	Birmingham Photo. Society. ...	Half-day Excursion to Ashow.
12.....	Manchester Amat. Photo. Soc. ...	Outing to Kenyon Peel Hall, and Southwell Cathedral.
12.....	Bristol Photographic Club ...	Trip to Porchury.
12.....	Hull Photographic Society ...	Outing to Beverley.
12.....	Blackburn Camera Club ...	Outing, Great Harwood to Langho.
12.....	Halifax Camera Club ...	Trip to Hardcastle Crags.
14.....	Cripplegate Photo. Society ...	"Photography with the Microscope." Mr. J. Inderwick Pigg, F.R.P.S., F.R.M.S.
14.....	Bradford Photo. Society ...	"Page Croft Pigment Paper." Mr. J. P. Seaman.
15.....	Royal Photographic Soc. ...	"By-paths in India." Mr. F. Dunster-ville, F.R.P.S.
5.....	Manchester Amat. Photo. Soc. ...	"Figures in Landscape." Mr. J. D. Berwick.
15.....	Hackney Photo. Society ...	Excursion Prints Judged and Criticised. Exhibition of Pictures by Wm. Rawlings.
15.....	Cardiff Windsor Amat. Ph. Soc. ...	"A Practical Lesson in Outdoor Photography."
16.....	North Middlesex Photo. Soc. ...	"Isochromatic Work." Mr. J. McIntosh.
16.....	Cricklewood Photo. Society.....	"Cameras and How to Use Them." Mr. Wilfred Emery.
16.....	Everton Camera Club.....	Five Minutes' Lectures.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held May 1, Mr. C. G. Zander in the chair. The fixture for the evening was a demonstration of the making of three-colour transparencies by the Sanger-Shepherd process by Dr. A. Norman. The proceedings can hardly be said to have included a demonstration of the process, a task which is hardly possible before an audience and within the limited time of a little over an hour. Yet Dr. Norman provided a very acceptable substitute by a clever pantomimic presentation of those parts of the process which he was not able actually to carry out before the audience. This he did with such precision in details that the make-believe became almost as convincing as the actual demonstration would have been. Indeed, it can be said that a "demonstration" of this kind may often be more valuable to those desirous of picking up tips in manipulation from a master of a process than a real one, in which the demonstrator is unable to permit more than one or two people to see what he is doing in the sombre illumination of the dark room. Dr. Norman left no trifling point in the making of a Sanger-Shepherd transparency untouched, and his narration of the minutiae of the process, which occupied considerably over an hour, was one proof of the unremitting attention to minute details which is necessary for the successful working of any process of preparing three-colour results by combining component films. At the conclusion of the demonstration a number of very fine photo-micrographs by the Sanger-Shepherd process were shown on the screen, Dr. Norman giving some brief particulars of each. The discourse, when it is published in the Society's "Journal," should supply the most painstaking instruction in the Sanger-Shepherd process which has yet been made public.

Meeting held May 8, Major-General Waterhouse in the chair. A paper by Mr. H. J. Channon was summarised by Mr. S. E. Sheppard. Mr. C. E. K. Mees and Mr. Renwick took part in the discussion. A demonstration followed of "Goldona" by Mr. Green, of John J. Griffin and Sons, Ltd., Mr. A. Haddon giving the results of experiments of his with the paper.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Meeting held Thursday, May 3, Mr. W. G. Holman in the chair. A hearty welcome home was given to Mr. A. L. Henderson upon his return from his winter's sojourn in Madeira. Mr. Ferry was elected librarian in place of Mr. Marshall, who has resigned through ill-health. Mr. Ernest Human read a paper upon "Funniosities Heard at a Dealer's Counter," in which he detailed the humorous incidents which lighten the labours of the staff of the City Sale and Exchange in Fleet Street. One of his colleagues was recently asked by a would-be photographer for Ilford P.O.P. It is happened that the firm was out

of stock of the size he required, and he was told so, with the addition that he could supply him with either "Imperial," "Wellington," "Barnet," or others; but these, he said, were of no use, as all his negatives were upon Ilford plates, and no amount of talk would convince him that the plate used for the negatives did not make any difference; his were Ilford, and would not print upon any other than Ilford. It may be wondered what plates he will use when he reaches the gum process. Upon another occasion a Wrench cinematograph had been sent to a customer in Ireland, and a few days later came along a request for a reading lamp, about ten shillings and sixpence. Such a lamp was forwarded, and in reply came a letter saying, "Lamp safely to hand, but it is of no use." We cannot get any light." A letter of enquiry disclosed the fact that he had actually used the reading-lamp in the lantern and tried to throw a twelve-foot cinematograph picture with it! When lenses were being shown to customers the argument was frequently put forward that because a Cooke lens had a flat glass at the back it must perforce give a flatter field than others which were all more or less round. Presumably, the man who uses an iso screen at the back of his lens, must get the flattest of all fields. A customer once asked for blue litmus paper, and upon a book of it being put before him, he replied he wanted 5-4in. size, from which it transpired that he wanted to make blue prints. After some explanations he was prevailed upon to take ferro-prussiate paper, as being nearer the thing he wanted. "I want a 12-foot flash sheet," was the request of a young gentleman one day. It afterwards transpired that he wanted it for a lantern screen, because it gave off a far better light than the linen ones. Another gentleman wanted an enlarger with a cross front, because by its use he was told he could correct any lines out of truth in his negatives. In the case of an air bubble in a Dallmeyer lens it was stated that it did not matter at all in actual work because "it only stopped a fraction of a thousandth part of a centimetre of light." Upon another occasion a prospective purchaser of a £7 7s. Kodak, had had its various points repeated to him some two or three times, when he put his money upon the counter, remarking that it would do. It so happened that there was lying near at hand a mounted print, which the customer picked up, saying, "When I have pressed this, and wound this, I open the camera, and take out a picture like this?" It was again explained to him that the film would have to be developed and printed, to which he rejoined, "Then I'm hanged if I'll have it," at the same time sweeping the cash into his hand and stalking away. Customers are continually asking for that P.O.P. which gives black and white prints with a dull surface. One of these, who was given a gaslight paper, together with some 15 to 20 minutes' explanation of how to use it, delivered a knock-out blow by asking: "Which was the stronger, sunlight or gaslight?" Another, buying a ferrotype plate for squeegeeing his prints, said: "It is better when glazing prints to use an alum bath, is it not?" Upon being told that was so, he asked, "Which do I put into it, the plate or the print?" Mr. Henderson proposed, and Mr. Haddon seconded, a hearty vote of thanks to Mr. Human for an enjoyable evening.

NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.—Mr. H. Gordon Stollard lectured on "Retouching" on April 26. Many valuable hints were given, and the following points may be noted as of general interest:—

1. When applying the retouching medium see that the edge is softened, otherwise it might show in the print.

2. When working only have a small piece visible, as this conduces to comfort and ease.

3. According to the strength of negative use various surfaces for reflecting daylight.

For dense negatives use a mirror.

For medium negatives use a white board.

For thin negatives use a white dull board.

4. For working by artificial light hang from the retouching desk a sheet of tissue paper, behind which may be placed a candle.

5. A magnifying glass of about 6ins. focal length, large enough for both edges to look through, should be used for small work.

6. Pencils—Hardmuth's or Faber's BBB to HHH preferably to be used in a holder so that a long, fine point can be secured, as this is

essary to enable the worker to see where he is placing the

For reducing densities small retouching knives, costing 6d., and local dissecting knives, both blunt and chisel pointed.

Proof negative as progress is made.

No particular stroke is necessary but that which serves the pose of the moment must be used. On the hollow of a cheek a full method is to make the figure eight horizontally without lifting pencil. The small shadow running from the nose to the side of mouth can be filled in with commas.

Attention should be paid to the catch light in the eyes, which will always be of wedge shape, with the base of the wedge towards source of light.

In working on the eye be careful not to obliterate the red spot the corner.

In portrait negatives the smaller the head the finer the work is to be done.

From time to time, as work progresses, look at the negative in a little distance, and see if defects have been removed and telling secured.

Take out spots first. Then work on the high lights on forehead. Catch the two prominences above the eyes, and preserve the depression which lies between them. The strengthening of the high lights is relief, which is all important.

Texture. This must not be lost sight of, and it should partake the nature of the original. Study good engravings for knowledge.

Lips. See that the high light on the lower lip is present. Just the curve. Remove the shadows which run downwards from the ends of the mouth. Very red lips require the shadow between in lightening.

The hair often comes out without any relief. Keep careful on the method in which the model dresses the hair, and study where the light is reflected.

With the retouching knife many imperfections can be erased, to accomplish this successfully much practice is required. Obtrusive high lights can be removed, a spotty background simplified. That protrude a little too much, or are too large, can be reduced,

THAMPTON CAMERA CLUB.—On May 7, Mr. J. Randolph lectured "Stereoscopic Vision in Relation to Photography," his discourse being the outcome of experiments made with the object of securing on one print the effect produced by the use of the stereoscope from double picture. After setting out the laws underlying the effect of light upon the single eye and the pair of eyes, the lecturer detailed the measure of his success. He found that it was possible by the use of a single lens of the focal length of thirty inches, masked so as to serve as a twin lens, to bring the object into focus upon a single plate, but that the portion of the sensitive plate brought into stereoscopic focus was comparatively small, the plane being very limited. The lecturer related his efforts with prisms and reflectors, which had brought him little satisfaction, and suggested that with further perfection in the method which had been partially successful, something much better might be done. A discussion ensued, various suggestions being considered.

COURSE of seven lecture demonstrations on three-colour and monochromatic work will be given on Thursday evenings, from May 10 to June 14, inclusive, at the London County Council School of Photo-Engraving and Lithography, 6, Bolt Court, Fleet Street, E.C. The lecturer is Mr. A. J. Bull, assistant to the principal. The course includes:—Introduction: Nature of light and colour, selective absorption and other causes of colour effects, the spectrum, use of ordinary colours, primary colours, properties of orthochromatic plates and methods of testing, safe lights for the dark-room, use of light filters, orthochromatic photography, three colour photography by the additive method, three-colour photography by the subtractive method, nature of best reproduction colours and negative records, adjustment of colour filters to plates, effects of incorrect filters and plates, position of the filter, three-colour negative making, details of the indirect method, avoidance of screen pattern, a direct method by the use of a collodion emulsion and the dry plate, fine etching, printing, four-colour processes. Admission is free to students of the school; to others the ticket for the course costs only 2s.

## Commercial & Legal Intelligence.

**DRY Mounting.**—In the Chancery Division, on April 30, the case of the Adhesive Dry Mounting Company, Ltd., v. the Adherent Film Company came before Mr. Justice Kekewich. Mr. Coldridge, who appeared for the plaintiffs, said the defendants had put in evidence which he had not seen, and which raised a serious question as to validity. In the circumstances, if the defendants undertook to keep the usual account, he would not ask for anything more on this motion, and the matter must stand until the trial. Mr. Justice Kekewich said he had nothing to do with that. There would be no order on the motion, except that the costs of the motion would be costs in the action.

**THE Viscose Patent.**—The Judicial Committee of the Privy Council (Lord Macnaghten, Sir Andrew Scobie, Sir Arthur Wilson, and Sir Alfred Wills) on Wednesday, May 2, gave its decision in a petition by Messrs. C. F. Cross, E. J. Bevan, and Clayton Bradle for prolongation of the term of letters patent No. 8,700 of 1892. The invention consists in the production of a mouldable cellulose material by mercerising fibrous and cellular materials, and while in this condition treating with carbon bisulphide. Various projects had since the invention been formed to exploit it, and in 1902 these were centralised and combined in one called the Viscose Development Company, Ltd. A great many difficulties and trade prejudices had to be overcome, and now, as the patent is about to expire, the applicants would lose the advantages which they believed they were entitled to. Sir William Ramsay, F.R.S., and others had given evidence on behalf of the petition, and certain objectors had withdrawn their opposition. Lord Macnaghten intimated that the Committee would humbly advise His Majesty to prolong the patent for five years, the longest term that had been granted of late years to an invention of conspicuous merit.

**ALLEGED Dishonest Assistant.**—At the Westminster Police-court, on Thursday in last week, F. T. Gosling, of Nigel Road, Peckham Rye, lately an assistant in the optical and photographic department of the Army and Navy Stores, was formally examined on charges of stealing and attempting to steal from his employers. Mr. Jenkins was counsel for the prosecutors, and Mr. Henry Curtis-Bennett appeared for the prisoner, who was alleged to have pursued a very artful method of manipulating the triplicate bill forms which he made out, and presenting one as a form of receipt for money to the customers on whom he called. The magistrate declined to allow the prosecution to supplement their evidence, and committed the prisoner for trial for falsification of accounts. Bail was allowed.

**TRAVELLING Photographers.**—Edward Pronk, who was respectfully dressed, and said he was a photographer from London, was charged at Dudley Police-court with stealing a gold ring, value 50s., from the Woolpack Inn, belonging to Florence Murphy, the landlady. Pronk and Thomas Beaumont, also a travelling photographer, were charged with stealing a silver watch and gold-plated chain and a gold brooch, value £2 15s., the property of a domestic servant at the Woolpack Inn. On April 21 the servant saw Pronk come down the stairs at the Woolpack Inn and leave the public-house. Shortly afterwards the articles enumerated were missed from the bedroom. The same evening Pronk attempted to pledge the ring, and this led to his arrest at his lodgings in Stone Street the following morning, when he told Police-constable Stevens that he bought the ring from a man in the street. On the strength of a statement Pronk subsequently made, the constable arrested Beaumont at Kidderminster, but Pronk subsequently admitted that his statements as to Beaumont were not correct. Beaumont was discharged, and Pronk was sentenced to four months' hard labour.

**APOLLO Art Association, Limited.**—This company has just been registered with a capital of £3,000 in £1 shares, to take over the business of photographers, photographic enlargers, and moulding importers carried on by I. Vogel, H. Pollak, J. L. Rosenheim, and J. Lauer, at 31, Derby Road, Nottingham; 14, Norfolk Street, Sheffield; 17, Oxford Road, Manchester; 12, Bond Place, Liverpool; and 194, West Regent Street, Glasgow, as the "Apollo Art Association." The subscribers are:—H. Pollak, I. Vogel, J. Rabinovitch, G. S. O'Rourke, C. E. Woodham, J. Lauer, F. Jackson. No initial public



issue. The first directors are H. Pollak and J. Lauer. Qualification, twenty-five shares. Remuneration as fixed by the company. Registered office, 31, Derby Road, Nottingham.

## Dews and Notes.

THE exhibition of photographs by members of the Birmingham Photographic Society, now on view at the Royal Photographic Society's House, will remain open daily from 11 a.m. till 5 p.m. till Saturday, June 16. The public are admitted on presentation of visiting card.

THE Charles Urban Trading Company have added to their cinematograph triumphs another in the shape of a film of the Hackenschmidt v. Madrali wrestling contest at Olympia on April 28. The exposures were made entirely by artificial light, and the result is a very fine film indeed.

ROBBERY at Llanelly.—Llanelly police are investigating a robbery which occurred last week, when the premises of Mr. Griffiths, photographer, Market Street, Llanelly, were entered and the sum of 28s. was taken, in addition to a lens valued at £15.

DEATH of Mr. George Bruce.—We are sorry to hear of the death, on April 19, of Mr. George Bruce, of Duns, a very old and respected member of the photographic profession, and one who, without ostentation, contributed to the elevation of the craft as a whole. Mr. Bruce's name is perhaps familiar to readers of the JOURNAL from his practice and advocacy of collodion paper. He adopted this form of printing at a very early date, and throughout his business career employed no other. A number of Mr. Bruce's prints which we once inspected thirty years after their manufacture entirely justified the claims of permanency which he and others have made on behalf of collodion paper.

WITH the Prince in India.—The photographer of the "Daily Mirror," who, at six hours' notice, left Paris to accompany the Prince and Princess of Wales to India, unburdens his soul to readers of the "Mirror." "I exposed over 1,500 plates during the tour, and photographed the Prince and Princess themselves more than 500 times. I am afraid they must have got heartily sick of seeing my camera pointed in their direction. Indeed, on one occasion, at Hyderabad, the Prince, who had faced a battery of cameras for hours, grew tired of being snapshotted. 'Leave your camera behind you,' he said, calling me on one side. 'We are going tiger shooting. Come with us and have a holiday.' And so I journeyed with the Royal party, and had a fine day's sport in the jungle. The Princess, who is greatly interested in everything connected with photography, frequently asked me how my photographs were turning out, and on several important occasions her Royal Highness asked me to be particularly careful with the photographs. Then she would ask to see proofs, and several times I made her copies of the photographs on postcards. These she used to send home to her children. My principal difficulty, of course, was getting the photographs off to London as quickly as possible. One one occasion, for instance, when I took photographs of the Prince watching an elephant drive in the jungle some fifty miles from Mysore, I sent my undeveloped negatives off by special runners within half an hour of the time they were taken. The runners carried them fifty miles through the jungle to Mysore, and from there they were carried on an express train to Bombay, nearly a thousand miles away. There they caught the P. and O. mail steamer for Brindisi and were brought straight to London by the overland route. Not an hour was lost on the journey, and as a result the photographs appeared in the "Daily Mirror" within seventeen days of the date on which they were taken in the Indian jungle."

CROYDON Camera Club.—A notable fixture even amongst the programme of good things which the Croydon Society sets before its members is down for Wednesday next, May 16, at 8 p.m., when Mr. C. E. K. Mees will read a paper on "Orthochromatic Plates and Filters." Synopsis: The curves given by plates with and without filters, and their approximation to the luminosity curve; the multiplying factors of filters; isocyanine bathed plates and their possibilities; rapid exposures through filters; a new panchromatic plate.

The paper will be illustrated by diagrams, lantern slides, and projected spectra.

THE Lizars' £200 Competition.—The full prospectus of the above competition, which is now obtainable from the head office of Messrs. Lizars, at Buchanan Street, Glasgow, or from the branches in London, Liverpool, Edinburgh, Belfast, and Aberdeen, shows the great distribution of the money prizes which has been secured by the organisers. There are nine classes, each of which is divided into two sections, to each of which from four to eight prizes are to be awarded. Thus the "plums" of the competition cannot go to a fortunate few, and for this reason amateurs, particularly those of only a few years' standing, should view the competition favourably. There are special classes for those who purchase during 1906, and special sections for those who have never gained an award in any competition which, of course, does not prevent them from entering in any of the other classes, but gives them a better opportunity of success. An exhibition will be held in the Royal Institute of Fine Arts, 279, Sauchiehall Street, Glasgow, from the 14th to the 26th of January, 1907, inclusive, and entry forms must be returned not later than January 10, 1907.

MR. C. S. BAYNTON (with a "y") has our sympathies for the way in which printers have been taking liberties with his name. The R.P.S. catalogue of the Birmingham photographs at Russell Square prints him as "Baignton." We confess to making an imperfect correction of this into "Bainton," but we see a contemporary has improved the R.P.S. version to "Baignnton."

THE death is announced of Mr. A. Booth, late of Booth and Bowman, trade printers, Stapleford, Nottingham. The deceased was in his fifty-seventh year.

THE Queen's Photographs.—Some most interesting pictures taken with the Kodak by her Majesty the Queen are to be published in "The Gentlewoman" as free supplements, the first to be given with this week's number. The pictures, which are taken variously at Gibraltar, Kiel, the Highlands, Wurtemberg, Sandringham, Wind Castle, Marlborough House, and on board the Royal yacht, bear full evidence of her Majesty's particular skill as an amateur photographer.

A RELIEF Fund for Californian Photographers.—The recent gigantic disaster in San Francisco has speedily aroused the personal sympathy of the photographic fraternity in America. An emergency committee called by the Professional Photographers' Society of New York has established a national fund by a popular five-dollar subscription. The metropolitan section has raised 5000dols. from the photographers of Greater New York within twenty-four hours, and the Albany section P.P.S. of New York has agreed to contribute a minimum of 200dols. We believe that the American spirit of self-reliance will not sanction any appeal for help from those outside the United States, though we have no doubt, also, that any donations from Americans in England or from those here who have made friends on the other side of the Atlantic would be gratefully received by the treasurer of the committee, Joseph Byron, 53 West 32nd Street, New York City.

A POSTCARD Combine.—A society for the protection of picture postcard manufacturers' rights has been formed under the title of "Postcard Industry Defence Association." At a meeting called to discuss the aims and objects of the association, the industry was represented by Messrs. Alexander and Co., Blum and Degen, Bamford and Co., Collectors' Publishing Company, Delittle, Fenwick and Co., Langsdorff and Co., Frankel and Co., Giesen Bros., and Co., F. Hartmann, Maxim Niven, Pictorial Postcard Company, the Regent Publishing Company, Raphael Tuck and Sons, etc., the chair being taken by Mr. E. W. Richardson (proprietor and editor of the "Picture Postcard.") For the post of solicitor to the society, Mr. G. D. Turner, of Messrs. Ashley and Turner, of 9, Charles Street, Hoxton, N., was appointed. Mr. Maxim Niven was elected secretary, and the following gentlemen were proposed as vice-presidents: Mr. Carlo Degen (Blum and Degen), Mr. E. von Dolffs (a member of Messrs. Langsdorff and Co.), Mr. Karl Giesen (Giesen Bros.), Mr. Hael (the Rotary Photographic Printing Company), Mr. J. Mischel and the principals of Messrs. Davidson Brothers, W. Ritchie and Sons, of Edinburgh, and Valentine and Sons, of Glasgow.

first business meeting of the association Mr. E. W. Richardson unanimously elected president. Offices have been opened at Messian Buildings, City Road, E.C., where those interested can apply for information.

**COPYRIGHT in Canada.**—Henceforth anyone reproducing without authorisation in the Dominion of Canada any copyrighted picture or work of art originating from France will be liable to action under the international copyright law, which was agreed at the convention of Berne in 1886. Such is the effect of a judgment rendered recently by Judge Fortin, of the Superior Court of Montreal. The case was that of Jules Mary, a French novelist, sued the Compagnie de Reproduction Littéraire, of Montreal, for the piratical publication of one of his works, "Tante Berceuse." Judge Fortin ruled that England, being one of the contracting nations at the convention of Berne, the international copyright law is applicable to all the British colonies, and that consequently the plaintiff was protected in Canada, although he had not complied with the requirements of the Canadian copyright law. The case was instituted by M. Mary as a test case at the instigation of a Canadian organisation known as "The Syndicate of Literary and Societies for the Protection of Intellectual Property." For many years it has been the practise in Canada to produce, either in book form or by serials, copyrighted French works without authorisation from the authors, but if this decision is held an end will be put to such literary piracy.

**THE "Halotype,"** writes the "Photo Era," is a coloured photograph, so called from the name of its inventor, Mr. J. B. Hall. The process consists in printing two paper positives from the negative, rendering one transparent by the use of dammar varnish, painting the other, and placing the transparent print over the painted one in exact registration. The picture is then backed, covered with a sheet of glass and the edges bound together with a partout binding. Anyone who can use a brush can paint the picture, as little or no skill is required, the paint being put on only in washes, without any attempt at shading. The shading detail is produced by the lines in the transparent picture. The picture, toned and dried, is laid on a sheet of glass on which has been rubbed a little glycerine. It is then varnished with dammar varnish and left to dry. If one coat does not make it transparent, a second is applied. Another way to produce a transparent print is to apply the print to glass and remove the paper, leaving the picture on the glass. Take a spoiled negative the size of the print, rub it with a wet sponge with French chalk to remove any possible traces of grease. Varnish the glass with a varnish made of 1 oz. of turpentine and 2 oz. of spirits of turpentine. As soon as the glass begins to set, take the print, which must be thoroughly blotted of the moisture from the face, lay it face down on the glass and squeegee into place, taking special care that no air remains between the glass and the picture. The paper can now be removed by rubbing it gently with the fingers, moistening it with a wet sponge as it dries. When the paper is removed, varnish the film and set it away to dry in a place free from dust. One can now paint directly on the back of this picture. The colours which correspond to the objects represented. No special shading is needed. If water colours are used, mix with these white to give them body, but oil colours work the best and give the most satisfactory results. While these pictures are mainly not "high art," they are often very attractive little souvenirs, and are very appropriate as name cards for a company which has enjoyed an outing together, and of which the picture perpetuates the memory.

**MR. DUDLEY BUXTON, D.Sc.,** has been elected chairman of the Council of the Selborne Society for the ensuing year, during which the society will attain its majority, having been founded in 1885. On May 25, by the kindness of the Civil Service Commission and Majesty's Office of Works, the annual soirée will be held in the offices of the former, in Burlington Gardens, in the buildings which were formerly those of the London University. The president, Lord Avebury, will preside, and deliver an address, while the evening will be an important exhibition of microscopes and natural history specimens. Members may obtain their tickets from the general secretaries, or, in the case of those who are not attached to any of the branches, from the hon. general secretary, Mr. Wilfred Mark

Webb, at 20, Hanover Square. Visitors wishing to be present can only obtain tickets through members.

**MR. WILLIAM BUFFUS,** who has lately returned from Johannesburg to take over the Draycott Galleries (late Barrauds'), at 263, Oxford Street, is the subject of an interview in the current issue of the "African World," where reference is made to his active photographic career in South Africa.

**THE Practical Correspondence College,** Thanet House, Strand, have secured the services of Mr. Ward Muir to conduct for them a postal course in press photography. The course aims to teach how to take photographs suitable to sell to editors, what to take, how to approach editors, what editors to get at, etc. It is intended to appeal either to people who want to make press photography their life profession, or to those who simply want to earn a little occasional money with their cameras, or to make the hobby of photography pay for itself. Mr. Ward Muir has done a good deal of press photography from time to time, and knows the subject both from the editorial and from the contributor's point of view.

**PEROSI and the Cinematograph.**—Dom Perosi, like other composers, has fallen foul of the cinematograph. Some days ago (writes a correspondent of the "Globe") a flaming poster in Rome announced, in large letters, a performance on the cinematograph, and by "kind permission of the composer," of Perosi's "Life and Passion of Christ." Perosi saw the poster, and as the announcement of the composer's "kind permission" was news to him, he promptly called for explanations. These the proprietors of the cinematograph were unable to give, and the posters had to be withdrawn, but behind this there lurks the shadow of litigation over the question of composer's rights.

**THE Academy.**—Were it not for the presence of works as notable as Franz von Lenbach's "Prince Bismarck," "Frau Merk," and "The Artist with his daughter Gabriel," or Fritz von Kaulbach's "Fraulein F.," and "Professor Friedrich Kaulbach," the show (writes the "Globe") would scarcely be worthy of attention—they give it some measure of distinction. There are a few pictures, besides, which have passable merit, August Fink's "Summer Evening," A. W. von Kowalski's "Homeward Bound," Ludwig von Löffitz's "Orchard," Carl Marr's delicate "Portrait of a Girl," Josef Wenglin's "On the Banks of the Isar," Ludwig Wilbroder's "Evening on the Eider," and the rather clumsily painted but effective "Cattle," and "Stubborn," by Heinrich Zügel; but these can hardly be reckoned as sufficient to leaven properly a collection of nearly three hundred works. A protest must be made against the inconvenient arrangement of the exhibition; no attempt has been made in the hanging to follow the order of numbering in the catalogue, and the result is inextricable confusion.

**PHOTOGRAPHIC Survey of Essex.**—The annual report of the Council of the Essex Field Club complains that while the quality of its members is excellent, their number is not what might be expected in a large and populous county. To anyone with the slightest leaning towards natural work, or antiquarian research, the facilities and enjoyable excursions offered by the club should certainly appeal. This is the first year of existence for the Field Club's child—the Photographic Survey and Record. The council express their thanks to the Woodford Photographic Society, who have contributed a set of 200 prints, comprising the survey of Woodford. The council add: Fortunately this society commenced the work several years ago, and some of the prints record parts of the district, the aspect of which has since been completely changed in giving place to modern requirements. This only emphasises the necessity of record work being proceeded with without further delay.

#### FORTHCOMING EXHIBITIONS.

April 27-May 27.—Northern Exhibition (Manchester). Sec., G. M. Morris, 9, Chandos Road, Chilton-cum-Hardy, Manchester.

May, 1906.—Warrington Photographic Society. Hon. Secretary, A. C. Smithson, 13, Chester Road, Warrington.

May 15 to 17, Clevedon Photographic Society. Last day for entries May 9. Secretary, Rev. E. H. Sandford, 18, Hallam Road, Clevedon.

May 17 to 25.—Warrington Photographic Society. Entries close May 7. Secretary, B. C. Smithson, 13, Chester Road, Warrington.



## Correspondence.

\*• Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\*• We do not undertake responsibility for the opinions expressed by our correspondents.

### THE MOTION OF THE SIMPLE PENDULUM AND SHUTTER SPEEDS.

To the Editors.

Gentlemen,—There are one or two points in Mr. Collingridge's interesting article on the above subject in your current issue that seem to demand further explanation than they there receive.

It is stated that the approximate formula  $T = 2\pi\sqrt{\frac{l}{g}}$

"is only good enough for such short swings that would be quite useless for shutter-testing." But consider the case of a half-seconds pendulum (i.e., a pendulum which executes a "swing-swing" in two seconds) swinging through a complete arc of 6deg. The bob of such a pendulum would oscillate through an arc of over 4in., which would surely afford a large enough motion for purposes of shutter-testing, provided the motion were photographed full size. Moreover, the time of swing through such a small arc is given sufficiently nearly for any practical purpose by the above-quoted simple formula. Or, to put the matter otherwise, the value of the

correcting factor  $\left(1 + \frac{1}{4}\sin^2 \frac{\beta}{2}\right)$  quoted by Mr. Collingridge differs from unity in this case by only '0007.

It is not quite clear how Mr. Collingridge intends his diagram (p. 350) to be used for purposes of shutter-testing. Suppose the streak of the pendulum bob on the plate corresponds exactly with the first 5deg. of arc from the limit of swing. Then the shutter speed would, of course, be .147 seconds. But if the photographic streak corresponds to the whole of the first 5deg. interval of arc and a fraction of the second 5deg. interval, how is the shutter speed to be deduced in such a case?

I must confess I do not see how the *exact* times of passing over the successive 5deg. intervals of arc can be arrived at. As is shown in the early part of the article, the velocity acquired by the bob in falling from  $\beta$  to  $\theta$  is

$$V = \sqrt{2gl}(\cos \theta - \cos \beta)$$

Writing  $\frac{ds}{dt}$  for V, and  $l d\theta$  for  $ds$ , we have

$$\frac{d\theta}{dt} = \sqrt{\frac{2g}{l}}(\cos \theta - \cos \beta)$$

an expression which, so it seems to me, cannot be solved (i.e., integrated) by the usual methods without simplifying assumptions. Might it not have been well to indicate that the table of times of passage over the 5deg. intervals gives only approximate results?

DOUGLAS CARNEGIE.

Blackheath, S.E.

### THE THEORY AND PRACTICE OF INTENSIFICATION.

To the Editors.

Gentlemen,—There are several points in Mr. Baker's article on the above, other than those raised by your correspondents of last week which require some explanation.

On p. 264 he tells us that the action of mercuric chloride "is to form a surface coating containing silver chloride," yet eleven lines lower down he says "each atom of silver by this operation becomes richer by one more metallic atom, and, with the larger grains, which are possibly metallic on the outside surface and subhaloidal within, etc."

As regards the action of ammonia on the bleached image, this was definitely settled by Mr. Chapman Jones in 1893 (Chem. Soc. Ind., vol. 12, p. 983), and he came to the conclusion that the black image was a double compound of  $\text{NH}_2\text{AgHgCl}$  and  $\text{NHAgHg}_2\text{Cl}$ .

This was confirmed by Leteur (Compt. Rend., January, 1900, p. 2) and by Novak (Eders Jahrbuch, 1901, p. 254), who by chemical analysis finds that the weight of silver chloride is 0.233 of the whole compound. Mr. Baker's statement that the silver chloride dissolved and  $\text{NH}_2\text{Hg}_2\text{Cl}$  forms the image requires confirmation.

As regards the action of sulphite, this was fairly definitely settled by Mr. Chapman Jones ("Photographic News," 1890, p. 100), and has been confirmed by Valenta (Phot. Kor., 1902, p. 513), who undertook the analysis to prove Hauberrisser's statement to be absolutely without foundation, and Valenta states that with sufficient sulphite and sufficiently long action the whole of the chloride is decomposed.

The action of thiosulphates was definitely settled by Valenta also (Phot. Kor., 1903, p. 302).

No mention is made of the use of mercuric chloride and potassium bromide, although it has been proved by H. W. Bennett ("Photographic News," 1902, pp. 358 and 376) and Eder (Phot. Kor., 1900, p. 100) that it gives more intensification than when a chloride is used.

At the bottom of p. 265 it is said—"further experiments, which a longer bleaching was given, etc." Are we to infer from this that in all the experiments the actions were merely allowed to continue as long as the author thought fit and not to their bitter end? If this be the case they are absolutely valueless.

With regard to the chart on p. 266, showing the action of sulphite (Fig. 4), I am not much interested whether the readings are H and D densities or some specially discovered for the occasion, but I would like to point out that if this is a chart of the table immediately below, it is absolutely false, no matter what the densities are, for if the upper end of 1 represents 21, then 2, which should be 27.1, cannot possibly lie so close. If, however, it is intended to represent 17 and 23.1, then it is also false on the same reasoning. In the face of this, what reliance can be placed on any of the diagrams?

We now come to p. 284 of the issue for April 13, where the author deals with uranium and refers to Otterberg. This paper (Bull. Soc. Chimique, vol. 24, p. 355) gives *absolutely the reverse* of what Mr. Baker states. Excess of ferricyanide gives a red image, which has the formula  $\text{K}_4(\text{UO}_2)_2(\text{FeCy}_6)_2$ , whilst excess of uranium gives a brown compound, which has the formula quoted.

From a practical point of view, would it not have been well to point out that the mercuric iodide intensifier, when used as advised (p. 309), gives images which turn yellow very rapidly, and is not the whole of the intensification removed by hypo?

As regards the copper bromide, surely ten minutes' washing is too long in practice?

In the uranium formula (p. 309) we have a different amount of acid from that advised on p. 284.

With regard to the last bath on p. 310, containing copper chloride and hydrochloric acid, if the title is intended to represent the action, surely it is a "terminological inexactitude," because so far as I know cuprous and silver chlorides would be formed. Besides that, it leads to confusion, for since 1883 (Eder's Handbuch, 1883, p. 180) an acid bichromate solution has been known by this title, and as Messrs. Welborne Piper and Carnegie prove that with such a mixture there is no intensification, it seems but reasonable to suppose that there is not chromium precipitation in the film, but that, as the above experimenters state, a photochloride of silver only is formed.

It may possibly be of interest to note that in abstracting a previous article by Mr. Thorne Baker on the same subject, the "Chemiker Zeitung" (No. 27, 1905, p. 415) adds an editorial note to the following effect:—"In the treatment with permanganate and hydrochloric acid there is only a brown coloration if excess of permanganate is present, and this acts as an oxidiser on the gelatine, otherwise with sufficiently long washing pure white plates will be obtained; the slight intensification which actually takes place is perhaps caused by a pigmentary image (Farbstoffbild), produced by the developer. In the treatment with chromate and hydrochloric acid there is formed with silver chloride some chromate of chromium oxide, which, however, is decomposed by long washing, so that here also the plate appears quite white; the use of calcium chromate is purposeless. Potassium bichromate gives the same result."

There are several other points in Mr. T. Thorne Baker's article

might deal with, but as I am not anxious to enter into a controversy, I leave your contributor and your readers to digest it at their leisure.—Yours faithfully,

E. J. WALL.

p. May 5, 1906.

### MEASURING SHUTTER SPEEDS.

To the Editors.

Gentlemen,—It was with much interest I read your article on the pendulum given in your issue of last week. It is a clear and instructive statement, and of no small practical value, giving data embracing the angles of movement required when the pendulum is used in a system of shutter speed testing.

I am particularly interested to note that by this system, in the opinion of "a most accurate determination of shutter speed made."

In your correspondence columns of the same paper there is a letter from Mr. Bosanquet, in which he sums up the whole controversy of the few weeks, and deals with the various formulae that have been submitted for calculating the shutter speeds. He clears up the dispute in a most lucid manner, and as I benefit by having elements confirmed, I am grateful to him for his skillful opinion.

By his correction to the formula you gave, a result is arrived at which agrees with the figures as produced by my formula. I failed to understand how that formula should give the shutter speed, and I debited to him for clearing up the mystery and confirming the correctness of my results. I certainly had not gathered that the formula was only applicable if measurements were taken in feet.

Ratio, 7.5, he arrives at, as a correction in your formula is, I think, measurements I have taken, to be exactly as he states it; but I shall allow me to point out that the ratio is between the length of the camera and the long arm of the compound pendulum, and is not that of the relative lengths of the two arms. The camera may be raised or lowered on the upper arm, and the rays of the exposures still have the same divergence on the plate without altering the ratio.—Yours faithfully,

Lodge, Blackheath, S.E.

ARTHUR A. WATKINS.

May 7, 1906.

### PHOTOGRAPHING THE DEAD.

To the Editors.

Gentlemen,—I could not help smiling when I read in a recent issue the strictures passed upon the samples of photographs taken of the deceased unknowns for the identification collection of the police. I can imagine the tender care and attentive treatment cases would receive at the hands of (for example) the president of the P.P.A., or even of the artist Jaconette. No doubt he would spend an hour or two in posing and lighting, for mortuaries are queer studios, and there is generally a too willing helper to assist. Now what really does one expect when you receive a command?

Many years ago I had the work of the R. Division of Police to do, and my cases were mostly described as "found drowned"—poetic descriptions requiring an acquaintance of short duration and a short memory. Some of the cases linger still in my memory, and they are typical of very many.

I must tell you that soon after I became an unofficial member of the photographic club, my enthusiasm for the work began to decline, and I was fairly well fed-up with tasty jobs. For example:—The head and shoulders of a man suspended from the wall by a rope (the lower portions and limbs had disappeared in an explosion). A man found by reapers in the standing corn supposed to have been asleep four or five months (readily believable).

A black seaman suffocated in a coal bunker. Etc. etc.

After a bit I began to think I was selfish to do all the work myself, and gradually enticed my learner to accompany me on these lovely expeditions to the dead house, and, after much labour, induced him to do the work he liked the work, and gradually, with every semblance of interest, dropped out of going at all. Everything went well for a while, though my assistant could never be induced to do the room work alone. One well-remembered day he returned to work looking very scared, and said his sister had brought a message

asking him to return home at once because his mother had had a side-slip, and he was wanted for repairs (I do not remember which). "Where is the camera?" I asked. "On the top of the body at the Deptford Mortuary," he replied. "Man or woman?" I asked. "I don't know," said he; "I didn't stop to inquire." I sent him home and started off myself as quickly as possible to rescue the body from being over-photographed. I found the attendant had picked my camera off the body and placed it in the only dry spot available—i.e., an old coffin. "What have you got there?" I asked, casting an anxious glance at a mountain covered with a white sheet. "Oh it's all right; I don't think it will pop just yet," answered he. When the covering was removed I found it was the body portion of a man very greatly swollen (recovered after a six or seven weeks' cruise in the Thames), the lower extremities having been annexed by rats.

I now felt comforted by the previous assurance of the attendant, but, to prevent unpleasant surprises, kept religiously behind the camera. Now, sir, I must own I had no appreciation of the subject whatever, a subject that was being constantly doused with water from an old beer-can, a subject nasty enough to cause forty side-slips. You say "they ought to show the shape of the head and the appearance of the person in life!" Let me tell you in the large majority of cases this is quite impossible. Many may not be touched because they have been operated upon, and generally the photography has to be done at a minute's notice after the inquest, light be what it may, and for accommodation just about enough room for self and sitter, and as for doing more than photograph £5, let me invite you to try it. The price paid in my time was 21s. for twenty-four cartes de visites (prints mounted). Now it is 12s. 6d., and I am told it is jumped at. Let 'em jump! I think it a horrible business, and I should be interested to see the results of a good class artist, with the beautiful (or otherwise) surroundings—where the unknown was found—given in.

I am inclined to think both yourself and the coroner would still be unsatisfied.—Yours very truly,

R. LANG SIMS.

437, Brixton Road.

### THE THEORY AND PRACTICE OF INTENSIFICATION.

To the Editors.

Gentlemen,—I am obliged to Mr. Welborne Piper for drawing attention to apparent discrepancies in my articles on intensification; he has evidently taken some of my phrases too literally. For example, when I used the term "precipitated chromate" I, of course, meant the product precipitated from the chromate solution by means of the action of the silver image. I read Messrs. Carnegie and Piper's articles when they were published, and again before writing the article referred to, and I do not think my statements disagree from the facts we already know about chromium intensification. Whether any molecular relationship exists between the oxide precipitated and the reduced silver particles is still a matter of theory; I do not think the two compounds combine chemically, but am quite willing to alter this opinion on seeing definite analytical proof.

The permanganate process I can certainly recommend from considerable experience, and cannot account for Mr. Piper's non-success with it.

Intensification by rehalogenising the image and exposing it to light was suggested in 1902-3 by some Continental writers, whose work I abstracted at the time for one of the English photographic papers. I cannot find the reference at the moment of writing, but will inform Mr. Piper when I do find it.

In again thanking Mr. Welborne Piper for contributing his interesting letter, I would like to draw attention to the great advantage of communicating personal experiences and ideas after the appearance of articles on any subjects of a debatable nature, especially when unaccompanied by the antagonistic tone which seems inevitably to characterise a criticism. The experience of different individuals vary so greatly in photographic work that personal experience is not always a criterion.—Yours, etc.,

T. THORNE BAKER.

7, St. James's Avenue, Anson Road, Cricklewood,  
N.W., May 7, 1906.



## Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.O., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- H. Giles, 121, Lammas Street, Carmarthen. *Photograph of General Mackinnon Unveiling the New Monument, Carmarthen.*
- A. M. Breach, 44, Milward Crescent, Hastings. *Photograph (Combination) of the Burning Ship "Laquo" off Hastings. Seven Different Views on the Post-card, Coloured in Photo Tints by Hand.*
- J. Bishop, Burford House, Tudor Terrace, Aberdare. *Photograph of the Grave of the late G. Lloyd Covered with Flowers.*

### PAINTING REGISTERED:—

- Miss J. E. Corrie, Itchen Abbas, Alresford, Hants. *Painting, Miniature on Ivory of Pope Pius X., Signed by Himself.*

J. H. (Burnley).—We cannot say, as most of this business is done through the English houses handling the cards or taking orders for them. You will see their advertisements in past issues of the JOURNAL.

NEW READER.—You do not say what the difficulty is, but we suppose it is halation. You may find it necessary to put a second backing on the plates. The commercial backing is not sufficient for very strong light through windows. If you desire to get a colour-correct rendering of the windows, you must use an ortho. plate, and a deep screen, and in this case the backing must be black. You would do well to read the pamphlet of Messrs. Wratten and Wainwright, to which we referred last week.

STORING NEGATIVES.—In order to be business-like, I wish to keep books in which would be recorded names of sitters and numbers of negatives. (1) How is a negative numbered and when? (before or after development?) (2) How are name, number, and order entered in book at time of sitting? (3) How is negative number recorded whilst printing, and when print is mounted? (4) Is there any book which guides photographers in this matter?—W. G. C. (1 and 3) If the number is printed near the edge of the negative, with type such as that in the "Nameit" outfit, it will appear on the prints, and will serve to identify them up to the time of mounting. We should not advise you to allow any reference number to appear on the mounted print. The back of the mount is the proper place for it. (2) The best system of keeping an account of sitters, orders, negatives, stock, etc., is the card index. We believe Messrs. Houghtons can give you particulars as to its adaptation to particular cases. (4) None that we know of.

TONING BATH.—We are much interested in your failures, and shall be obliged if you will let us know whether you have been using sulphide toning for bromides. We should also like to see some of the paper before you print on it. Have you been intensifying your negatives with mercury? It is obvious from the fact that you meet with the same failure on different papers that it is not the fault of one particular make. It is also obvious from the appearance of the small unfixed strip that the fault lies in some outside cause. Certainly on this we can see a distinct finger mark in the mother-of-pearl colours, which you complain of, which rather looks like injudicious handling. We should have said off-

hand that the paper had somehow come into contact with cutting board or something contaminated with hypo, but seems to be put out of court by the fact that you are not alone sufferer. Let us know whether you cut up your own paper, the age of it if you can.

PHOTOGRAVURE.—Will you kindly let me know through the medium of your paper: (1) Which book you could recommend to a beginner taking up photogravure? (2) If you know any one or firm who could give instruction in same? (3) And if the material required to carry it on in a small way, say up to 12 x 10, size, expensive.—CROMWELL.

(1) "A Treatise on Photogravure," by Herbert Denison. (2) Photographic School, Regent Street Polytechnic, W., or the L. School of Photo-Engraving, 6, Bolt Court, Fleet Street, E.C. Apply to Penrose and Co., 109, Farringdon Road, E.C.

STUDIO.—Can you give me the most suitable alteration of these rooms for making an up-to-date studio, or can one be made out of the room A. The sides A and B cannot be fitted with windows as there are other shops on each side. Would you advise electric studio? Is it possible to obtain the same results as daylight?—J. H. B.

We cannot see from the sketch plan how it is possible to convert the two rooms into an "up-to-date" daylight studio. If you could increase the size of the south-east window, you would only get a studio seventeen feet long. If the electric light is available we should think the best thing to be done would be to throw the two rooms into one, and install the electric light. Very good portraits can then be done. When skilfully used, results are as good as those by daylight.

L.L., and Others.—In our next.

H. G. BUTLER.—"Photo Revue," 118, Rue d'Assas, Paris.

LINOLEUM FOR STUDIO.—I have built a studio, and should be glad if you would kindly tell me the best colour, or colours, for linoleum for the floor; very light, light, medium, or dark, etc., what would you recommend me? I have 9ft. by 8ft. top light and 9ft. by 6ft. side light. Thanking you in anticipation. JOSEPH GLOVER.

A linoleum of dark chocolate colour will be about the most suitable you can have for the purpose.

VIEWS AND NATIONS.—President Hadley, of Yale, and a young man whose appearance was that of a student, once met, says the "Searlight," in Yellowstone Park, in the midst of the wonders of nature. President Hadley turned to the young man for sympathetic comment. "This is a wonderful scene, isn't it?" he said. The young man smiled and nodded, and turned, without speaking, to gaze at the prospect spread before them. "Do you think," asked President Hadley, confirmed in his idea that he was talking to an ardent student, "that this chasm was caused by some great upheaval of nature, or is it the result of erosion or glacial action? What are your views?" "My views," said the stranger, quickly opening a bag containing photographs, "are only two dollars a dozen, and dirt cheap. Let me show you some."

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# THE BRITISH JOURNAL OF PHOTOGRAPHY.

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## SUMMARY.

collection of portraits by Dührkoop will remain on view at the BRITISH JOURNAL offices until to-morrow week, May 26, after which it will be transferred to Liverpool, where the Liverpool Amateur Photographic Association will exhibit it in their rooms in Eberle Street from June 1 to 15. (P. 382.)

Photographic Convention of the United Kingdom. The arrangements for the Southampton meeting—July 9 to 14—are now complete. (P. 381.)

Lang Sims has been elected hon. treasurer and Mr. A. Mackie secretary of the Professional Photographers' Association, in succession to the late William Grove. Grievances of actors in regard to photographs were presented to the P.P.A. by a deputation from the Actors' Association. (P. 395.)

Questions of the right to publish portraits of celebrities have come before the law in the motion brought by Marie Corelli to restrain the issue of postcards of herself. (P. 383.)

A country reader of the B.J. offers free a photograph which has been usefully employed for advertisement purposes. (P. 397.)

Portraits for study by photographers at the Royal Academy. (P. 384.)

Instructions in scaling a spectroscopic camera are given by Mr. E. J. Wall. (P. 385.)

Researches as the alkaline constituent of tablet developers has been completed. The omission of the baryta coating in making gelatine emulsion papers is among other patents of the week. (P. 393.)

Prices of modern pictures have disclosed an extraordinary decline in the market value, one picture, previously sold at 480 guineas, being now only 6½ guineas. (P. 382.)

The autumn R.P.S. exhibition is announced for September 20 to October 27. The Salon opens on September 14 and closes October 27. (P. 381.)

An effort is being made to found a club in the West End of London on the lines of the old Camera Club. (P. 397.)

## EX CATHEDRA.

### The Photographic Convention.

The full book-programme of the forthcoming Convention at Southampton in July next has now been issued, and a very promising prospect it holds out for the week's meeting and excursions. We have announced the list of papers and visits in previous issues, so that it is not necessary for us to repeat information which may also be had for the asking from the secretary of the Convention, Mr. F. A. Bridge, East Lodge, Dalston Lane, London, N.E. We may say, however, that the reports which have appeared in the papers as to the work of restoration being carried out on Winchester Cathedral need not disquiet anyone who fears that on that account photographs of the structure will be defaced by scaffolding. The builders are at work on no part of the exterior, and inside the only portion to which their operations extend is the retro-choir, leaving a choice of architectural subject sufficient for many times the number of hours which the Convention can spend in the city. Of other features of the Convention it is surely unnecessary for us to speak. The conditions in Southampton are specially favourable to a highly successful meeting. The Philharmonic Hall, in the centre of the town, which is to be the headquarters, will accommodate both the meetings and the exhibitions of photographs and of apparatus, both of which latter, we are assured, will possess unusual interest for all classes of photographers. The yachting party "At Home" of the President, Mr. E. J. Humphery, on the Wednesday afternoon, should be one of many compelling functions of the Convention week.

\* \* \*

### The Autumn London Exhibitions.

The prospectuses of the R.P.S. Exhibition and of the Photographic Salon have now been issued, and are obtainable, the former from the Royal Photographic Society at Russell Square, London, W.C., and the latter from Mr. Reginald Craigie, Blenheim Club, St. James's Square, London, S.W. The Royal, we see, is to be run on very much the same lines as in previous years, except that a special section is to be provided for "an invitation collection of technical photographs and apparatus, not for competition," the character of which we believe is to be very similar to the competitive technical section. The Royal opens on Sept. 20, six days after the Salon, which again will hold its exhibition at 5a, Pall Mall East. This, year, so we are informed, foreign contributions will be submitted to a selection committee in London, instead of being selected by members of the Linked Ring in the country of origin. The effect of this reversion to a policy which has been broken only on the one occasion of last year, will probably be evident in the exhibition.



### Dührkoop in Liverpool.

The collection of photographs by Dührkoop now being shown at these offices until May 26 will be transferred to Liverpool, where they will be exhibited for a fortnight (June 1 to 16) by the Liverpool Amateur Photographic Association at their rooms in Eberle Street. It will be remembered that the Society, over which Dr. Thurstan Holland presides, and to which Mr. C. F. Inston has applied his powers of secretarial management, recently arranged for the exhibition in Liverpool of the chief portion of the photographs by Mr. A. L. Coburn, brought together under the auspices of the Royal Photographic Society. The work of Dührkoop should interest the Liverpool photographic public no less. Most probably it will be very much more to the mind of the body of photographic workers than the brilliant experiments of Coburn in landscape, though comparisons between the very different portraiture of the two workers will be difficult to make. It is anticipated that it will be possible for the collection of Herr Dührkoop's work to be seen in other provincial centres during the next exhibition season, either as a section in society shows or as a house exhibition arranged by local societies.

\* \* \*

### Modern Physical Chemistry.

Last year we published some articles by Mr. Kenneth Mees on "Modern Chemistry for Photographic Workers," which dealt in a lucid fashion with some of the hypotheses of modern physical chemistry. Reference to these articles will show that the phenomena of osmosis and osmotic pressure are of fundamental importance, and that a most important assumption is that "the osmotic pressure of a substance in solution is the same thing as the pressure of a gas," to quote from Mr. Mees. From "Nature" for May 3 we now learn that Professor Louis Kahlenburg has arrived at some experimental results, that, if confirmed, must destroy the basis of the theory of electrolytic dissociation according to Arrhenius, upon which modern physical chemistry largely depends. From his experiments it appears that the osmotic pressure developed in the case of any solution depends essentially on the nature of the membrane used, as well as on the nature and concentration of the solution. There is no such thing as a definite pressure characterising a solution of given concentration. The pressure depends on the septum employed, and the results obtained do not agree with the gas laws. Fuller information is obtainable in the "Transactions of the Wisconsin Academy" (March) and in the "Journal of Physical Chemistry" (X., pp. 141, 209). The experiments, of course, have to be confirmed, but the results now given will not surprise those who have always held the opinion that many of the hypotheses of physical chemistry are based on a very unstable foundation. The phenomena of osmosis and osmotic pressure are very obscure, and, as yet, have admitted no analogy, and have not been explained in any reasonably satisfactory manner. Professor Kahlenburg's explanation to the effect that the result depends on the power of the membrane to "imbibe" the solvent and solute, and on the solubilities of the substances dealt with, seems, at first sight, to be as rational as the other theories that have been put forward. The collapse of the theory of electrolytic dissociation would not, perhaps, be of much moment to photographers, for physical chemistry does not seem to have brought us any nearer to the solution of the grand problem of the formation of the photographic image. But it is eminently desirable that Professor Kahlenburg's experiments should either be confirmed or disproved as soon as possible, for there is nothing so deceptive or so detrimental to progress as a false scientific "Theory."

### Control in Gum-Bichromate Printing.

The notes which appear elsewhere in this issue should mark a distinct advance in gum work. Hitherto it has always been advanced as a strong argument against this process by its opponents, and also as one of the strong points of its advantages by its adherents, that it was impossible to obtain two gum prints alike, and, further, the charm of the process lay in the fact that one never knew till the print was finished what would be the result. The possible explanation of these statements is that gum-bichromate has never been seriously attacked, at any time in England, from the scientific point of view. It was first exploited by the pictorial photographer, and at a time when the scientific principles, or the tools of the mechanic, were in bad repute. As it is nothing more than carbon printing, it is obvious that there must be certain rules and methods of working which should enable him who would to control his results, nor does it seem feasible to suggest that what is obtained once cannot be absolutely duplicated under similar conditions, when a sensitive film of constant composition printed under given conditions is used. Considering that now some of the more extravagant claims and extraordinary results by this process are discounted, and in the face of the fact, noted in our issue for April 20, that direct enlargements can be made on gum-bichromate paper, we ought to hear a little more of the general use of this process.

\* \* \*

### A Slump in Modern Pictures.

On more than one occasion, during the past year or so, we have alluded to the high, indeed, almost fabulous, prices of paintings by old masters have realised at auction sales. While the value of old pictures seems to be increasing, that of modern ones, of the Academy type, appears to be decreasing to an amazing extent. At Christie's, one last week, some pictures by R.A.s were sold, and at the same time the following:—W. P. Frith's "Pope and Lady Mary Montague," which in 1875 sold for 1,350 gs., in 1881 for 1,190 gs., made but 460 gs. F. Goodhall's well-known picture "Raising the May-pole," which in 1875 made 1,470 gs., was sold for 400 gs. Egg's "Peppercorn Nell Gwynne," that once made 1,200 gs., fetched 150 gs. Elmore's "Columbus at Porto Dante," that in 1879 made 480 gs., was knocked down for the small sum of 6½ gs. The auction room is always a good index of the existing state of the picture market for certain classes of pictures. At the present time it would seem that the pictures by old masters are at a premium, while those by modern ones are at a very considerable discount.

\* \* \*

### Sartorial Art and the Royal Academy.

Our good friend the "Tailor and Cutter" is always highly amusing in his comments on the pictures shown at the Academy. This time it is his severe opinion of the painters of portraits—for example, it is his "is evident that the present generation of painters—can't call them artists—are incapable of seeing the details of clothing, and the consequence is they utterly fail to produce any art that will last." Also, "If this kind of painting continues, we shall have to get the artists to put tickets on the various parts, and say 'This is intended for a coat'; 'This is a waistcoat'; 'By this we wish to suggest trousers'; otherwise it will be impossible to tell what it is intended to convey to the mind of the person looking at it." Our contemporary is equally caustic in his comments upon other details of clothing as represented at the Academy; but it might save some of its criticism for a plate which appears in its own pages. This, it is

supposed, is consistent with the "Tailor and Cutter's" of what pictures should be. It represents a standing figure the length of which is something like ten times that of the head. The legs are posed apart at about the same angle as that of a pair of house painter's trestles when in use. The trousers show no indication of ever having been formed to a sitting position of the wearer's legs; they are as straight and unpuckered as one sees them displayed in clothiers' windows. The boots would seem to be odd sizes, and the walking stick is used with the left hand. It is possible that if artists were to get this "picture" and carefully (?) pose, and paint, their portraits according to the way they would avoid the annual strictures of our contemporary.

**Process Situations in Paris.** Several advertisements having recently appeared in the London papers offering sittings in Paris to process photo-engravers, we may suppose that the cause is a strike or lock-out there, and therefore inquiries should be made before any situation is accepted, not that we suppose that photo-engravers will be treated as were the English labourers who went to Hamburg to fill the place of the dockers on strike there—but it is, thrown into the water. Nevertheless, it is certain that English workmen would seriously resent their places being filled by Frenchmen in the case of a trade dispute, and so they will probably not care to give rise themselves to similar resentment in France.

**Marie Corelli and her portraits.** A case of considerable interest with regard to the right to publish portraits of persons against their wish has been, and is, before the Law Courts. It is *Corelli v. A. and E. Miss Marie Corelli*, the plaintiff, we understand, has made a great objection to any portraits of herself being published. The defendants, some time ago, published portraits of the lady, made from drawings, purporting to depict scenes from the private or home life of the plaintiff at Stratford-on-Avon. These were sold at the shops in the neighbourhood. On complaints being made most of the sellers withdrew them from sale, but the defendants, by means of sandwich men, advertised that they could still obtain them at their establishment, whereupon the plaintiff consulted her solicitor, who commenced legal proceedings, it being alleged that the pictures were libellous, and an interim injunction was granted by Mr. Justice Lawrence, vacation judge. A little while ago an application was made in the Chancery Court, before Mr. Justice Swinfen, to continue this until the trial of action. After arguments, *pro* and *con*, the judge reserved judgment, but on Thursday last week declared that the question he had to consider was whether the plaintiff had made out such a case of legal inquiry as required the Court to interfere at the stage of the action. He was not satisfied that the pictures were libellous, and, in any event, the case was not so strong as to justify the Court in interfering before the question of the libel had been established. He further said that it was urged that the plaintiff, as a private person, was entitled to restrain the publication of portraits of herself which had been made without her authority, and which, though professing to be her portrait, were totally unlike her, but she had not established that she had any such right, and under these circumstances he did not see his duty to grant an interlocutory injunction; saying, further, that if the plaintiff should at the trial establish that the pictures constituted a libel, she would have her remedy in damages against all vendors, and the only order he could make was that the costs of the motion be costs in the action. The matter rests for the present, and no comments can

be made upon it, but we look forward with interest to the result of the trial, if it comes off. Many of the daily and weekly papers habitually publish portraits of persons appearing in the different Courts—from sketches made in Court—as plaintiffs, defendants, or witnesses, often to their annoyance, but we are not aware that any legal action has been taken by them, although many are anything but complimentary.

**Photographing Buildings in Crowded Places.** One of the difficulties confronting the architectural photographer in busy thoroughfares is the constant passing and repassing of pedestrians. Where the number of people is great, as, for instance, in such main arteries of traffic as Fleet Street or Holborn, or similar thoroughfares in the large provincial cities, it is only possible to do satisfactory work in the very early morning, and even then passers-by may make the work somewhat difficult. The landscape worker's method, employed in gusty weather—that of using an everset shutter and giving an exposure in sections between the puffs of wind—may sometimes be adopted. It is, in fact, often used in interior photography in such frequented buildings as the Oxford College chapels, Westminster Abbey, and so on. Another method which we have seen used successfully is to use a very small stop in the lens and to make the negatives on slow plates. A slower plate than that described as "ordinary" may be used, such, for instance, as a lantern plate, or, better, a photo-mechanical brand. Such a plate will require, roughly, ten times the exposure which would be necessary with an "ordinary," and the prolonged exposure allows figures to pass and repass without a trace of their presence being visible on the developed negative. It is not well to use a smaller stop than  $f/44$ , as there is a risk of the definition being impaired owing to diffraction. In developing slow plates of the kind suggested care must be taken to prevent the production of too hard a negative. As a rule, photographs of the class of subject we are referring to need to be bright and plucky, but to avoid excessive contrast the usual developer may well be diluted with an equal bulk of water.

**Printing Inks in Fugitive Colours.** We were recently shown a "three-colour-work" print that had formed a supplement to one of the leading art magazines. This print, representing the figure of a girl whose locks and primitive costume were blown about by the wind, was a choicely-coloured piece of work—at least, it was so originally. But its admiring owner had framed and hung it upon a wall by no means brilliantly lit, to the right of windows of a N.E. aspect. Direct sunlight was impossible to it; yet in the course of about two years all the red had entirely faded out, so that the maiden, formerly in the glory of auburn tresses and a warmth of healthy youth, had become a grey-haired corpse erect in a cold and forbidding landscape. We doubt whether it is to the ulterior interests of printers and publishers, and the enduring reputation of three-colour work—to say nothing of the business ethics of the matter—that fugitive lakes should be used in printing inks for this kind of work. They have long since been eliminated from the palettes of painters worthy of the name; and only the schoolboy now plies his crimson lake rather than rose madder. Our printers would seem to be in the position of the schoolboy: they do not care to buy the more expensive but permanent madders when the cheaper aniline, Campeachy wood, or cochineal products answer the purpose for the moment. If three-colour work is to be the photographic event of this decade, it is hard that it should be discounted by pennywise principles.



## THE ROYAL ACADEMY.

IN view of the many and various "supplements" of the weekly magazines comprised of reproductions of Academy pictures—considering also the volumes that are devoted to nothing else but these reproductions—it becomes a matter of no moment whatever that this journal leaves such luxuries to others. An article upon the pictures may, nevertheless, be the better understood by a glance at these ubiquitous illustrated sheets, and therefore it is taken in hand with something of the comfortable reassurance that accrues to the demonstrator from his diagrams and statistical curves.

For a year or two yet, perhaps, it will be but heaping coals of fire upon the heads of photographers to comment upon the first charm of painted pictures—that is, their colour. It will be different when we are able to give our coloured supplements—very different for the "gate" of the R.A., and very much better for us than the head-aching function which the annual shillingsworth involves. For the present, however, we must not waste space upon colour comments. The photographer, being a practical man, except when his "temperament" is troubling him, will read an article about pictures chiefly in the hope of picking up an unconsidered trifle in the shape of a "tip" or a "wrinkle." Many of such tips and wrinkles may take the shape of warnings. For instance, A. C. Colthurst's picture of a wake, "Watching the Dead in Ireland," has a subject distinctly to be avoided. No amount of cleverness could make it fit for anything but a sedative to over-hilarity of mood. Another unfortunate choice is exemplified in the life-sized portrait of a motor-car, which naturally covers a deal of valuable space that might have been devoted to things more interesting and less well-known. True, the Hon. Mr. and Mrs. Douglas Carnegie, with their sons, John and David, appear also, but only as accessories, more or less suppressed by the artist.

By authority, if not entirely by conviction, we are persuaded to regard John S. Sargent, R.A., as our finest portrait painter. He is represented by four portraits and a landscape, and, to our shame and sorrow be it said, we find no mark of admiration against any one of them in our catalogue. His portrait of Lord Roberts is a very satisfying thing, as presentation portraits should be, showing the little hero with every inch of war paint crowded on. But the clever part is that the hero looks not little, but big, and that without any violation of proportion. He is represented as ascending the stairs of a palatial building in such a way that his lower limbs are partly hidden. This plan leaves their extension possible to the imagination. The likeness is excellent, no doubt; but the sitter has the look of having very recently left an over-heated bath. It may be that Lord Roberts's complexion is not falsified in this respect; but of one thing we are quite sure, that a coat-sleeve of the complete gentleman should appear to have an arm inside it; and that a chest, even when at bursting point with military ardour, should not look like that of a pouter pigeon stuffed by an over-zealous taxidermist. Another important work by Mr. Sargent is a presentation group of four Professors of the John Hopkins University, Baltimore. It strikes the photographic critic that, with all the past in art easy of access to Mr. Sargent, that painter might to some purpose have given a glance at groups by the old Netherlandish masters. His heads are as so many lanterns in a dark place. Only in one case has a quieting shade been allowed to modify their aggressiveness. This occurs with the standing figure behind the table. The three seated figures, though at points varying in distance from the point of sight, are

each practically of the same scale, the same height, tone, and the same staring posiness. The deliberate adoption of unnecessary conventions, and the wilful feigning of each portrait for its own or its sitter's sake, in our humble opinion, caused Mr. Sargent to waste a fine opportunity.

Background styles seem as variable as ever. "Pillar and Curtain" is still with us, but, as employed by Mr. Harris-Brown in his "Lord De Ros," and in Enderby's "Highland Gentleman," these time-honoured materials are made too massive and monumental to carry conviction. The plain background is apt to run to sloppiness or a thin scribbledness, and thus not be properly tiring. On the whole, it would appear that painters like Sir George Reid and Mr. Solomon, preserve a happy mean between still life and sloppy suggestion in a necessary details of furniture get the best results. The latter's "Lilian Ruth" is delightfully easy in pose. "Sir Aston Webb, R.A.," however, is a little too vivacious. One almost expects the subject to spring up out of his chair. A more decorous virility is seen in Professor V. Herkomer's "Sir Felix Semon." He looks as an animated conversationalist would look when self-contained enough to keep his hands in his trousers pockets. As customary with this painter, the figure is cut off just below the knees. "Mrs. Leopold Albu," by the same artist, is so happily placed on the canvas. She has a slipped-dress look, due to the empty space left above her head.

A group of great charm is J. J. Shannon's "Mrs. Sears and her Daughter." It may be highly recommended as a model in posing. And so may Mr. Bacon's group of children, which he calls "A Fairy Tale." These three little girls sprawl upon a sofa with the true negligence of youth, whilst one of them reads aloud. Mr. Cope seldom if ever, disappoints. His work is always sound and satisfying. Although a presentation portrait, his "Marquis of Bristol" is quiet and dignified by its absence of state fuss and paraphernalia. The painting of the head and hands could scarcely be better, and the manner in which their height and tone is massed together by the grey of the waistcoat that connects them is thoughtfully artistic. The Lord Provost of Glasgow is shown in a pose that is "fine" and expansive, whilst it is perfectly easy and free from bombast.

Mr. Frank Dicksee's "Duchess of Westminster" has not been highly praised by critics, though the public will not doubt give it all the admiration it deserves. Its ample silk robes of pink seem to have offended, and certainly shadow over the lower part of them would have been welcome. But no one can deny the nobility of the whole design, and for skill of execution it is not easy to beat. The figure is, at any rate, supported by a living skeleton beneath the robes, and the beauty of the form is gracefully given.

Although Mr. Salisbury is yet a young man, his "Amy" makes one think of Reynolds. It has great distinction of style. The face is a beautiful one beautifully rendered, and in posing, lighting, and general harmony of tone and colour holds its own in the galleries. In the water-colour room are two life-sized portraits that deserve a word. One is a *tour de force* by Byam Shaw, representing, at life size, a judge's daughter robed in blue of a hard tint, and walking in a brown landscape that occupies five times the superficial area of the figure; the other is a simple and unambitious portrait by Miss Gow, of "Miss Edith Gow," the nobility and grace of which draws one's sympathies; whilst the dash and cleverness of the other leaves them unmoved.

The landscapes at the Academy are of far greater interest and merit as a whole than are the portraits—that is to any but the camera portraitist. But of those works the present space forbids us to speak.

## THE USE OF THE SPECTROSCOPE.

IV.\*

There is one point in connection with the lines which is sometimes confusing to a beginner that possibly I should have mentioned before. We are accustomed to talk of C, F, G, and little H as the hydrogen lines, but it is very usual to call these all H lines, and distinguish by the small letters of the Greek alphabet:  $H_\alpha$ ,  $H_\beta$ ,  $H_\gamma$ ,  $H_\delta$ . As we have the two  $H_1$ ,  $H_2$  Fraunhofer lines, it may possibly give rise to confusion.

### The Camera Scale.

In making the scale for the camera, the easiest plan is to purchase a millimetre scale ruled on glass, and fix just in front of the slit aperture in the back of the camera. Mr. A. J. Newton gives an excellent method in "Penrose's Annual,"

platinum wire. If a good, roaring bunsen burner is available it is quite sufficient to jam a piece of fine brass gauge down the tube, sprinkle some of the salt on it, and then turn on the gas and light up; if the salt is finely powdered small particles are carried up into the flame, and we get the characteristic line.

There is a convenient little apparatus known as Mitscherlich's, which is practically a series of test tubes inverted, with the open mouth bent round at an angle, and drawn to a capillary point, in which a bundle of platinum wires is inserted. The solutions can only be forced into these tubes by atmospheric pressure; but that is very easy, because the closed end of the tube is heated and the air driven out, and then the capillary

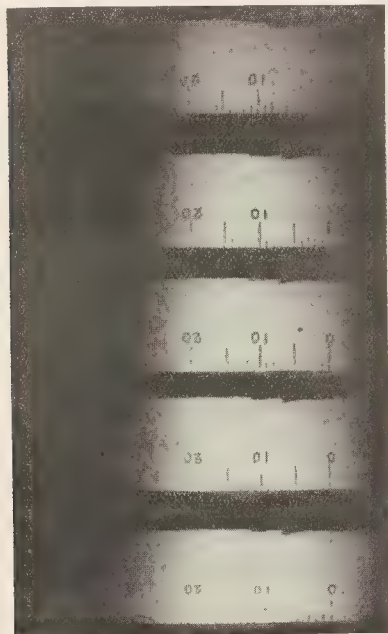


Fig. 1.—Ordinary Plate.

1905-6, p. 81. The method I adopted was to copy in the camera a 12in. ivory rule divided into  $\frac{1}{16}$ ths of an inch. This I happened to have, but good boxwood metre and half-metre rules can be obtained, which can be easily photographed down to the required size, and, with the usual precautions, the divisions and figures will be as clear and as distinct as possible. Mr. Newton takes five copies on one plate, so that each spectra is accompanied by a scale; I merely use the scale for one spectrum, and then, with a needle-point, rule straight lines down the plate through the others corresponding, of course, to the Fraunhofer lines. The positive with the scale is cemented into the dark slide.

Any bunsen burner can be used to obtain the lines of the chlorides that we propose to use; and Tallent suggests using

Welsbach burner, with a wire inserted in the central hole that usually takes the fork, this wire terminating in a flat spiral, which is covered with asbestos. Any arrangement that suggests itself can be used; my arrangement was a loose bundle of asbestos, about the thickness of a lead pencil, bound with

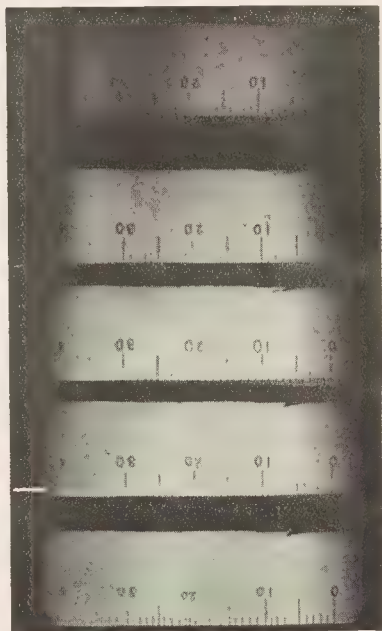


Fig. 2.—Orthoplate.

end inserted in the solution; then, as the heated air contracts, it naturally sucks up the solution. My experience with this was not so satisfactory as it might have been, as, notwithstanding the use of ammonium acetate solution as a solvent, I found the liquid loth to run down the platinum wicks, and the light was inconstant.

### Plotting Spectrum Lines.

It is essential, of course, to use a panchromatic plate to obtain all the lines, and colour-filters are also necessary. These latter may or may not be ordinary three-colour filters; coloured glass is quite as effectual. Assuming that everyone has a copy of the "Almanac" for 1906, on p. 1,109 will be found a table of the salts and lines that they give. In the first place it is advisable to make saturated solutions of the salts in distilled water. Then, having set the bunsen burning, and seen that the spectrum is fairly brilliant all through—which can be easily done by temporarily stopping up with the fingers the air hole at the bottom of the tube—and the slit level with the top of the bunsen blue flame, we can insert our dark slide, place an orange screen in front of the slit, and proceed to photograph the two lithium lines at 670 and 610. The duration of exposure will

\* This article is the concluding one of the series. The preceding papers appeared on April 20, May 4, and May 11.



naturally depend upon the brilliancy of the light and the sensitiveness of the plate to this region; with a commercial panchromatic plate it may vary from five to ten minutes—probably, with a pinachrome plate, it would be much less.

For the sodium, or D lines, either the same filter may be used or one of a lighter colour; it does not matter much, for the sole purpose of the filter is to cut down the faint continuous spectrum which is always seen; the exposure may be reduced in this case, as a rule, to five minutes. Naturally, after each exposure the dark slide or the spectroscope is shifted so that each metallic line or lines has a spectrum devoted to itself.

Magnesium ribbon will give us little *b*, or 518; half an inch is plenty, as a rule, with a green filter. The only important point to note about this is that  $\lambda$  518 is the extreme edge of the line towards the red. The trouble with the magnesium flame spectrum is that one not only gets the lines due to the metal, but the broad bands due to the glowing MgO, and therefore we can easily make a mistake between 518 due to the metal and 490 due to the glowing oxide, but the shorter the exposure the less the latter shows itself; besides, one can always check the result visually by the solar spectrum, because little *b* is one of the most prominent lines in the spectrum—far more so than E.

Strontium chloride gives us 460, calcium chloride 422, and potassium 408. All these should be taken without a filter, and the exposure in each case need only be about a minute. Now, unless we split the spectrum in one or more cases, it is obvious that we cannot obtain all these spectra on one plate, so that one must either cover half the slit for one of the spectra, or else obtain two of the fiducial lines in one spectrum. If this method is adopted the most convenient are certainly the D and the blue K or potassium at 404, as the former can easily be obtained as described above with an orange screen and the latter with a violet screen, and they are sufficiently far apart and distinct to lead to no trouble. We might use strontium and calcium, but as they are both extremely rich in lines in the orange and blue, one might confuse the reading for D or mistake one of the blue lines.

#### Spark Spectra.

As regards the use of the induction-coil, as already stated this is extremely useful with a hydrogen tube, but as the whole of the fiducial lines may be obtained with a Collie compound tube, this is preferable. Naturally, the cost is more, for, as already stated, helium is one of the contents, and this is always expensive; but it will be seen from the following data that the distribution of lines is fairly even:—Helium, red, 706; helium, red, 667; hydrogen, red, 656; mercury, orange, 615; helium, yellow, 587; mercury, yellow, 579; mercury, yellow, 576; mercury, green, 546; helium, green, 501; helium, green, 492; hydrogen, blue, 486; helium, blue, 471; helium, violet, 447; mercury, violet, 435; hydrogen, violet, 434.

Of course, one may use magnesium rods with the coil, then 518 becomes very faint; there is practically no continuous spectrum, and 448 becomes very strong. The real trouble is that the spark spectra differ according to the particular conditions, especially as regards density; for instance, if one uses two magnesium poles, the spectrum is different to that obtained

with one magnesium and one platinum pole—different, that is, in intensity of the lines, with the result that the beginner gets in a fog.

Precisely the same argument applies to the use of the arc and carbon poles. When one can obtain absolutely pure carbon rods, and when one knows all the carbon lines, then, of course, scaling is easy; but, as it is possible to treat carbon rods for forty-eight hours with various chemicals to remove stray metals, and then use them with satisfactory results for a short time, and then gradually see one or other or both of the Ca lines appear, one begins to have doubts as to the removal of the other elements, and therefore hesitates to accept this method for fiducial lines.

Having, however, obtained the lines on the negatives with the various salts, the preparation of a chart and the interpolation of other lines can be proceeded with exactly on the lines laid down in the "Almanac."

#### Testing Plates and Filters

As regards the testing of plates, the best way is to fix on some minimum exposure—one that will give a faint impression, then give increasing exposures with succeeding spectra. As an example, possibly the two accompanying illustrations may explain the procedure which have been made this last week in a Tallent spectroscopic camera that I was asked to scale. No. 1 shows the spectrum on a rapid plate, with 1, 5, 10, 20, and 40 seconds' exposure to a Welsbach, and No. 2, absolutely the same exposures on the same emulsion sensitised by the addition of certain dyes. Although the light source is rich in yellow rays, there is no question about the value of the dyes as sensitisers, for, roughly, the scale is O = H, G = 13, F = 26.5, E = 33, and D = 40, and the additional sensitiveness beyond F is very clearly shown with the dyes, although there is still just a slight drop in the shorter exposures in the usual position so characteristic of the eosine group.

The question of illuminant is a trouble, for unless one adopts the Mees and Sheppard screened acetylene light, one must fall back on the Welsbach, and the sensitiveness to this is quite wrong, when compared with daylight, which one cannot use because of its variability. A negative such as the above, however, proves the initial fact that a dye or mixture of dyes is of value in sensitising, and then the action can be checked by photographing a chart of colours of known luminosity.

Precisely the same trouble is met with in adjusting a yellow screen with the spectroscope and an artificial illuminant, unless one knows the ratio of yellow to blue, and has a photometer to read the negatives, but with a chart the results of the former can be easily checked. When it comes to the making of three-colour screens and defining their absorptions it is much easier, for one has not to deal with ratios, but definite absorptions.

The above notes are purely elementary, but may possibly be of service to some. To the more advanced worker "An Introduction to the Study of Spectrum Analysis," by Watts, may be useful, but to the spectroscopist who wishes to utilise photography, then "Spectroscopy," by E. C. C. Baly, and Eder and Valenta's "Beiträge zur Photochemie und Spectralanalyse," are quite indispensable.

E. J. WALL, F.R.P.S.

THE Antwerp Municipality, according to a Glasgow paper, now delivers free passes to professional or amateur photographers for use whenever the circulation of the general public has to be restricted, on the condition that they undertake to give two copies of every snapshot taken.

At the Royal Institution of Great Britain, on May 11, Mr. Oliver Dawson gave demonstrations of the Dischner process of natural backgrounds in studio portraits, described in our issue of May 4, and of the printing-out process in natural colours on paper, invented by Drs. J. H. Smith and Merckens, reported by us in our issue of April 27

last. Both the processes attracted a good deal of attention, but as the large assembly embraced many amateur photographers, the latter process, which puts into their hands the making of coloured prints from their own negatives, created, perhaps, the greater interest. The demonstrator pointed out that this P.O.P. paper solves the latter half of the problem of photography in colour—viz., the making of the prints. In reference to the offer of free samples of this paper, we are asked to say that the stock has been quickly exhausted, but Mr. Dawson, whose address is 254a, High Holborn, hopes soon to be in the position to meet all demands.

## AMERICAN PHOTOGRAPHERS IN CONFERENCE.

The following is the discussion of others of the twenty-three questions set down on the agenda of the Convention of the Professional Photographers' Society of New York. Not all the topics, of which it will be remembered we printed the list in our issue of March 30, proved suitable for discussion, in some cases the lateness of the hour debarring the ventilation of a subject which might, at an earlier stage in the proceedings, have prompted a profitable discussion. However, the comments of the members of the New York P.S. can hardly avoid being helpful to readers in this country, as showing the point of view from which the American professional looks at many of the problems which beset him. To the account of the concluding discussion, which we reprint from the official columns of the "Photographer," we add one or two comments by readers of that newspaper. We propose to quote any further letters or communications which may appear in the American Press as the outcome of the recent "business" Convention.

### THE PHOTOGRAPHERS' ASSOCIATION OF AMERICA.

Can the P.A. of America be made of real and practical benefit to Photography?

Mr. Macdonald: I should like to call on and introduce to you President of the Photographers' Association of America, Mr. Hearn, of Boston.

Mr. Hearn: Ladies and Gentlemen: I didn't have in mind until this morning about five minutes that I was to be expected to speak to you today. I had an idea that I might possibly be called upon at the other end of the hall, where ladies would not be present before us, and then I would face the music much better. Now, in regard to how can the Photographers' Association be of benefit, I would say that we are at the present time, the Executive Board, to the Professional Photographers' Society of New York, inasmuch as we have set up a room in Niagara Falls for your headquarters, where you can meet and where you can make your appointments, and where you can stay at home. Coming upon your soil as we are, we feel it incumbent upon us to establish a precedent which has never been established in the national body before, to give recognition to the photographers of that section to whom we go. I think it is a very nice thing that Mr. Hoyt suggested this to us, and its feasibility at once became apparent to us. Consequently, if you come to Niagara, as I hope you will, you will find a little room for your own, as you have here. As to the question of dealing with your customers, the youngest could bear in mind that you represent a new art, the youngest of the arts, and you should always bear in mind that you want to be that art high up. We all grow and we all advance simply upon the fact whether or not we make good along certain lines. If you put photography to stand at the top, then be men of integrity and honour. Don't try to get the best of your fellow-man, but try to deal with him as you would have him deal with you. We will probably not have the exhibition such as you have on the walls, but we will try to see if we cannot, by the engagement of speakers and people who are able and competent to talk to you, we will see if we cannot do something for your good, something that will be of practical value. I was talking with a friend of mine within the past twenty-eight hours, and asked him how much money he made out of his gross business of one year of \$5,900. He had the figures right hand, to my astonishment, and he told me he made \$2,700. Now

that gives a very good idea of what can be done on a small, moderate amount of business, and it is not a question, gentlemen, of how to get a bigger business, whether it is best always to advertise in the newspapers or in the theatre programme, or whether you will do that thing or the other more or less legitimate, and some possibly not so, as whether or not it is better to conserve that business which you have on hand. We must build up a certain line of customers who will come to us and patronise us at all times if we treat them right. Now, the right thing to do is to make the most out of that business we have. The gentleman who said he was in business for the money he could get out of it did not mean that exactly. Whatever we have to do in photography we have something to do because we love it. We can love our business, and at the same time we can conserve it and make it pay us well. Now, we will try to do that and show you how it can be done. Now, how can we do large things in our business? Whether small or large, there are a great many avenues in it; the employment of time, which is a tremendously big factor, and also making the most of the opportunities that are with you. We can all look back upon years when we have done things not profitable to ourselves, and we have got the advantage of experience. Your efforts should be directed to one end, how to make the best of the business that you have. There is in this room a young man. He came to me two years ago, perhaps a little less, and wanted me to take him into my place and teach him photography. I turned him down, I didn't want him. He kept persisting to do that. He told me he was willing to make sacrifices in order to do it. I said, "Can you afford to do that?" He says, "I have got \$50 saved up. I shall live economically and I shall make that \$50 go as far as I can to make the first step in it, and I will make \$50 more." He was very ambitious, so very ambitious that it got tiresome at times; but still I admired his pluck and his energy. He has kept persistently at it, and he has spent something to come to the Professional Photographers' Society of New York, for the sake of learning what he can learn. Gentlemen, that is just exactly what we want to do if we want to advance our art and our business. We want to give all possible encouragement to young men who really mean business.

### THE PHOTOGRAPHIC PRESS.

How Can the Photographic Magazines be Made More Interesting to the Professional Photographer?

Mr. Hearn: I want to tell you what a magazine can do to be of advantage and of interest to photographers. If the editors of our magazines can drop a great deal of this talk in regard to different considerations and get closer to what a photographer really wants, it will be better.

Mr. Abel: Mr. Hearn says something about the editors of photographic magazines getting a little closer to the professional photographers. That is not so much the point as the professional photographers themselves getting in touch with the editors. I think we as much as possible to keep in touch with photographers and communications and by letters, or in one way or another get up an acquaintance. But we seldom or never get any response from the individual photographer. We ask him to let us hear from him, by word or picture, or anything else, and hardly ever do we get any response. They do not really let us know whether they are alive, and as a rule they do not care to buy or read the photographic magazine at all. It may be that it does not appeal to him. We are willing to concede that, but even when we do get him to take the paper he does it as

a sort of concession to the editors. Now that is not the way to look at it, and I think if some of the gentlemen present here who do read some of them would get up and say why others generally do not read the photographic magazines, and what the editors should do, we could then see if we could not make an interesting magazine for the professional man to read.

Mr. Macdonald: It really does seem as though there was an opportunity right now of having given to you exactly what you want. (The attitude of the editor, as expressed by Mr. Abel, is, in my opinion, unquestionably the attitude that they really do assume. I am sure that they would be glad to give you what you want if you would only tell them what you want.)

Mr. Rockwood: I am afraid that Mr. Abel has put some of us young fellows in the wrong by saying that we do not appreciate the photographic magazines. I have been in business only about fifty years, and I assure you that from the first day that I have gone into it I have subscribed for almost every photographic magazine published in this country, and almost always two from the other side.



The result is that I have been, I believe, up to date in almost everything that was going on, and I will say this of the magazine that this gentleman represents, that many and many a time I picked up one magazine—one copy—and got out of it far more than the year's subscription. I will say that, in justice to Mr. Abel and the admirable magazine he is putting out, there is one series of articles going through there now that I don't know where else we could obtain them, and it has excited the enthusiasm of myself and my people to try some experiments just on that line. It has been my hobby to have what I call the library, and a copy of the magazines is placed there every month, because it is only lately that we have had a weekly magazine, for the general benefit of our employees. Now, if you can scare up a better set of employees than I have got, I would like to know it. One man has been with me thirty-nine years; two, thirty-six years; and one, who is sitting behind me here, twenty-five years. They have not only my assistance, but the assistance of all that comes out of good magazines and books. Men have asked me in this room things that I was amazed at, things they ought to know. I was very glad to answer the questions, but they would

not have been obliged to ask those questions if they took any of the admirable magazines that are being published now.

Mr. Parkinson: There is a great deal in the magazine that does not amount to much. Perhaps there are articles on chemicals; you are not interested in that line; there are articles on developers you are not interested in. Yet what a small price the magazine costs! I take the newspapers every day, and I do not, perhaps, read more than a few headlines in them. If I had those papers by the year I perhaps would not take them. I am a very poor reader of magazines in the way of reading the dry articles, but the little things, the little thoughts—why, even Abel has thoughts sometimes. If that weekly—"The Photographer"—fifty-two times a year, remember—if that weekly was brought to your door every week, once a week, if some body said to you, "Take this for four cents." you would pay four cents every time. But if you paid two dollars when the year was up it would cost you exactly as much. A man thinks that it does not cost him as much when he pays a little at a time. As I say every photographer in the United States would take "The Photographer" if they could take it that way.

### TICKET SWINDLERS AND LEGITIMATE PHOTOGRAPHERS.

William Henry Langdon writes: "In reference to the first question, How can the ticket swindlers best be discouraged?—my opinion is that the P.P.S. of New York act as a body of the whole to get every photographer in the State, member or not, to join and sign a statement that they will refrain from selling tickets on any reduced plan in their respective locality; that the president draw up an agreement to this effect and send same to each section secretary, who, at their local meeting, will appoint a committee to call on all photographers in its section and have it signed, sending the contracts to P.P.S. of New York. The names should be brought up and read at our next convention, and also be published in our photographic journals, so that we may all know who and what fellow-ships we are coming in contact with as honest photographers."

E. G. Merrill writes: "The photographer is certainly arriving to the dignity of a professional man, as he can show that he can hold a convention without someone else paying his bills; an elevated position I sincerely hope the P.A. of A. and the P.A. of N.E. will sometime attain. The New York State Society is ideal and magnificent, competent to formulate a code of ethics, worthy of the adoption of every society in our country, and a man living up to such a code would come pretty near being a 'legitimate portrait photographer.' On the other hand, a man issuing tickets in any other manner than the ones prescribed in the code would be guilty of a misdemeanor and unworthy the affiliation of the aforesaid 'l. p. p.' This is my suggestion of how to discourage the ticket swindler."

## SOME NOTES ON THE GUM PROCESS.

THE following notes are briefly abstracted from Dr. Köster's work, "Der Gummidruck," published by Knapp, of Halle, to which reference was made in our issue for April 20. They are interesting in that they throw a little light on the effects obtainable by varying the modes of preparation and development, points which, so far as we are aware, have not been touched upon by English writers, or, if so, only in a perfunctory manner. The information given is of such a nature as to make it possible to produce more than one single impression of given character from a negative.

To prepare the sensitive coating three solutions are necessary:—

#### The Gum Solution.

or	Gum arabic .....	60 parts.
	Water .....	100 parts.
	Gum .....	60 parts.
	Sugar .....	20 parts.
	Water .....	100 parts.

The latter is rather more fluid and makes development easier than the former.

#### The Bichromate Solution.

(a)	Potassium bichromate .....	10 parts.
(b)	or Ammonium bichromate .....	40 parts.
(c)	or Sodium bichromate .....	190 parts.
	Water .....	100 parts.

It must be noted that in this and the gum solution the quantity of water is not "to 100," but 100 parts. Practically equal volumes of the above solutions give varying sensitiveness—that is to say, 1oz. of (c) used instead of 1oz. of (a) will increase the sensitiveness thirty times over (a), whilst (b) gives an increase of ten times over (a).

The special colours recommended are Günther-Wagner's, and Winsor and Newton's cake colours, and one part of the colour should be ground up with ten parts of water.

As regards the paper, almost any sort may be used, but it should be free from wood fibre, and those specially mentioned are Schleicher and Schüll's roll-drawing papers No. 751, 759, 763, 764, and 765 and sheet drawing paper 109, 143, 144, 145; Schmincke and Co.'s 31; the rough hand-made papers of Zander's 1d, 1e, 1g, and the machine papers 792, 802, 812, and Schöll's "German Whatman," with the watermark of a hammer.

All the above papers do not require sizing unless special effects are desired. If a paper requires sizing, then a 2 to 10 per cent. solution of gelatine should be used with 2 to 10 per cent. of a 5 per cent. solution of chrome alum. The paper may be immersed in this for ten or fifteen minutes or painted over. As a rule a 2 per cent. solution will be enough.

As regards the composition of the sensitive mixture, the important point is that it shall give pure whites in the unexposed parts by development in cold water, and this depends on the proportion of gum to colour and on the sizing of the paper. The way to test this is very simple. If a plain water-colour be painted on a paper and then dried and immersed in water, very little colour will be removed, but if increasing quantities of gum are added, a point will be reached when it will completely dissolve and leave the paper quite white.

#### Adjusting the Coating Mixture to the Pigments.

To one part of the 10 per cent. solution of colour should be added half-part of gum solution, and seven such solutions should be thus made, each containing an extra half-part of gum. If, now, a little of each solution be painted on the paper and dried, and then the paper floated on the surface of cold water for about half an hour and occasionally moved and examined, it will be found that a particular mixture will completely dissolve and leave no colour, fog, or tint. If the paper is sprayed or the rose-tap used, then another mixture, with greater proportion of gum, will completely dissolve.

t mixture which dissolves by merely lying on water is called "normal gum," and this varies with each colour.

The proportion of bichromate salt has no influence on the gradation.

The following is an example of an actual sensitiser:—

Gum solution .....	3 parts.
Lamp black solution, 1:10 .....	1 part.
Potassium bichromate solution .....	2.4 parts.

Normal requires the same quantity of gum, burnt sienna 2 parts, Prussian blue and burnt ochre  $3\frac{1}{2}$ , and vermilion  $2\frac{1}{2}$  parts of gum solution.

Thin coatings give softness, and thicker coatings increased contrast, but the number of gradations are practically the same.

### "Normal" Development.

The author divides development into two kinds—one which we call "normal" and the other "mechanical"—though these are not his terms. The first is effected by immersing the print downwards in cold water and allowing it to remain so—with occasional lifting, for examination, to see how development is proceeding—for about an hour. All the gum that has not been rendered insoluble by the action of light will thus dissolve without supplementary assistance.

When the print is finished in less than an hour it may be assumed to be under-exposed. If it is over-exposed the image appears very flat, and if at the end of an hour only the highest lights are visible, it is advisable to have recourse to the second process of development, which is by the aid of a rose, sawdust, brush, or

any of the very few degrees difference in the temperature of the water tends to alter the time of development considerably, and with very warm water, development may be completed in a quarter of an hour; with cold water, it is so much lightened by this method that it must be used for a much longer time, and it is questionable whether the image is not removed from the paper and distortion of the same introduced, which is a disadvantage for combination printing. If, instead of a weak solution of potassium carbonate be used, then this method gives even the most exposed parts of the print; its use will give flat prints.

### "Mechanical" Development.

Mechanical development with a rose or stream of water, sawdust, brush necessitates printing one or two actinometer degrees more for normal development. It is advisable to immerse the print in cold water till thoroughly wet, place face up on a sheet of glass, then proceed with development. An ordinary fine rose-tap may be used, but far finer results are obtainable by means of an ordinary fine spray diffuser, as it is more under control, and one can vary its force more by altering the distance between the same and the paper. Whichever be used, great care must be taken, as development proceeds, to watch the print carefully, as too much may be easily washed off.

If a stream of water is used it is advisable to use a jug or can—drawn from a tap is, as a rule, far too strong. It is difficult to obtain regular action with this method, however. If a stronger one is required, about five to ten parts of finely sifted sawdust should be added to 1,000 parts of water, and this allowed to fall on the print held at angle from a greater or lesser height, according to the action desired.

If a brush or cotton-wool swab be used, then the print should be left for about half an hour in cold water, then taken out, laid face up on a sheet of glass, and there used.

With all mechanical modes of development there is a shorter scale of gradation, and the grain of the surface of the paper is more apparent.

### Gradation Variations by Sensitising and Development.

The different methods of development, combined with varying proportions of the ingredients of the sensitiser, enable one to obtain very different scales of gradation.

If a piece of gum-bichromate paper is exposed under a Vogel actinometer, the blackness of the print is measured in the usual way, and the points joined up, there will be obtained a curve, as shown in the following figures. Fig. 1 shows a characteristic curve

of a gum print, the curves *a*, *b*, *c* being those obtained on Schöller-Hammer paper—*b* with normal quantity of gum, *a* with less gum, and *c* with more gum, all with normal development.

It will be seen from these curves that *a* gives no pure whites, but a relatively long gradation; *b* shows flatness in the high-lights, from 20.14, with strong contrasts in the half-tones. If this paper

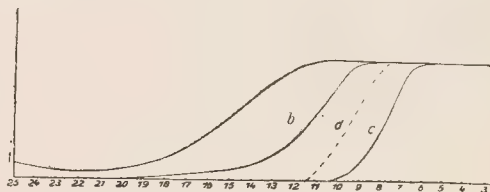


Fig. 1.

is printed under a negative so that the high-lights are comprised between 20 and 14, they will be very flat and so faint that they can hardly be seen. If they fall between 14 and 9 they will be full of contrast, and there will be a faint colour fog. Curve *c* gives a hard, clean image, and *d* shows the sensitive mixture coated on Zander's paper more highly sized. Thus it will be seen that the greater the sizing the stronger the contrasts and the shorter the scale of gradations.

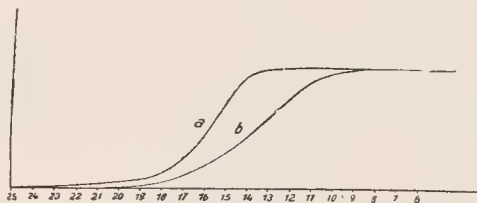


Fig. 2.

Fig. 2 shows the curve of a mixture of Berlin blue and burnt sienna, with normal gum on Schöller-Hammer paper; *a* shows the gradation with normal development, and *b* the gradation with the same time of exposure, only with mechanical brush development after half an hour's soaking in water.

The curves *a*, *b*, *c* of Fig. 1 and *a*, *b* of Fig. 2 are typical of papers with weak sizing. The typical curve on more strongly-sized paper is shown in Fig. 3—*a* for normal and *b* for greater quantity of gum.

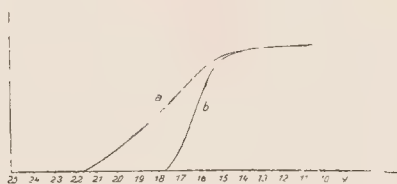


Fig. 3.

### The Effect of Sizing.

The influence of the sizing of the paper in conjunction with the gum and colour is plainly seen from these curves. A thinly-sized paper, as well as a thicker-sized one, gives with a greater proportion of colour than normal, and normal development a tint in the lights. With normal composition of the film pure whites are obtained with well-sized paper. With weaker sizing there is a peculiar flatness of the lights, which, if insolation is pushed so as to obtain contrast, becomes a uniform tint. With lessened colour this flat part of the curve disappears, the lights are clean, and the scale shortened. With mechanical development with thin-



sized papers the scale of tones is lengthened and more even; on well-sized paper it becomes shorter.

It is very instructive to expose strips of the paper under a graded photometer and then develop normally and mechanically, and note the result. The photometer or actinometer used by Dr. Köster is Vogel's, in which each succeeding step transmits four-fifths of the light of the preceding one.

In the ordinary way, on gum paper, only five to seven, or at the most ten, will be printed out under this actinometer, whilst with albumenised or P.O.P. 12-18deg. will be obtained, so that such negatives cannot be printed out on gum paper to give a correct reproduction; either the high lights will be printed out and the

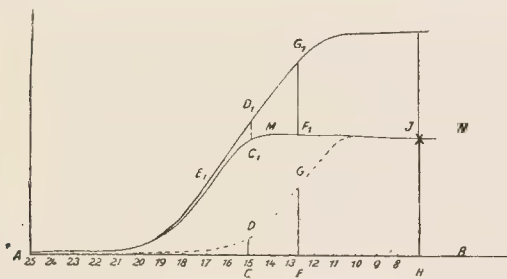


Fig. 4.

half-tones and shadows be indistinguishable masses, or the shadows will be distinct and the half-tones and lights wanting.

To remedy this state of things two or three printings must be resorted to in order to render the complete scale of gradations in the negative. Thus, supposing that a negative is to be printed from which corresponds to 15deg. Vogel, and the single printing gives 5deg., then three such printings will give 15deg.

#### Multiple Printing.

The three separate sensitising can be done without any intermediate treatment of the prints, as when the print is once dry neither hot nor cold water, nor brush nor spray will touch it.

In order to explain the action of successive printings, recourse must again be had to our actinometer. Supposing that a strip of gum paper be exposed so that the gradations from 11deg. to 17deg. are represented, then 1deg. to 11deg. will be all of the same depth, 11deg. to 17deg. varying in gradation, and 17deg. to 25deg. white. If after development this be again coated with a similar sensitive mixture and in similar thickness, and printed under the actinometer 5deg. to 6deg. shorter, 5deg. to 11deg. will be gradated, so that now, by the addition of the second to the first printing, we shall have twelve gradations in all—namely, from 5deg. to 17deg. By proceeding on

these lines and using very thin coatings, it will be possible to obtain the complete scale from 1deg. to 25deg., which is not possible with any other printing process. Care must be taken, however, that, no matter how the many printings are used, the deepest tone obtainable thereby is that which the deepest shadow should have.

In Fig. 4 AB represents the degrees of Vogel's photometer and the logarithms of the incident light. The first printing will be represented by the curve AMN; HJ represents the blackness of the print. A second coating, printed 5deg. shorter, would, were the papers white, be represented by the dotted curve; but as the first impression is already there, the blackness of the second printing must be superimposed on the first. The upright CD must then

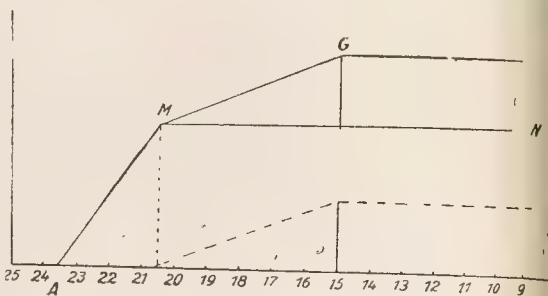


Fig. 5.

fore be reckoned from  $C_1$ , as  $C_1$ ,  $D_1$ , and so on. If, now, the points  $E_1$ ,  $D_1$ ,  $G_1$ , are joined up, we shall obtain a new curve which represents the final gradation of the print.

It has already been pointed out that the number of gradations remains approximately the same, whether the sensitive film be thick or thin, and that with thick films the gradations are inclined to sink. If, thus, in Fig. 5, AMN represents the gradation curve with a medium thickness film, that of a thinner film, printed for a shorter time, will be shown by the dotted curve. If this is now superimposed on the former, we obtain the curve AMG of the final print.

The curve which is thus given by double printing is no longer straight, but so bent that it gives soft shadows.

It is thus possible to first obtain a soft print, then a hard one and then for the third use a soft curve, so that it is obvious that one may obtain any curve that is desired, or, in other words, any desired effect, if only it is borne in mind that the length of the gradations of each individual printing can be shortened by increase of the amount of gum or the size. The curve AMG of Fig. 5 shows the superposition of a long, soft scale of tones on a short, hard scale.

## COLOUR PHOTOGRAPHY.

### A MODIFIED PINATYPE METHOD.\*

JUDGING from what has already been written concerning the process of pinatype, there seems yet somewhat more to be said with regard to this process of polychromy, which is really extremely interesting and capable of giving very satisfactory results.

Without trenching upon anything that has already been published with regard to this process, it is possible to suggest a method of utilising it, which is fairly easy; and for making prints on paper, not by successive imbibition, but simply by transfer from the glass on to the paper of a composite image, printed in the necessary successive operations on one piece of glass, which acts as the temporary support.

Obviously, when utilising the colour saturated print-plates for printing on to paper, it is only possible to attain, without ulterior aid, to a certain luminosity, which is extremely interesting and which may be applied artistically; but it is not possible to obtain prints at

all comparable, either in brilliancy or depth, to those developed on glass.

The following is the method I suggest: A sheet of glass, somewhat longer than that required for the actual print, should be thoroughly cleaned, then polished with talc, and finally coated with a 2 per cent. collodion, and on this collodion, which must be provided with a safe edge, must be coated a film of bichromated gelatine of the following formula:—

Gelatine, good hard .....	5 parts.
Ammonium bichromate .....	2 parts.
Water .....	100 parts.

The gelatine should be first soaked in the water, then melted by the aid of heat, and the bichromate added and the mixture filtered.

The collodionised glass should be placed on a carefully levelled support, and 100 minims of the above bichromated gelatine coated on every 16 square inches of surface. When the gelatine has set

\* M. Vidal's article was written before the appearance of the process advised for preparing pinatype transparencies.—Eds. B.J.P.

the plate should be reared up to dry in a dark and fairly warm place.

The first print should be either the red or blue, and after the plate has been exposed, by the aid of an actinometer, it should be washed with acid sulphate of soda to decolorise those parts of the image which were affected by light, and it should then be stained in the pinatype red.

It is advisable to rinse the plate from time to time and place it in a dish of clean water, film down, on a sheet of white paper, so to judge of the intensity, as this is better than looking through. When the desired intensity is obtained, the plate should be washed and allowed to dry, and then immersed for five minutes in a pinatype fixative, again washed and dried.

The plate again levelled should be again coated with the bichromated gelatine, and allowed to dry and then exposed under the second, the blue, transparency. It is advisable to use a magnifying glass to ensure absolute registration of the images. The red plate should be supported between two plate boxes, for instance, over a sheet of white paper, and after approximate coincidence has been obtained, the final adjustments should be made with the eye-piece, and the glasses or one edge fastened together with a lantern slide binder, or a variety, after which it should be again examined with the eye-piece, to make sure that there is no shift, and then it should be exposed with or without a printing frame.

After exposure, the procedure is precisely the same as indicated above for the red image. The blue image appearing in contact with

the red it is easy to judge of its intensity, and the plate should be well washed and then laid face down on white paper, otherwise it is easy to spoil the print.

After development the fixative should be used, and the third film of bichromated gelatine should be coated on the top of the two images and dried and exposed under the yellow transparency, and stained and treated as the others. It is extremely easy to judge of the intensity of the staining by placing the plate, film down, on paper. The plate must be again washed and treated with fixative, and then coated with a plain 3 per cent. solution of gelatine. This film acts as an adhesive medium for the final print. Any gelatinised paper or the pinatype papers are excellent as the final support. It is only necessary to soak the papers in water, and the composite image, and bring the two into contact and then squeegee well, so as to obviate air bells, and then dry between blotting paper. When absolutely dry, the margins should be cut right through with a sharp knife, and the print stripped.

In order to avoid accidents it is advisable to use a cutting glass of the exact size of the print required, and by this means one avoids the possible mischance of one side lifting before all four are cut through. If plate glass be used the surface is very brilliant, possibly too much so, but it is extremely easy to reduce this effect by using ground glass for the primary support.

It is hardly necessary to apologise for the exact and minute directions given above, for I know from experience that beginners are very easily discouraged by failures due to insufficiently precise instructions.

LEON VIDAL.

## PROFESSIONAL COLOUR PHOTOGRAPHY.

On the opening of the St. James's Studio of the Rotary Photographic Company took place on Friday last, May 11, when a company of artists, photographers, and others interested in the enterprise assembled at 45, Old Bond Street to inspect the handsome suites of rooms and witness a demonstration of the process so far as concerned the assemblage of the three monochrome prints. To the effect which appeared in our last issue it only remains to add some particulars of the premises and of the appeal which the company make to the public. No expense has been spared to provide a luxurious background for the business which it is proposed to conduct in the establishment. The decorations of the reception rooms, studio, and dressing rooms are done throughout by Waring, and are in a good taste which one expects of this experienced firm.

Of the specimens which are displayed in the large reception salon, we are portrait studies from life, and partially represent the result of the short private practice which has been possible to the company before the opening of the studio. Judgment of colour values and of truth to colour impression being superlatively personal, it is difficult to criticise or appreciate these results. We believe that as far as an appreciation as any which can be expressed is to say that the effect they produce is unlike anything with which we are familiar in photography. They are distinct in their appearance from coloured photographs. They may not be considered perfect reproductions of colour of the sitters. Probably their makers will readily admit that to be the case and equally maintain that while feminine weaknesses possess their present very positive character, any firm which seeks to enter the field of colour portraiture unprepared to temper justice with mercy might about as well go out of business. It is conceivable that the concessions which are made to personal vanity in ordinary monochrome photography can be swept away all at once when the production involves colour rendering. Assuming the portraits displayed on the walls to be honest attempts at facsimile portraiture, we think they must be very good indeed, probably a good deal better in this respect than they need be for commercial purposes. It is not likely that in colour portraiture the duties of the retoucher will be dispensed with, any more than in photography now generally practised. Perhaps the particular needs and

methods of retouching three-colour negatives will call into existence a new class of worker, whose labours, we hope, will meet with a fitting monetary reward.

In the reproductions of paintings the colour process of the Rotary Company is seen at its best, we think, a fact which points to the justness of our conclusions that in facsimile work the process in capable hands is good enough. The least satisfactory examples shown in Old Bond Street are the landscapes and other outdoor subjects, a field in which, so we should surmise, the staff of the studio has had the least practice.

It may interest the profession if we quote the prices which it is proposed to make for portraits in colours in the new studio:—

One cabinet portrait, two guineas; further copies, one guinea.

One boudoir portrait, six guineas; further copies, two guineas.

As we mentioned last week, however, portraiture is not the only card which is to be played in the new enterprise. The reproduction of objects of vertu, curios, paintings, and the hundred and one strange and rare things which wealthy man collects and desires preserved is one of the immediate tasks to which the staff are applying themselves. We hear other photographers in the provinces are equipping themselves for the practice of three-colour work with a view to introducing it into their business, among whom the firm of Heath and Stoneman, of Plymouth, to whose work we referred last week. We have since received from them several specimens of colour portraiture, which we have examined with a good deal of interest.

We would also refer to a letter received as we go to press from Mr. Otto Pfenninger (Lombardi's Studio, Brighton), in which he points out that this studio was opened for portrait colour photography in July, 1903. The exposures were made in a quarter-plate one exposure camera of home construction, and the negatives were printed from by the processes of Dr. Jumeaux and of Lumière. Four colour portraits were shown at the annual exhibition of the Hove Camera Club in 1903. Mr. Pfenninger sends us a specimen of his work done about this time, which, while somewhat predominantly red, is interesting as verifying his claims to have been early in the field with three-colour applied to commercial portraiture.

THEIR Royal Highnesses the Prince and Princess of Wales have graciously accepted two of the photographs taken by Mr. G. H. Sanford, Boscombe, at Portsmouth on their return from India.

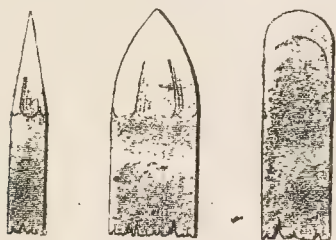
A PECKHAM photographer named Tomlinson committed suicide last week by taking cyanide of potassium. The deceased had been in a despondent state for some time.



## FOREIGN NOTES AND NEWS.

### Local Reduction.

Wurtz recommends in "La Photographie" the use of a pad of absorbent cotton wool, saturated with absolute alcohol, and he lays great stress on the importance of this and tripoli powder. With this, halation or local dense places can be reduced without showing any scratches or other marks, as the tripoli is so fine. Failing tripoli, he suggests the use of a tooth powder. It is as well also to cut three scrapers out of hard wood, as shown in the accom-



panying figure half their natural size. Round these should be wound the cotton wool, which is then dipped into the alcohol and tripoli. It is possible to scrape down quite fine spots and places with one of these, which are shaped like a pencil, a stump, and the left-hand one shaved off to a wedge shape. This "white retouching," as the author calls it, should be performed before the ordinary retouching with pencil.

### Gürtner's Two-colour Process.

A German patent has been granted to the Chemische Aktien vorm. Schering for a method of making the necessary printing materials for Gürtner's two-colour process, on transparent supports, such as celluloid, mica, etc. Two monochrome negatives are made in the usual way through violet and red filters. From the yellow negative a print is made on ordinary P.O.P. This is fixed with ammonia, which gives the yellow monochrome picture. A celluloid film, coated

with a stripping gaslight emulsion, is exposed in contact with the blue negative, developed and fixed. The image is then converted into the well-known blue by means of ammonio-citrate of iron and potassium ferricyanide, laid film down on the yellow print, squeezed and allowed to dry. The celluloid is then stripped off.

### A New Non-stripping Carbon Tissue.

Bühler, of Schriesheim, has introduced a new non-stripping carbon tissue, which allows the image to be seen during printing, thus doing away with the necessity for an actinometer. The paper is first immersed in methylated spirit for a minute, then sensitised in a 2 per cent. solution of potassium bichromate and dried. The paper must be exposed till the details are distinctly seen of a brown colour in the high lights when examined by transmitted light, practically one must print about twice as long as with P.O.P. After printing, the tissue should be immersed in cold water for a minute or two, and then in water at about 100 deg. Fahr., in which the print will develop slightly, and must then be sprayed with a fairly strong, but fine, stream of cold water. It is stated by Professor Schmidt, of Karlsruhe, that there is much greater transparency in the shadows than usual, and that the paper will give two grains—one coarse for large work, and the other fine for small.

### The Spectra of Luminous Bacteria.

Molisch, of Vienna, has been examining the light emitted by the luminous bacteria of decaying flesh, fish, and wood, and finds that practically it is confined to the yellow, yellow-green, and green parts of the spectrum; there is no red and no violet to be seen. It is, of course, extremely difficult to accurately determine the limits, because the light is so weak, being about 0.000785 Hefner candles per square millimetre. It was found possible to obtain a very good photograph of a thermometer with the light emitted by the bacterium phosphoreum with a rapid plate and a lens working at  $f/5$  with fourteen hours' exposure.

## New Books.

"The Photographic Picture Postcard." By E. J. Wall and H. Snowden Ward. London: Dawbarn and Ward, Ltd., 1s.

This handbook of the omnipotent picture-postcard is divided into two distinct portions. First, the technical, which deals with the production of picture cards by the usual, and by some unusual, photographic printing processes. The second part concerns the business of picture postcard manufacture and sale and the sale of reproduction rights in photographs to postcard publishers. Of the technical section, the most valuable chapter we find to be that describing methods of colouring postcards. We confess to feeling a little dissatisfied with the others, which amount to nothing more than a series of brief notes on the various printing processes. We should have wished to have seen some hints on the special difficulties of the postcard printer, such as the marking and discolorations on the plain side of the card and trouble in getting the cards to dry flat. But we cannot find them. We would recommend the inclusion of such matter in place of notes on "Woithly" and other "types," which we conceive to be processes of little value to the postcard maker. The latter part of the volume, dealing with the business in postcards, however, contains a number of suggestions and items of information which cannot fail to be read with profit by those who are about to embark, or who have embarked, in this branch of "photography for profit." For example, we can commend the hints on the choice of a photo-mechanical process for postcard production as eminently sound advice on important matters in regard to which our advice is not infrequently sought. For the guidance which it gives in this direction only the book should be worth a good deal more than the price charged for it to anyone who is connected with the commercial production of postcards.

"Bombay Ducks, or Birds and Beasts found in a Naturalist's El Dorado." By Douglas Dewer. London: John Lane. 16s.

Mr. Dewer's book deals with the manners and customs of "Bombay Ducks," which expression, it must be explained, is not used in its former Anglo-Indian sense of inhabitants of Bombay, nor in its present-day meaning of certain brittle pieces of sundried fish largely eaten with curry in South India. The "Bombay Ducks" of the book are the birds of the "Bombay side," the author essays having appeared first in various Indian newspapers. Probably our readers will be interested as much by the photographic illustration of Colonel R. S. F. Fayer as by the narration, in entertaining fashion, of the author as to his many bird friends. The volume gains immensely in interest by the inclusion of the plate-illustrations from Colonel Fayer's photographs, for one obtains a lifelike impression—of the hoopoe, for example—which pages of literary description could hardly replace, though they admirably supplement it. "Bombay Ducks" is quite a readable book of bird life.

"Photochemie." By Dr. J. M. Eder. Halle: Wilhelm Knapp, 15s.

This is the third edition of the second part of Dr. Eder's famous handbook, and was previously issued as "Die Chemischen Wirkungen des Lichtes." The second edition, which was published in 1891, was only about 300 pages, but so much has the literature on this subject grown that now we have a volume of close on 600 pages. The very latest papers are noted, including all those upon the many radiations, which act upon the plate, but which may still be questioned as to whether they are light; ions, electrons, and gaseous ions are also treated of. There are, of course, many facts recorded which have but little connection at present with practical photography, but to the earnest student this volume will, like all the others of this work, prove an indispensable reference work of great value, to enable him to learn what has already been done by others.

## Exhibitions.

### THE MUNICH FINE ART EXHIBITION.

We are pleased to welcome the examples of German art now on in the Grafton Galleries. Whilst widening our purview, such national displays tend to break down prejudice, and carry the realising advantage of catholicity of taste and of new points of view. German art has always excelled in three things: in romantic imagination, in decorativeness, and in realistic presentment. In that thing and logical imagination which can take a myth of antiquity fashion it in paint so that it speaks convincingly to minds of aerial and unpoetic mould, the re-creations of men like Boecklin, Schik, and Hoffman von Vestenhof, are pre-eminently rich. The "Minotaur," by the last-named, is shown in an arena, his man's head lashed out horizontally to oppose the onslaught of his adversary. The crushing weight of his great bull-body is made appallingly lent. Similar truth exists in Franz von Stuck's "Fight for the man." We feel no doubt that primitive man was just this sort of hairy brute, and that this woman, though fair of skin, might look at a contest for her possession with just such a brutally beautiful expression, but mild indifference and placid interest in its result. The realism of more ordinary things also is here abundant, in manner and new. Still life by Grützner (of Falstaff fame), beyond which it is impossible to believe that painting can go, and beside which photography, in actual realisation, limps and falls short. Of more modern aspect we may point to the "Swans" of Rudolf Schramm, life size marvels of colour, tone, movement, and general truth of effect. There are some great achievements in landscape, embodying the romantic idea, as in Uhl's "Peaceful Evening," where a shepherdess reposes upon a hill top in a twilight rendered with astounding truth of feeling. Before the "Mid-day Hour" one is reminded of the subjects chosen sometimes by Demachy and by J. M. W. Turner. Here a nude girl sits upon the marble edge of a fountain, her feet in the water, and herself almost hidden in the shade of pink chestnuts in bloom, whose branches hang over the water. The stillness is suggested unmistakably. Fritz von Kaulbach is well represented, as also is Franz von Lenbach, the finest of whose portraits is, to our minds, undoubtedly the "Bismarck." The exhibition is most interesting, however, in regard to its landscape work, which has a loftiness of intention peculiarly its own.

## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes.*

The following applications for patents were made between April and May 5:—

**PHOTOGRAPHY.**—No. 10,030. Improvements in photography. William Theophilus Ord, Greenstead, Madeira Road, Bournemouth.

**SELF-TONING PAPERS.**—No. 10,051. Improvements in self-toning silver chloride printing papers. Oskar Hermann Steudel, 13, Featherstone Buildings, High Holborn, London.

**TYPE PRINTING.**—No. 10,078. Improvements relating to the reproduction of pictures by the aid of catalytic action. A. G. Bloxam, for the Neue Photographische Gesellschaft, Berlin.

**DEVELOPING TANKS.**—No. 10,123. Improvements in photographic developing tanks. Thomas Jackson and Robert Ley Wood, Lloyds Bank Chambers, Cheltenham.

**FIXING PLATES.**—No. 10,153. Apparatus for washing or fixing photographic plates. H. C. Heide, 1, Broad Street Buildings, London, for Martin R. Jacobus, United States.

**DEVELOPER.**—No. 10,234. Photographic developer. Karl Busson, 216, Friedrich Strasse, Berlin.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**ONE-TABLET DEVELOPERS.**—No. 3,164, 1905. The claim is for a solid compacted developing composition in dry or tablet form containing borax as a preservative alkali or accelerator, and only requiring the addition of water. The invention may be carried out by the preparation of tablets containing (in each of the size for 4-plate) metol, 2 grains; hydroquinone, 4 grains; potassium metabisulphite (powdered),  $\frac{1}{2}$  to 1 grain; borax, 10 to 20 grains; colloid, such as gum, tragacanth, or like adhesive, q.s.; glycerine, or other hygroscopic medium, e.g., glucose syrup, q.s. (optional for assisting solubilities). Mix the dry ingredients, add the colloid and glycerine (about two drops of a saturated solution of gum arabic, and one drop of glycerine suffice), then add alcohol continuously, and stir to avoid precipitating the colloid, in sufficient quantity to make the mixture into a paste. Then press the mixture into contact with glass or other moulding surface for shaping the paste into tablets if desired, said mixture being allowed to dry therein, and when dry, ready for use. William Fraser Cloughton Kelly, 22, Winchenden Road, Fulham, S.W.

**ROLLER SLIDES.**—No. 3,165, 1905. The chief claim is for a hollow or tubular bobbin furnished with a "roll film," and containing the necessary chemicals for development. According to the invention the central portion of the bobbin is constructed of hollow section, and serves as a receptacle for a sufficient quantity of developing chemicals to bring out the latent images on the whole length or roll of film; the hollow central portion or receptacle being closed at the extremities by the end flanges pertaining to the bobbin. One mode of constructing a bobbin consists in forming the core, or hollow, or tubular portion of perforated material—ordinary perforated zinc—covered with paper or the like so as to retain the chemicals; a projecting thread serving as a convenient means of rapidly tearing or removing the paper covering. When it is desired to develop the roll of film, the core or central portion of the bobbin may be divided or the ends removed; the opening of the bobbin rendering the developing chemicals available for use. The latter are then immersed in water contained in a suitable vessel, and so form the developer. William Fraser Cloughton Kelly, 22, Winchenden Road, Fulham, S.W.

**EMULSION PAPERS.**—No. 7,693, 1905. The claim is for a "process for the manufacture of sensitive gelatine emulsion papers, which shall be capable of readily taking water-colours, characterised by the fact that, omitting any baryta layer, unsized paper is coated with gelatine emulsion, thereby obtaining simultaneously a single sizing of the paper and a penetration of the entire thickness of the paper with gelatine and salts sensitive to light, whereby the colours are able to penetrate the fibres of the paper to a greater depth." In applying the gelatine emulsion to unsized paper (which, owing to the decreased strength of such papers, is done with the assistance of a support) not only does the gelatine penetrate deeper into the paper, but, what is exceedingly important, the sensitising medium also, than is the case with sized paper, which always comprises a baryta layer in addition. This latter is quite absent in the present case. Both the gelatine and the salts sensitive to light become uniformly distributed throughout the entire thickness of the paper web, solidify the fibres and render the manufacture much more economical, make colouring easier and more pleasant, and finally result in much thicker coats of colours which will not fade so readily. Quite apart from the question of colouring, however, copies or reproductions made upon such paper may also be retouched with water-colours very readily. Ludwig Robicek, 7, Kirchengasse, Vienna.

**CAMERAS.**—No. 405, 1906. This invention relates more particularly to that type of auxiliary flap or shutter which is permanently and in normal position across, or covering, the lens aperture when the camera is not in use, and is only removed simultaneously with the operation of the blind shutter to give an exposure, and



is immediately returned when the exposure is complete. It consists essentially in applying an extension to the lever or mechanism of the blind shutter to engage direct with the auxiliary shutter and move it from the lens aperture slightly in advance of the release of the blind for an instantaneous exposure, and return it again as soon as the blind has completed its travel and the releasing lever returns to normal position. The Thornton-Pickard Manufacturing Co., Ltd., Altrincham, George Arthur Pickard, and Frank Slinger.

#### CATALOGUES AND TRADE NOTICES.

The receipt of the new issue of the photographic catalogue of Messrs. W. Watson and Sons, 313, High Holborn, London, W.C., is a reminder of recent progress made by this old-established firm in apparatus for professional and amateur photography. Of certain of these—the "Actinolux" lens and the hand-camera "Antinous" release—we have already spoken in these columns or in the "Almanac." Of others we shall have to report upon before long, but meanwhile we may advise application to Messrs. Watson for this twenty-sixth edition of their price list, notably for particulars of a new series of the "Holostigmat" lens, embodying large aperture and convertibility, the separate components being available at their full aperture on the same size of plate as the doublet of which they form part. Another new lens in the list is the "Holos" Convertible wide angle, examples of work done with which in the combined and separate forms are given. The "Empire" hand camera, specially designed for the tropics, is also fully specified in the list.

The makers of the Page-Croft pigment paper are making a special offer of six assorted half-plate pieces of paper for 6d. The packet can be had from dealers or from the factory, 394, Cooksey Road, Birmingham.

From the firm of Billcliff, Richmond Street, Boundary Lane, Manchester, we have received a new catalogue of apparatus for midget, stamp, and postcard photography. The firm has a special and varied series of repeating backs suitable for all classes of cameras, and supplies also printing frames for use with those pieces of exposure apparatus. Enlargers, adapted to work from midget negatives, and bromide printing machines are also specialties of the firm which are listed in the catalogue.

**FIRE at Gloucester.**—A fire which might have resulted in serious consequences broke out at Messrs. F. W. and S. Longman's photographic studio in Clarence Street, Gloucester, one evening last week. It appears that Mr. Longman had lit a stove, which had been in constant use, in preparation for a chess club meeting which was to have been held there in the evening, and, returning to the studio after being away for a few minutes, found the wall of the studio in flames. Both fire brigades were quickly summoned, and with their help the fire was soon extinguished. The principal damage was to the glass roof. Some furniture was injured, but none of the photographic plates and apparatus were near the fire.

**THE Autumn Exhibitions.**—We have a few copies of the entry forms and prospectuses of the R.P.S. Exhibition and The Photographic Salon, a copy of each of which we shall be glad to send to any one on application.

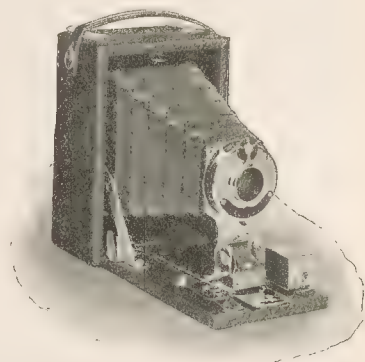
**MR. H. O. KLEIN**, the well-known collodion emulsion expert, sailed for New York on May 8, having been sent out by Messrs. A. W. Penrose and Co., Limited, to assist their agents in introducing collodion emulsion and other Penrose specialties in the United States. He will probably remain about three months in the States, and will visit the most important centres of photo-engraving. He will make his headquarters with the United Printing Machinery Company, 12, Spruce Street, New York, the sole agents in America for the Penrose goods.

At the monthly meeting of the Printers' Managers' and Overseers' Association, held on May 1, a lecture was delivered on "Celestial Photography" by Mr. Percy Morris, F.R.A.S., a director of the firm of Messrs. Whitehead, Morris and Co., Tower Hill, London.

## New Apparatus, &c.

The "Premoette." Sold by Kodak, Limited, Clerkenwell Road, London, E.C.

Under this name, Messrs. Kodak, Limited, have brought out an addition to the series of well-known Premo cameras the notable feature of which is its small proportions and simple construction. The "Premoette" takes negatives 3½ in. by 2½ in. and is made to take the "Premo" film pack of this size, the whole apparatus, with the pack in position, being then self-contained and



equal to producing a dozen exposures. Thus the camera is in line with other Kodak instruments in being daylight-loading and extremely portable. The new camera is fitted with a single lens shutter, with everset instantaneous, time, and bulb movements, and a series of four stops. It has finder for horizontal and vertical pictures and a focussing scale which is sufficiently marked for the intensity of the lens. The "Premoette," which sells at a guinea, should be popular as gift for those making a first acquaintance with photography.

THE new-style series of developing tanks, which was introduced by the Kodak Company last year, has been added to by the introduction of a larger size capable of taking spools up to 7 in. Hitherto spools over 5 in. have had to be machine-developed in the well-known Model H apparatus, but the new tank now renders the latter system as applicable to all the commercial sizes of spools as it



predecessor. The new tank, it may be added, is an improvement on the earlier smaller sizes in that it is necessary only to invert two or three times during the twenty minutes' development, not to remove the film and the enclosing apron from it. This is done by the aid of the watertight lid shown in the figure. The price of the new tank outfit is 32s. 6d.

# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

Name of Society.	Subject.
Aberdeen Photo Art Club .....	"Gum Bichromate." Mr. J. Dalgity.
North Middlesex Photo. Soc. ...	Outing to Mill Hill.
South London Photo. Society ...	Outing to Leigh-on-Sea.
Chelsea and District Photo. Soc.	Outing to Brentford—River and Canal.
Birmingham Photo. Society. ...	Half-day Excursion to Offchurch.
Redhill and District Cam. Club	Outing to Friday Street.
Bristol Photographic Club .....	Outing to Providence Hill.
Manchester Amat. Photo. Soc.	"Portraiture." Mr. T. Lee Syms.
Southampton Camera Club .....	"Exhibitions and Exhibition Pictures." Mr. F. G. Ryder.
	1. "The Theory of Fixation; Combined Development and Fixation." Mr. S. E. Sheppard, B.Sc., and G. E. K. Mees, B.Sc.
Royal Photographic Soc. ....	2. "Sizing in Relation to Print Out Papers." Mr. P. L. Thornton.
Hackney Photo. Society .....	"Side Lights on Sepia Toning." Mr. H. W. Lane. R.P.S. Competition Lantern Slides due.
Acton Photographic Society ...	"First Aid in Photographic Accidents." Practically Demonstrated. Mr. W. Polty.
Leeds Camera Club.....	"Isochromatic Photography." Mr. W. K. Skipwith.
North Middlesex Photo. Soc. ...	"Photographic Lens Making." Messrs. Taylor, Taylor & Hobson.
Cricklewood Photo. Society.....	Lantern Lecture, "North Devon."

## PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

### DEPUTATION FROM THE ACTORS' ASSOCIATION.

Friday, the 11th inst., the committee of the Association received a deputation from the Actors' Association, at the Royal Photographic Institution, 66, Russell Square, W.C. The following members of the committee were present:—Messrs. F. A. Bridge, T. Birtles (Warren), E. C. Elliott, Alfred Ellis, Martin Jacquette, P. Lankester (Bridge Wells), A. Mackie, H. S. Mendelsohn, D. Prodder, J. Camell, Lang Sims, and R. Fellows Willson; Mr. Martin Jacquette, president, in the chair. Messrs. C. Blakiston, Hayden Coffin, A. Holmes Gore represented the Actors' Association.

Mr. Holmes Gore, in introducing himself and fellow delegates, said the Actors' Association consisted of some 1,600 members of the profession, and was governed by a council comprising a president (Mr. Bancroft), 12 vice-presidents, and 42 ordinary members, many of whom were many London managers. The association had existed for many years, being incorporated as a company in 1891. It had been a constant source of complaint in the profession that the regulations governing the relations between photographers and actors bore very harshly upon the latter, and it was with a view to meeting that many of the difficulties at present existing might be removed, that a sub-committee was appointed by the Actors' Association to draw up some suggestions, whereby an agreement might be reached to avoid the causes of friction and leave them very much satisfied and safer in the future.

Mr. Gore then read the suggestions for dealing with the relations between the photographic profession with actors. Continuing, Mr. Gore said there was another point which had arisen, and which they would like to lay before the P.P.A. It was that in the agreements with managers of companies for the photographs of companies in groups for the purpose of reproduction in magazines, etc., they desired very much to limit the sale of photographs after the price had been withdrawn, and thus confine the sale of photographs to the purposes for which they were taken—that was, for the purposes of advertising the particular piece for the benefit of the actors engaged in it, and not for the benefit of the production. They found that long after a piece had been withdrawn the photographs were being used (by some reproduction firm possibly) for commercial purposes and not for the required purpose for which the photographs were taken. Their sitting was for the benefit of the piece, and the photographs of plays were sent round the country, with the exception of the London actors omitted. For instance, if he (Mr. Gore) were taking one of Mr. Alexander's parts in a play on tour, Mr. Alexander's portrait would be shown instead of his own in the program character he was playing. There were five questions

which they would leave to the committee, and would be glad if they would consider them and let them have replies.

Mr. Jacquette said they were very pleased to see the members of the deputation, but he ought to state that photographers were very much governed by the state of the copyright laws, as they were framed at present. He could assure them that the questions placed before them would receive sympathetic consideration. It seemed to him, however, that some of the matters were rather questions for consideration between the Actors' Association and the theatrical managers.

Mr. Hayden Coffin spoke with regard to picture postcards. They had just seen from particulars of the latest Budget that the Government increase was greatly benefited by the sale of picture postcards, and they desired to protect themselves, as well as the Association. The managers, most of them, think they cannot get the co-operation of the artists, and the artists suffer very severely. There were many actors walking about only anxious to jump into other's shoes, and if those in engagements showed a disposition to stand on their rights they soon received notice to quit, so that the actor was very awkwardly placed with regard to such matters. They would like the P.P.A. to make a very strong case with the managers for the sake of both sides. The ladies would be only too pleased to make better terms. The system upon which some of the play pictorials were produced was very harmful. After a play had finished its run certain pictures remained very popular. The sale of these pictures ought to benefit the photographer and actor, especially when the manager had no further need of them. He thought a mutual understanding would avoid much litigation and unpleasantness.

In conclusion, Mr. Gore said that in laying these suggestions before the P.P.A. he wished to lay stress upon the fact that it was in the friendliest spirit they approached the representatives of the photographic profession and in the hope that the Association might help them. The deputation then withdrew.

The usual monthly meeting of the committee of the P.P.A. was then held, at which the same members were present.

The President said his first duty was the painful one of referring to the severe loss the association had sustained by the death of their hon. secretary and treasurer, Mr. Wm. Grove. As their colleague in the work of carrying on the business of the association, Mr. Grove's assistance had been of inestimable value. The interest he had felt in the progress of the movement had been testified by the work he had performed for them in carrying out the duties of the various offices to which they had appointed him. But beyond their esteem for him in his official capacity every member of the committee would feel that a personal friend had passed away. His high character and amiable disposition had endeared him to all. A wreath had been sent in the name of the Association, and he (the president) would now move that a letter be written to Mrs. Grove, expressing their deep sympathy in her bereavement. The resolution was carried in silence.

With regard to filling the vacant offices of hon. secretary and treasurer, the president moved that Mr. Lang Sims be elected as hon. treasurer, and Mr. Alex. Mackie hon. secretary. These gentlemen, having signified their willingness to serve, these appointments were agreed to. Certain changes rendered necessary by the new arrangements and other domestic matters were then discussed, and a sub-committee was appointed to consider the proposals of the Actors' Association and report.

## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, May 15, the President, Major-General Waterhouse, in the chair. A lecture illustrated with lantern slides was given by Mr. F. Dunsterville on "By Paths in India."

THE HOVE CAMERA CLUB has held a prosperous year, as is shown by the report and balance-sheet just published. The club is unfortunate in losing the services of Alderman Colman, J.P., who has happily filled the position of president for five years. His place has been taken by Mr. A. R. Sarjeant, who resigned his post of hon. secretary, through pressure of business, and to whose energy the club owes much. Mr. R. C. Foskett, who has held the post of assistant hon. secretary and treasurer, also retires, but his services are retained on the committee. The post of hon. secretary has been



taken by Mr. W. H. Bone, of 32, Sackville Road, Hove, with Mr. G. W. King as assistant hon. secretary, while Mr. F. L. Jermyn has accepted the position of hon. treasurer.

**WORTHING CAMERA CLUB.**—At the annual meeting a very satisfactory report was presented and the following officers elected:—President, Colonel Henty; vice-presidents, Sir Henry Aubrey-Fletcher, C.B., M.P., Mr. Hector Morison, J.P., Mr. H. Foreman, Alderman E. C. Patching, Councillor W. Gardiner, Councillor F. Tate, Councillor G. H. Warne, Dr. W. A. Gostling, and Mr. F. W. Patching; committee, Messrs. H. G. Loader, A. C. Osborn, H. Swain, N. L. Watts, C. Spencer, and R. Long. The honorary secretary, Mr. Edmund Crouch, was re-elected, and an expression of the club's appreciation of the successful services for the club was offered in the shape of an illuminated address.

**CROYDON CAMERA CLUB.**—"Odds and Ends," by members of the council, resolved itself, on the 9th inst., into a series of "talks" about various things, and a very pleasant and instructive evening was spent. First came Mr. J. M. Sellors, who showed a very convenient and eminently practical retouching desk, constructed out of wood and millboard. When knifing a negative—a delicate operation at the best—he lubricated the film with "Baskett's reducer," which facilitated matters considerably. Mr. F. Stokes followed with a paper on "Floral Photography," illustrated by lantern slides. Mr. R. H. Edgar next raised a point in telephotography, which, so far as recollection goes, does not appear to have been dealt with before. When using a Beck's "Multiflex" lens, he had for a long time been troubled with a considerable amount of general fog, whenever the sky was included in the field of view. This resulted in more or less flat pictures. On thinking the matter out he came to the conclusion that this was simply due to reflected light inside the lens tube, the diaphragm contained in the tube being insufficient to cut off all stray light. He accordingly constructed a supplementary tube, the same length as the lens barrel, and fitted it up in front. The improvement was most marked; indeed, he could now obtain far more contrasting pictures with the "Multiflex" so fitted than with an ordinary unshielded objective. When working close to the sun, he even went a step further, and placed a short tube of larger diameter, or a rectangular frame, in front of all. The contrivance did not cut off any part of the image. Mr. Mees stated he had met with the same trouble as Mr. Edgar had experienced, and had no doubt the explanation of the cause was correct. The point raised seemed to be of considerable importance to those who employed telephoto lenses. Mr. Edgar next drew attention to a peculiarity of light filters placed in front of the objective, oblique incident rays were necessarily compelled to pass through a greater thickness of tinted glass, or stained film, than axial rays, proportionally robbing the margins of the plate of actinic light. He had found this defect had obtruded itself in practice. In the short discussion that arose on the point, it was agreed that, whatever the position of the light filter, the same conditions would prevail to some extent. Mr. H. Allen, following, advocated Mr. Sterry's method of securing soft bromide prints from hard negatives, by means of a bichromate bath before development. A series of prints and graduated tints were passed round, showing that, although both ends of the scale were affected, the shadows were far more cut than the high-lights. The method he had adopted was as follows:—Trial exposures were made for the high-lights, disregarding the shadows entirely, which might be hopelessly buried. Taking a print showing the high-lights satisfactorily, as normal for the purpose, experience would indicate the necessary amount of over-exposure from the normal. The greater the over-exposure the longer the time the prints would have to be immersed in the bichromate bath. As an instance, using  $2\frac{1}{2}$  grains per ounce, double the exposure would require two minutes in the bath four times the exposure, four minutes' immersion, and so on. Mr. Sellors cheerfully remarked he had tried the "miserable process," the same results could be got with far greater certainty by variations of exposure and development. Mr. W. H. Rogers agreed; when dealing with extra hard negatives he over-exposed and diluted his developer. Mr. E. A. Salt said such a course might produce a "fine art" print, but rich deep blacks would be difficult to obtain, and the shadows must be blocked; the latitude of correct exposure was very small with bromide papers.

Mr. C. E. Kenneth Mees said that since Mr. Sterry's paper on the action of bichromate he had worked at the subject, and hoped to publish a paper shortly. He did not agree with many of the conclusions Mr. Sterry had drawn. The process was undoubtedly most uncertain and erratic, as it was almost impossible to standardise conditions. Results were influenced by the nature of the film, paper support, temperature, atmospheric conditions, etc. With the standard bath advocated by Mr. Allen he did not think it possible to get a ratio between exposure and time of immersion. The duration between immersion in the bichromate bath, and development, and the method of, and time occupied in washing after immersion, would give enormous differences in results. Under certain conditions was quite possible to reverse the remarkable action the oxidising salt had on the latent image. Probably the best method was to soak the print for a very short time in a standard bath, and wash the free salt out entirely before development. Mr. Allen, in reply, said so far he had experienced no failures, and the proof of the pudding was in the eating. Mr. H. P. C. Harpur brought the evening to close by showing a contrivance, consisting of several separated layers of black tulle, mounted in a short tube, and adjusted in front of a lens. The device had been very successful when enlarging, diffusion of focus was secured without loss of structure, and it had also wonderful action in softening excessive contrasts. He proposed applying the system to portraiture, and would later on communicate results.

**NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.**—Mr. J. Munro lectured last week on "Hampton Court Palace." He traced the history of the Palace, giving much valuable information, which was enhanced by the slides thrown upon the screen. Illustrations of interior and exterior architectural features were much admired, and the representations of its art treasures showed with what patience Mr. Munro had pursued the study of so interesting a subject. The lecture is one that will be appreciated by any society who can induce Mr. Munro to lecture before them.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—Meeting held May 10. Mr. S. H. Fry in the chair. Mr. T. Thorne Baker read a paper upon "Spectro-photography and the making of light filters, including controlling methods by the Abney colour disc." The diffraction grating spectrum was used, with an arc or acetylene light screened so as to make it similar to sunlight. The author used a cell in front of the slit of the spectroscope, and added 0.5 per cent. solution of naphthol yellow, and 0.02 per cent. solution of mandarin orange, and exposed plates till the densities were equal to the luminosity curves. The correct result having been obtained to make a dry filter, the quantity of dye was calculated out as follows:—If of the naphthol yellow solution 0.15 ccs. were used, and 0.07 ccs. of the mandarin orange, then if S represents the superficial area of the liquid in the cell, the width being negligible, the

$$200 \times S \text{ gms. of naphthol yellow and } \frac{0.07}{500 \times S} \text{ of mandarin orange}$$
 were the amounts of dyes required to mix with gelatine or collodion applied to every square centimetre of the ideal filter. A filter was only correct for one plate, and the absorption of the filter would vary according to the colour sensitiveness of the plate. The method of control by the Abney disc was purely arbitrary, and depended on the personal element. The well-known principle of these discs was then described, and examples shown, and the results obtained by photographing the revolving disc with and without the filter described, and it was stated that the slightest variation in the colour sensitiveness in different batches would be obvious in the results obtained. Stress was laid upon the importance of giving normal or slight under exposure—not over, as reversal was fatal to the results. Mr. Fry asked in what colour regions plates were liable to vary. Mr. Baker replied, Practically only in the blue-violet, but that the latitudes of the plates was such that users would not get any variation. In answer to a question by Mr. Woodland as to whether filters adapted by acetylene were correct for daylight, the reply was in the affirmative. Mr. Human suggested that plate makers should coat their plates with a properly prepared gelatin filter, but the lecturer stated that although this was an ideal method it was not commercial. A vote of thanks was accorded on the motion of Mr. T. E. Freshwater, who referred to the visibility and invisibility of a diatom under green and yellow spectrum rays.

## Correspondence.

\* *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\* *We do not undertake responsibility for the opinions expressed by our correspondents.*

### A PHOTOGRAPHER'S LOCAL ADVERTISING.

To the Editors.

Gentlemen,—Perhaps many of your readers may be interested in the way I have found of profit to me in bringing my studio before the public in the town. Mine is not the highest class of studio, but I do a good business with the middle classes, and having derived many useful hints from those who have written to the JOURNAL, I may reciprocate to some small extent. The little dodge, if I may call it so, of which I now write consists of a postcard, which I have distributed to people waiting at the doors of the theatre. It



has taken the fancy of a good many people, so I have heard, and therefore I think it may be of service to other readers of the JOURNAL. The card is quite blank on the address side, save for the word "Postcard," so that it may be used for communications if desired. On the other side is a reproduction from a photograph, same I enclose, with the wording only:—

A. J. Smith, Photographic Studio, 6, High Street, Blanktown,  
A High-class Photograph at a Moderate Price.

I suppress my own name and address, as I cannot undertake to deal with any correspondence, but if the photograph is of any service to readers of the "B.J." I shall be glad to cede the copyright to any of them, it having served my purpose now. Perhaps you, Sirs, can do the needful in making the copyright free to any. I enclose a negative for that purpose, and remain, yours truly,

NORTH COUNTRY LAD.

We are much obliged to our grateful correspondent, to whose request we have acceded by paying to him a small sum of money for the negative without any provision as to the copyright. The negative is therefore destroyed, and any one may therefore make use of the "Early Doors" photograph without incurring any liability. The best course to render the subject available to our readers has seemed to us to place it in the hands of the photo-engravers, and we have therefore handed copies of the photograph to Messrs. Harold Wood, St. Bride's Works, Middlesborough, and to Messrs. Hamel and Co., Palmerston Street, Woodborough Road, Nottingham, either of whom will supply half-tone blocks from the photograph at their usual scale of prices.—Eds. B.J.P.]

### HERR DÜHRKOOP'S PHOTOGRAPHS.

To the Editors.

Gentlemen,—In the notes, "Photographic Portraiture" by R. Dührkoop," issued with the guide to the exhibit of this famous German artist, there is some information which is certainly misleading. It is stated that Herr Dührkoop employs a very large staff in his busy studio, and his prints are issued only in either

carbon, platinum, or gum. Now, as a matter of fact, Herr Dührkoop has been a constant user of various grades of our "matt-albumen" papers for several years. Also, after inspecting this interesting collection carefully, we are of opinion that some of the prints shown are on T. and M. matt papers. We hope you will find space to publish this correction.—Yours faithfully,

L. TRAPP AND CO.

(for Trapp and Münch).

Milton House, Chiswell Street, London, E.C.,

May 7, 1906.

[We are glad to give prominence to Messrs. Trapp's letter, which reaches us at the same time as a collection of prints on matt albumen papers from Messrs. Trapp and Münch, of Friedberg. The latter show the admirable results obtainable on the papers, and confirm us in the good opinion we expressed of them some time ago in these pages.—Eds. B.J.P.]

### A CAMERA CLUB IN THE WEST END.

To the Editors.

Gentlemen,—A determined effort is being made to resuscitate the Camera Club, and in the short time the matter has been in hand promises of support have been received from over fifty members of the old club.

We have the option, up to June 1, of suitable premises close to Charing Cross, which are now being rebuilt, and would be adapted to the needs of a camera club.

A meeting will be held under the chairmanship of Sir Richard Martin at Charing Cross Hotel on the 24th inst. at 6 p.m., at which the proposal for the re-establishment of the club will be fully discussed, and, if approved, a provisional committee appointed.

Those interested in the formation on a satisfactory basis of a purely photographic club for London, at a reasonable subscription, are requested to communicate at once with either of the undersigned, and to attend the meeting.—We are yours, etc.,

HENRY W. FAIRHOLME,

Blenheim Mansions, Queen Anne's Gate, S.W.,

A. R. F. EVERSHEED,

15, Great Winchester Street, E.C.

May 15, 1906.

### THE ZANDER FOUR-COLOUR PROCESS.

To the Editors.

Gentlemen,—With reference to the extract from the "Photographische Korrespondenz" you publish in the current number of the B.J.P., in which Dr. Eder alleges that my colour process is based on Hering's theory, and was anticipated by him in a lecture he gave before one of the scientific societies of Vienna ten years ago, permit me to state that, to express it mildly, Dr. Eder is mistaken. My colour process was arrived at by empirical methods independently of, and is not based on, Hering's theory. Those who are conversant with this theory, and take the trouble to compare it with my theory, as detailed in my patent specification (27,023, 1904) may judge for themselves. Moreover, from the printed report of the lecture in question (on "Colour Reproduction by Means of Photography") which has meanwhile been sent me, it is not only certain that Dr. Eder's and my views on colour phenomena materially differ, but in the same paragraph of eight printed lines, he expresses his uncertainty of mind whether Hering's theory carried out in practice would give satisfactory results. This is far from anticipating my process.

I have no wish to quarrel with Dr. Eder, or to pass any opinion on his allegation, but will take it in a philosophical spirit. Had my colour process not produced satisfactory results in practice, neither Dr. Eder nor anybody else would have troubled to allege that they anticipated me, and therefore I ought to consider Dr. Eder's assertion a compliment.—Yours faithfully,

C. G. ZANDER.

### ARTIFICIAL LIGHT IN COLOUR PORTRAITURE.

To the Editors.

Gentlemen,—With reference to the article on p. 366. of last week's issue, we think it may be of interest to many of your readers to



know that the "Boardman" arc lamps have been adopted by the Rotary Photographic Company for use in production of their natural colour photographic work, and it is thought that the light from these lamps, being far more constant in quality and quantity than that of the fluctuating quality and quantity of daylight that the town photographers have to contend with, that more constant and reliable work will be obtained.

The two outfits they have consist of our multi-carbon open arc type of lamp, having three pairs of carbons connected up in series, and running on a 200-volt direct current supply. They can be run at 20, 25, or 30 ampères, and each apparatus is capable of producing 8,000 candle-power.

For the production of a soft and well-lighted negative it is essential to use reflected light, therefore the whole of light produced is thrown into a parabolic-shaped reflector about 4 ft. 6 in. in diameter, so that no direct rays reach the sitter.

In fact, we might (for illustration) liken the light produced by the lamp to the sun, and the reflector to the clouds, and thus it will be seen that the reflected rays produce an artificial light, very closely approaching to a north light, and, with our apparatus, has the advantage of being used at either side or end of the studio.—Yours faithfully,

F. R. BOARDMAN.

10, Southwark Bridge Road, London, S.E.  
May 14, 1906.

#### SENSITISING CARBON TISSUE.

To the Editors.

Gentlemen,—I have read with much pleasure the articles dealing with the carbon process that have appeared in recent issues of the BRITISH JOURNAL.

It is stated in the article in the last issue that an excess of ammonia in the sensitising bath does not harm, as it flies off as the tissue dries. As a professional carbon printer I may say this has never been my experience.

I have always found that an excess of ammonia in the sensitising bath affects the tissue in two ways.

1. Slowness in printing, the tissue being less sensitive.
2. The resulting prints are inclined to be hard or lack half-tone.

Both these difficulties can be overcome by keeping the tissue some days before using.

I trust this will prove of interest to many workers.—Yours faithfully,

L. R. GOODYER.

6, Canterbury Mansions, West Hampstead, N.W.

[It is quite correct, as we said, that any excess of ammonia flies off as the tissue dries and does no harm. Most experienced carbon workers know quite well that, when the tissue is sensitised and dried under the most favourable conditions it works better, and is also more sensitive after two or three days' keeping than it does directly it is dry, as then it is apt to be in a too soluble condition, and unless great care be used in the development the soft tones may suffer. When the sensitising bath is free from chromic acid the tissue sensitised in it keeps much longer than if the slightest trace of it were present.—Eds., B.J.P.]

#### THE THEORY AND PRACTICE OF INTENSIFICATION.

To the Editors.

Gentlemen,—I am afraid Mr. Wall has put the most ambiguous construction on my statements regarding mercuric chloride intensification. Some of the largest granules of reduced silver bromide are unquestionably affected only on their outer surfaces, especially with insufficient bleaching, which latter is frequently purposely given to reduce contrasts in a negative.

As regards the plotting of the curves, I cannot enter into a dispute about them; they are not in all cases plotted from figures, but all tabulated from careful experiments, and in any case it would be ridiculous to publish false readings or results "specially discovered for the occasion." No one would gain anything, except the acrimonious critic.

With reference to uranium intensification, I quoted Otterberg's work quite correctly in saying that the compound precipitated

with an excess of uranium nitrate was  $(\text{UO}_2)_3, \text{K}_2(\text{FeCy})_6, 6\text{H}_2\text{O}$ . Otterberg states that the compound produced is brown, but red an excess of ferriyanide be present. This difference I certainly contradict, as if the bath containing the excess of ferriyanide allowed sufficient time to work, the colour of the negative *precisely the same* as when an excess of uranium nitrate is present. This is confirmed spectroscopically. I enclose two negatives of plates intensified with the two solutions recommended by Otterberg, and I leave the Editor to add a footnote as to whether one "brown" and the other "red"—both are reddish-brown. This has been verified over and over again, though the case might be altered if the conversion into ferrocyanide were carried on in test-tubes and not in the film.

Intensification reminds one of the saying: "Quot homines, sententiæ," and any articles on the subject could be contested by quoting contradictory "authorities," each and all of whom claim to be right.—Yours,

T. THORNE BAKER.

[We can go so far as to say that the slips are as described by our correspondent. Apparently the differences between Otterberg's work and Mr. Baker's require confirmation.—Eds., B.J.P.]

## Commercial & Legal Intelligence

**DISCHARGE of a Blackburn Bankrupt.**—Before his Honour Judge Hamilton, at the Blackburn County Court, on May 7, an application was made for discharge from bankruptcy by Mr. Harry Backhouse, solicitor, on behalf of Edwin Hargreaves, 16, Sarah Ellen Street, Blackburn. Applicant was a photographer, lately residing at Hawthorn Villa, Wilpshire, and carrying on business at Sudell Cross. The receiving order was made on September 9, 1903, and the first and final dividend of 4s. 1½d. was paid on proofs for £397 9s. 7d. His Honour granted the application.

**A LEICESTER Bankruptcy.**—The affairs of Arthur Weatherley, photographer, Gallowtree Gate, came before the Leicester Bankruptcy Court last week. Liabilities, £254 15s. 10d.; assets, £44. Mr. Bulman appeared for the debtor, who said he had been in business in Gallowtree Gate for about eighteen months or two years. He had been an operator at a photographer's in Leicester up to then. Debtor was cross-examined at length as to his books, but said he did not understand book-keeping, and could not explain them, as he had had no education. He traded as Weatherley and Co., Mr. F. J. Hill, his brother-in-law, being the Co., and an account was opened at the Capital and Counties Bank in their joint names. The examination was adjourned for the production of certain books, the Registrar saying that it was his view that inquiries should be made in the interests of the trade creditors how far Mr. Hill had made himself liable as a partner.

**BANKRUPTCY in Islington.**—The affairs of G. W. Austen, photographer, of 15, Highbury Place, Islington, N., came before the first meeting of the creditors on Friday last at the London Bankruptcy Court. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £629 15s., of which £505 15s. was due to unsecured creditors, to partly secured creditors £68 15s., the value of the securities being estimated at £60, thus leaving a balance of £8 15s. to rank against the estate for dividend, and making the total liabilities expected to rank amount to £514 10s. The assets were estimated to produce £119 7s. 6d., from which £55 5s. 11d. had to be deducted for the claims of preferential creditors payable in full, leaving the net assets at £64 1s. 7d., and disclosing a deficiency of £450 8s. 5d. It appeared that the debtor commenced business as a photographer sixteen years ago, with a free capital of about £600, and he had always personally superintended his business. After the official receiver had dealt with the proofs of debt lodged, he stated that he had received an offer of £126 12s. for the debtor's household effects and stock of negatives from one of debtor's friends. The official receiver's valuers had gone through the debtor's effects, and they advised the acceptance

offer. Mr. Sichel said he was in the photographic business, and did not think the negatives were worth anything to another photographer, although they might be of some value to the debtor, and that they had only the furniture to deal with, and under the circumstances he thought the offer was a very good one, and it should be accepted. A number of other creditors concurred with the offer. With regard to the appointment of a trustee the meeting decided to leave the estate in the hands of the official receiver, and the latter said that that being the case, he should accept the offer and distribute the assets among the creditors as quickly as possible. The meeting was then closed.

**QUESTION OF HALF-HOLIDAYS.**—The Derby Stereoscopic Company, 64, St. Peter's Street, were summoned for that on April 11 they were the occupiers of a certain workshop within the meaning of the Act, and having given notice of the substitution of Wednesday for Saturday, they did unlawfully employ certain young persons after 5 o'clock in the afternoon—till 5.45. Mr. H. Smith, His Majesty's Attorney General for Factories, prosecuted, and Mr. J. R. Pinder appeared for the defendant company. Mr. Smith explained that his assistant, Mr. Heald, had called at the place and found seven women and eight persons at work in the workshop mounting, spotting, and printing photographs. There was an abstract of the Act in the hands of the court, and a form substituting Wednesday for Saturday as a half-day. Mr. Smith added that the case had been brought partly because there seemed to be a general, but erroneous opinion in the town amongst shopkeepers of this kind that they can work their assistants in the factory on the half-holiday immediately preceding Good Friday, as they were giving the Friday and the following day holidays instead. But he would point out that the law did not permit that, for both Good Friday and Easter Monday were public holidays, and had to be given by law. Mr. Pinder, for the defence, asked the Bench to accept the defendants' assurance that the same thing would not occur again, and added that it had been done before. He took it that the Home Office did not wish to press the case unduly, and asked the Bench to say that justice would be done by dismissing the summons on payment of the costs. The Bench took this view of the case, and dismissed it on payment of the costs, and the case was closed.

## News and Notes.

**IRE IN ANSTRUTHER.**—A fire broke out in the photographic studio of Mr. J. S. Ireland last week. The studio was a wooden erection, with a corrugated iron roof, and before the fire was discovered the whole structure was in flames. The erection was insured for £30, and the cameras and other apparatus were all destroyed, resulting in a total loss of £300.

**THE SECTION FOR INORGANIC CHEMISTRY** at the International Congress of Applied Chemistry, held in Rome on May 5, F. Heller described some improvements which he has effected in the manufacture of glass, by means of which he is able to produce the finer quality of glass in tank furnaces instead of the more costly pot furnaces. The process consists chiefly in using three tank furnaces, each maintained at a definite temperature; the first for fusing the raw materials at about 1,400 deg. C., the second for clearing the charge at 1,200 deg. C., and the third for working purposes at 1,000 deg. C. Photographic glass is said to be produced cheaply by this process.

**MESSRS. NORTON AND GREGORY, LIMITED**, the well-known photographers and drawing-office stationers, of Castle Lane, Buckingham Gate, S.W., announce that the business hitherto carried on by Mr. H. G. Carpmal as managing partner of Messrs. Allott, Jones, and Notley, of Westminster, has been amalgamated with their own, and that Mr. Carpmal has joined the board of directors.

**KODAK, LIMITED**, have arranged at their Gallery, 59, Brompton Road, S.W., a second exhibition, comprising a series of Kodak pictures by H.M. Queen Alexandra, and a further selection of enlarged Kodak pictures by distinguished amateurs. The exhibition is one of great interest, for in addition to Her Majesty's exhibits, the pictures represent the work of a great number of people distinguished in the art, scientific, and literary world.

## Answers to Correspondents.

\* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

\* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*

\* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- A. Hunter, 28, Castle Street, Shrewsbury. Photograph of Roberts Playing Billiards at Shrewsbury, September 9, 1905.
- J. G. Craik, 119, High Street, Deal. Three Photographs of Church Parade, Royal Marines, Walmer.
- E. G. Gegg, 18, High Street, Evesham. Photograph of the Foundation Stone Laying of the New Wesleyan Chapel, Evesham.
- W. H. Dee, 310, King's Road, Reading, Barks. Photograph of the Reading Temperance Prize Band in Forbury Ruins, Reading.
- H. Colebrook, 5, Grosvenor Terrace, Sidcup, Kent. Three Photographs of "New Crusaders" Football Club with London Senior Cup.
- J. H. Greenwood, 23, Cliff Street, Colne. Photograph of Colne Football Club, Winners of the Lancashire Combination Cup and Junior Cup.
- H. B. Cooper, 13, Abbey Park Road, Leicester. Photograph of a Street View, Cottesmore. Photograph of a View known as Sheep Dyke, Cottesmore.

**IMPROVER.**—We know of none. We can only suggest postal lessons, of which you will find particulars in each issue of the "Journal."

**ELECTRIC LIGHTING.**—Would you kindly tell me what candle-power electric arc lamp would be necessary to take cabinet groups of three or four figures using portrait lens, rapid plates, and an exposure of five or six seconds?—L. L.

The term "candle-power" is almost meaningless unless qualified in some way. With open arcs the measured candle-power may be much greater in one direction than another owing to the crater of the arc being obscured by the other carbon. With enclosed arc lamps, where the arc is much longer, the candle-power in all directions is more uniform. Five or six seconds is an unnecessarily long exposure, and reference to the article on enclosed arc lamps, which we published in the B.J. for March 2, 1906, will show that with the smaller lamp shorter exposures can be given at a quite nominal cost for electric energy. We assume  $f/4$  or  $f/5$  and a plate of 200 H. and D.

**E. M. MUDGE (Elkhart, U.S.A.)**.—We cannot identify the map from your reference. Possibly the quotation is not from a recent issue. We can only say that if you can supply a more informing description, a firm such as Messrs. George Phillip, educational publishers, Fleet Street, E.C., could supply you.

**M. E.**—"Photolithography," by George Fritz, translated by E. J. Wall, 3s. 6d. You might also get Wilkinson's "Photo-Mechanical Processes" (5s.), which contains chapters on the subject.

**COPYING.**—As I have a number of coloured pictures to copy for lantern slides, could you inform me of any book dealing with the most suitable coloured screen, etc.?—P. M.

No. 41 of "The Photo-Miniature" on "Copying Methods." (6d.)

**ALBUMEN P.O.P.**—Would you kindly inform me of the most suitable developer for toning "albumen" paper to give a cold tone?



I have used that advocated in the "Year Book," which I find gives too red a tone.—SAMOHT.

We cannot find a "developer" for albumen paper in the "Almanac," to which we suppose you refer. Kindly state your query more definitely.

**RAFFAELI COLOURS.**—Would you kindly inform me through the columns of your estimable journal where I can obtain the "solid oil-colour pencils of Raffaelli" referred to on p. 244 of the B.J. issue, March 30 ult., also the price of same?—M. J. S.

They are sold by many artists' dealers in this country, and we should suppose in South Africa also. Any London photographic supply house could get them for you.

**ARC LIGHT FOR P.O.P. PRINTING.**—I believe I noticed in a recent number some information on P.O.P. printing by arc light, and also the description of a frame for holding printing frames in a circle round the arc. If you can inform me of the number the information appeared in, and also any further information or source from which it can be obtained, I shall be most grateful.—ENQUIRER.

The article appeared in the B.J. of March 2. The Westminster arc lamps are the ones referred to. You can get further particulars of these from the company at Victoria Road, Willesden Junction, London.

**RIGHT TO EXHIBIT PORTRAIT.**—Some little time ago I photographed a young lady for postcards; at the same time I took one for a specimen. I showed them the proofs, of which they approved, but when finished they refused to have them, as they said they were not like them. Can they make me take the specimen out of the window?—A. R. Cox.

Yes, they can; according to the ruling in the Crooke-Irving case, the copyright in all the portraits taken at a sitting belongs to those who paid for it. In the Boucas-Cooke case it was decided that when a sitter ordered a portrait to be taken he incurred a debt that was recoverable at law, and, therefore, the photographer had no copyright in it, and had consequently no right to use it for any purposes of his own. You can, of course, sue the lady for the debt she incurred, in the County Court. As a matter of policy, would it not be best to remove the portrait from the window, if there is an objection to its being shown, instead of giving offence to a customer?

**MAX.**—"Photo-Mechanical Processes," by W. T. Wilkinson. (Hampton and Co.) 5s.

**COLOURING BACKGROUND.**—Could you tell me if black lead, whitening, red lead, and thin glue or size are suitable materials to mix or use separately for painting a white lantern screen—for taking plain heads. Thanking you in anticipation.—E. G.

The pigments will do very well if you substitute for the black lead either lamp black or drop black. The mixture should be made warm, then allowed to get cold, and be applied in a jellied condition.

**COLOURING PHOTOGRAPHS.**—May I trouble you for advice re colouring glossy P.O.P. prints. I have painted some with ordinary water-colours, and they look very dull and patchy. 1. What can I do to restore the gloss on those already painted? 2. What should I mix with the colours to make them dry bright in future? 3. Would oil colours be better for the purpose? I do not like the aniline colours for the purpose—the prints are stereoscopic.—CHARLES MARSHALL.

1. The only thing is to go over the work with a brush charged with weak gum water. 2. Mix them with a weak solution of gum instead of plain water. 3. No; not for stereoscopic pictures. We suspect that you have been using very common water colours. The best kind should be employed for colouring photographs, such as are sold by the best makers.

**METOL HYDROQUINONE DEVELOPER.**—I make up the metol hydroquinone developer in somewhat large quantities, as I use it for plates and paper, but I cannot keep it in good condition more than a few days. The usual ways of mixing seem to be three: 1. In one solution. This at the best only keeps a few days; but if the metol and hydroquinone are not first quite dissolved before adding the sodas, the whole at once turns black. 2. Carbonate of soda in No. 1, metol, hydroquinone, bromide potassium, and sulphite soda in No. 2: with this way of mixing No. 2 turns

into a white curd in about an hour. 3. Sodas in No. 1, metol, etc., in No. 2; No. 2 discolours about second day.—E. G.

The trouble of discolouration is entirely due to the use of little sulphite, and the white curds are a chemical combination of metol and hydroquinone caused by the solution being strong. If our correspondent will use the following for and make it as advised, he will be able to keep it at six months: Dissolve 35 grains of metol in 5oz. of distilled water, add 2oz. of sodium sulphite and 10oz. of distilled water, then add 1½oz. of sodium carbonate and 50 grains of hydroquinone, and enough distilled water to make 20oz. in all. A perfectly clear and colourless solution will be obtained. He can, of course, vary the proportion of metol and hydroquinone, but the method of making will remain the same.

**D. L. MURDOCH.**—We should expect the alum to act on the plates slightly, but not sufficiently to affect the pigments.

**COLOUR PHOTOGRAPHS.**—1. Is there any book published on tricolour photography? 2. Can the plates be obtained ready prepared? 3. Is there any other process more direct to get photographs of colours than the above?—AMBITIOUS.

1. "Colour Photography," by Bolas, Tallent, and Senior, published by Marion; "Three-Colour Photography," by Baron von Hübl, published by Penrose and Co. 2. Certainly they can. 3. The three-colour principle is practically the only one which is available, though a three-colour process need not involve the taking of three separate negatives. You had better refer to the review of the recent exhibition of colour photography at these offices, which appeared in our issue January 26. 4. There is nothing in the process beyond the species of hand-colouring—at least that is our conception.

**RETOUCHING.**—Should you consider it correct in retouching a negative to turn it round at different angles to get certain strokes conveniently, or should the negative be kept in an upright position on the desk until finished? Which do you think real first-class retouchers do.—F. F.

Although some retouchers of experience make a habit of turning a negative at different angles when retouching, in order to more conveniently apply the strokes, it is a very inexpedient practice, and, unless the retoucher is very skillful, is highly inimical to the retention of the likeness. Indeed, so many employers are very keen against the practice, and we once knew of a case where the employer summarily dismissed his retoucher for so doing. A really clever retoucher not only finds the practice unnecessary, but obtains better and more truthful work without it.

**C. AND A.**—We think you might apply to Rajar, Limited, Mobberley, Cheshire.

**G. M. MASON.**—(1) We are afraid it is impossible to give you a rule which would not be misleading. A fairly good rule for such cases is the following:—Stop down the lens, after focusing, until you first begin to lose sight of detail in the details. At this aperture the exposure with a plate of the "rapid" class will be about eight or nine minutes. (2) Most probably there is no copyright existing, and therefore you would not be infringing.

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## SUMMARY.

an exhibition of photographs by R. Dührkoop, now opened at offices, closes to-morrow (Saturday) at 12.30.

photographers in Rochester (New York State) have combined to d profitable rates for photographing schools and clubs. (P. 410.)

re methods of attracting business are communicated by American photographers in conference. Their suggestions include book-baby shows, and show-case inducements. (P. 408.)

od printing, like good-looking clothes, creates a favourable sion. (P. 410.)

ention is drawn by the “Lancet” to the greater pains taken e Continent in photographing the dead. (P. 409.)

ors’ Photographs.—The full text of the suggestions of the s’ Association is given on page 410.

our-Photography.—An article by Mr. A. J. Newton, dealing the requirements for printing from sets of three-colour nega- gives the ideal curves which pigments should have for print- from negatives made through a given set of filters. The rements of some actual pigments are appended. (P. 406.)

Neuhaus is said to have made further improvements in the h-out process of colour printing. (P. 403.)

series of systematic chemical tests for the examination of paper ded for packing photographic materials or for the support of graphic emulsions are given on page 404.

properties of plates and filters in orthochromatic work occupied roydon Camera Club last week, when Mr. C. E. K. Mees was ectrurer. (P. 415.)

ets impregnated with developer have been patented. Other ts of the week relate to cinematographs, copying machines, ras, and pneumatic printing frames. (P. 411.)

## EX CATHEDRA.

### The Metric System.

Quite recently our Post Office authorities announced that in future letters for France and Germany up to the weight of 15 grammes would be allowed to pass for one penny. In this concession, advocates for the adoption of the metric system in this country have seen cause to assume that their wishes were about to be realised, whereas it should be obvious that the new arrangement is simply a matter of accommodation between British and foreign postal authorities. The British limit of weight was previously half an ounce, though 15 grammes (which is a little over half an ounce) was the limit in the foreign countries, hence a little over half an ounce and under 15 grammes was over weight and liable to a sur-charge in this country, though under weight in, say, France. This anomaly has been removed by the new arrangement, which is very much to our advantage, but involves no concession to the principles of the metric system at all. On the contrary, the recent proceedings at the Postal Congress, as reported in the English Press, should convince even the most ardent metrical enthusiasts that their ambition is farther from realisation than ever, for, according to the “Globe,” of April 30th, the protest of the English representative against the adoption of the metric system was supported, not only by such non-metric countries as the United States, Turkey, and Japan, but by the metric countries, France, Spain, Belgium, and Italy. This is a very significant fact, for France is the birthplace of the metric system.

\* \* \*

### Natural and Arbitrary Standards.

The reasons for the metric system not being universally popular, even in the countries that have officially adopted it, are fairly obvious. The system is too primitively simple and too inadequate to fit the requirements of all trades and professions, and so long as the system recognises decimal subdivisions only, confusion is sure to exist owing to the retention of older and more convenient units and the unauthorised introduction of new ones. The original pure metric system contained many units of no value whatever, that are never used and almost forgotten, but it included no unit of length corresponding to the indispensable chain, and no unit of weight corresponding to the universal pound. As a natural result these deficiencies have been remedied by illegal methods. Binary subdivisions are necessary, while the undying popularity of the dozen and the gross also shows that duodecimal subdivisions cannot be ignored. The attempt to supersede all non-decimal systems by one that is purely decimal is bound to fail. Yet the fact cannot be disregarded that the metric system in the definiteness of its units of volume, mass, and length, and in



the simple relations which these bear to one another possess claims to universality which deserve to be recognised, even though the Parisian buys his wine by the quarter litre.

\* \* \*

### Photography in Municipal Advertising.

The Corporation of Cardiff are inviting photographs from local professionals and amateurs for ten views of Cardiff for use as advertising. A first prize of five guineas and a second one of three guineas is offered for the two best sets, sums which should gratify the Cardiff ratepayers by their moderation rather than create an inflated idea of the advertising value of photographs in the public mind. Half a guinea for a photograph to be employed in advertising is not a large sum, but the municipal offer is one which will perhaps suggest to photographers in other places the possibility of discovering business for themselves in this direction.

\* \* \*

### Actors' Photographs.

We publish in another column the proposals laid before the Professional Photographers' Association by the recent deputation from the Actors' Association. It will be seen that the actors are anxious to exercise control over the photographs of themselves which are issued to the public, either in newspapers and magazines, or as postcards, and to share in the profits which may attend these forms of distribution of their portraits. Nobody will blame them for taking any steps which seem right to them to secure these desirable consummations, though we can hardly suppose that they will meet with much success in endeavouring to get the P.P.A. to be an arbitrator between them and the theatrical managers. Questions as to the payment of actors to attend a photograph call should be discussed with the managers, and as for the other restrictions which the actors seek to put on the use of copyright photographs of themselves, it is impossible to lay down a general line of action. Each case, it seems to us, is one for agreement between the photographer and his theatrical sitter. Good photographs of an actor, as the deputation pointed out, are very valuable to the actor, and the right to grant reproductions of them may be very valuable to the photographer. The conditions under which use shall be made of such photographs should be capable of arrangement between the interested parties, or an actor may obtain the sole rights in the photograph by paying the photographer. This latter course does not seem to have appealed very strongly to the actors.

\* \* \*

### Modern Physical Chemistry.

Last week we had a note on the experiments recently published by Prof. Louis Kahlenburg, and suggested that it was highly desirable that his results should either be affirmed or disproved as soon as possible. According to the report in "Nature" of May 3, these results, if verified, would destroy the basis of the theory of electrolytic dissociation, but this doleful prophecy is pretty effectually disposed of in "Nature" for May 17, by Mr. W. C. D. Whetham, F.R.S., who points out that "the theory of ionic dissociation rests upon electrical evidence, and by such evidence it must be tried." He explains that the fundamental theories of physical chemistry are altogether independent of any assumptions as to the nature of osmotic pressure, which may be due to some as yet undiscovered cause. The theory by van't Hoff, which applies the gas law to dilute solutions, is not based on experimental observations of osmotic pressure. It is simply confirmed by them when they are conducted under certain rigid conditions which van't Hoff postulated, and the fact that the theory is not

fulfilled under *wrong* experimental conditions is obviously no argument against it, especially considering that it has been proved by Professor Larmor and others in various different ways. Mr. Whetham remarks that the basis of the van't Hoff theory is sometimes misunderstood. It is so evidently the case that his clear exposition of it together with his explanation of the true basis of the theories of ionic dissociation, are both very welcome. Prof. Kahlenburg's experiments will probably afford handy weapons to the opponents of the theories of physical chemistry, but they will have to be cautious how they use them, for it is evident that his attack has been aimed at the wrong place. Mr. Whetham does not depreciate the value of these new experiments. He considers them important and interesting, though from a somewhat different point of view from that taken by Prof. Kahlenburg. The Earl of Berkeley and Mr. E. S. T. Hartley, however, attack one of the experiments to show that it is valueless. Very possibly there will be further discussion of considerable interest.

\* \* \*

### Post-Mortem Photography.

It will be remembered that, a few weeks ago we made some comments on the remarks of a London coroner on the little value of many photographs taken after death, saying that they were frequently not taken in an intelligent way. It is clear that these remarks do not apply in all cases. For example, at an inquest held last week at Swansea, on the body of a woman alleged to have been murdered by strangulation, in his evidence, the doctor, Dr. Urban Marshall, senior house surgeon at the Swansea Hospital, produced photographs that distinctly showed all the finger marks on the throat of the deceased. The coroner complimented the witness on producing such excellent photographs of the face of the deceased, and added that it ought always to be done in such cases. Evidently these photographs were taken in an intelligent way, and should be valuable evidence in the Court at which the prisoner will eventually be tried. It is not stated whether the photographs were taken by the doctor himself, or by someone else under his supervision, but evidently they fulfilled the object in view. It would be well in all cases where the death is supposed to be caused by violence that the photographs should be taken under the supervision of a medical man, who would arrange the body so as to ensure the most essential parts being shown, instead of its being left to the mortuary keeper at the photographer. Post-mortem photography, as Mr. Lang Sims recently pointed out in our columns, is by no means pleasant work, yet it is obvious that it should be well done and under the most favourable conditions the circumstances will allow. We reprint in another column an article from the "Lancet," showing the attention the subject receives on the Continent.

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### Lantern Apparatus.

The lantern season being now at an end, it may not be out of place to offer one or two hints on storage, particularly of those furnished with oil lamps. The old wicks should be taken out and thrown away, as they will be useless. The wick tubes should be cleansed by brushing them out with clean paraffine oil, or with benzoline. The stale oil should be drained off and the reservoir rinsed out with fresh. The outside of the reservoir should be well cleansed with benzoline, and when this has been done all the parts should be put out in the sun for a few hours, when all traces of the oil will disappear. The lamp may then be put away, with the certainty that when next required for use it will be equal to a quite new lamp. Without this precaution the stale oil will harden on the outside of the

reservoir and in the wick tubes, and be difficult of removal. When the lamp is lighted in some months' time it will well—"stink the house out." The adage, "A stitch in time," etc., applies with especial force to lantern lamps that have to lie out of use for several months.

**Extraordinarily Old Engravings.** Last week we commented on the recent great slump in the pictures by modern masters, and quoted the exceedingly low prices realised at Christie's auction the week before. It will be interesting now to state some of the prices that some old engravings made at the same auction rooms one day last week. For instance, the impression of J. Walker's plate of Mrs. Musters, by Romney, made no less than £430, a great contrast to F. Goodhall's, R.A., well-known painting, "Raising the Maypole," which in 1873 made 1,470 gs., and sold the week before last for no more than 400 gs. An impression of the bistour of Morland's "Delhi in Town," by J. R. Smith, realised £130. A set of Wheatley's "Cries of London" fetched no less a sum than £680; £201 were paid for a close-cut print of "Mary Duchess of Lancaster," by Mr. Ardell, after Hudson. Hoppner's "Elizabeth of Mexico," in colours, by W. Ward, made £183; and £183 were given for C. Turner's "Le Basier," after Greuze. Other very high prices were realised for old engravings. When we mention that the prices for the prints were paid by dealers, probably to sell again, or possibly bought on commission, it is able to realise the present market value of old prints the best engravers, as compared with paintings by modern artists.

**Factory and Photographers.** A case of interest to photographers whose workshops come within the Factory Acts was reported in our issue last week. We call special attention to the case here as we know of others where the Act has been continually infringed in the London district under similar instances. In the case referred to a photographic party at Derby (occupiers of a certain workshop within the meaning of the Act) had given notice of the sub-letting of Wednesday for Saturday for the half-holiday, and had employed certain young persons after the regulation time on Wednesday. For the defendants it was claimed that, as the Good Friday and the Easter Monday Holiday followed the Wednesday, they were under no impression that they could keep the hands employed on the half-day on the Wednesday. The factory inspector for the district, who prosecuted, mentioned that the case had been brought particularly because there seemed to be a general, though erroneous, idea in the town amongst employers of this kind that they can employ the assistants in the factory on the half-holiday immediately preceding a Good Friday, as they were giving the Friday the following Monday as holidays instead. He pointed out that the law did not allow that, as both Good Friday and Easter Monday were statutory holidays, and had to be given by law. The defendants' advocate assured them that the law had been infringed through ignorance, and that the occurrence would not take place again, and that the summons might be dismissed on payment of costs. The Bench took this view of the case, and assessed it on the payment of £2 8s. costs. We have, as we have just said, called particular attention to this case as many photographers whose workrooms come under the Factory Acts are ignorant of the law on the subject.

They must remember that it is illegal to employ their work-people on the half-holiday preceding or following a Bank Holiday.

#### The Bleach-out Process.

According to Dr. Donath, whose work we review elsewhere, Dr. Neuhauss has made some slight changes in his method of working the above process, and as we gather that the author had the advantage of special information direct, it probably represents the very latest advance, though Neuhauss himself has not yet made any announcement. The particular modification is in the fixing bath. Hitherto a weak solution of sulphate of copper has been used, but now it is advised to immerse the plate or paper, after washing, in a 10 per cent. solution of tannin and acetate of soda for fifteen minutes, then rinse and bathe in a saturated solution of tartar emetic, again rinse, and transfer to a saturated solution of lead acetate. It is obvious that by this treatment the dyes would be converted into pigment or lake colours, and should therefore possess a greater stability to light. The treatment being practically that suggested by Hazura in 1898 for obtaining printing ink pigments from the coal-tar dyes. A large number of these were examined by Valenta (Beiträge zur Photochemie und Spectralanalyse), who finds that auramine and methylene blue give very stable pigments, whilst the erythro-sines and eosines are much less stable.

#### The Eye and the Camera.

Much energy has been expended, and not a little wasted, on comparing the eye with the camera. Such comparisons are usually misleading, for the differences between the two optical systems are both more striking and more important than the points of agreement. At the recent Chemists' Exhibition we saw a new model of the "Schematic Eye," designed by Messrs. S. D. Chalmers and H. S. Rylands, which very aptly illustrates the limited extent to which the eye corresponds with a camera. This model is practically a small camera with a ground glass retina resembling the actual retina in form, and a lens that closely represents the total refractive power of the eye when the space between the lens and retina is filled with water. By racking the lens in or out certain of the effects of myopia or hypermetropia (short sight or long sight) can be reproduced, while those of astigmatism can also be represented by substituting a toric lens (one side spherical and one cylindrical) for the simple spherical lens. This model eye seems to have been designed for students wishing to practice elementary skiascopy, ophthalmoscopy and opthalmometry, and for such a purpose it will no doubt be useful, though no model can supersede the living eye with students who will ultimately have to practise on actual patients. As a clever and apt illustration of the points of resemblance between the eye and the camera, it is, however, of considerable photographic interest, and lecturers proposing to deal with this subject would find one of these models to be of considerable illustrative value on the lecture table.

#### The Projected Poisons and Pharmacy Act. The Government Beaten.

A Bill is before the House of Lords, introduced by the Lord President, Earl Crewe, to amend the present Pharmacy Act. It is entitled "An Act to regulate the sale of certain poisonous substances and to amend the Pharmacy Acts." Framed under the auspices of the Pharmaceutical Society, the Bill is in the interests of pharmaceutical chemists. One of its chief



objects seems to be to prevent companies and firms having many shops styling themselves chemists, or chemists and druggists, although they have duly qualified chemists to manage them. An amendment to the clause dealing with this matter was proposed last week by Lord Ebury, who supported the preservation of companies' licences on the ground that the clause, if carried, would seriously injure a large number of firms which had, at any rate, benefited the public by giving them cheap drugs. The Lord President offered to allow seven years to elapse before the companies should be deprived of their titles, but on Lord Ebury's amendment being put, it was carried by a majority of 6. It is difficult to see why companies, or firms, having several shops should not style themselves chemists, provided they have a duly qualified manager for each shop. Under the existing Act it is lawful for any executor, administrator, or trustee to the estate of a pharmaceutical chemist to continue the business, provided it is conducted by a duly qualified assistant. It seems only reasonable that a similar privilege should be granted to companies. In the new Bill there are additions to the schedule of poisons, but none that will effect photographers, except, perhaps, preparations of corrosive sublimate (bichloride of mercury). In the existing schedule only corrosive sublimate is mentioned, and not preparations of it. Mercuric iodide and mercuric sulphocyanide are in the new schedule, but they are but of little moment to photographers.

#### NOTES ON THE CHEMICAL TESTING OF PAPER FOR PHOTOGRAPHIC PURPOSES.

HAVING had occasion recently to test some paper with regard to its suitability for packing photographic plates, it appeared possible that a few notes on the chemical examination of paper for substances harmful to the photographic film might be of interest. They are, of course, to be taken as suggestive rather than complete. First, as to the paper itself, it is practically essential that a paper which is to be in contact with a silver haloid film—whether as a basis or in packing—should be made from rag or esparto and not from wood-pulp. The microscopic and chemical methods for identifying wood-fibre in paper have been dealt with in an interesting article in this journal,\* but some supplementary tests are given on account of the importance of the question. Wood-fibre and the ligno-celluloses generally belong to the so-called compound celluloses, which are distinguished by a much greater reactivity from the typical cellulose group, and thereby rendered in many ways less valuable. Beside the reactions (1) with phloroglucinol, which stains ligno-cellulose deep magenta, and (2) Schulze's iodine solution, staining cellulose blue, but wood-fibre brown, other characteristic reactions are (3) chlorination (chlorine water), followed by sodium sulphite solution, which gives a deep magenta coloration, (4) treatment with ferric ferricyanide, the red solution obtained by mixing in equivalent proportions solutions of ferric chloride and potassium ferricyanide. The fibre-substance rapidly decomposes this body to Prussian blue, which is copiously deposited in the fibre. If the paper be sized, this very characteristic reaction may be obscured by the presence of gelatine, which also decomposes the ferric ferricyanide, but the precipitate in this case is of a greenish colour, only darkening to blue on standing.

The quantitative estimation of the components cannot be dealt with here. Those interested should refer to standard text-book or the monograph of Cross and Bevan on "Cellulose."† But one fairly simple method of determining the presence and proportion of wood-fibre is so pertinent to the matter in hand that it demands brief mention. Wood-fibre and the ligno-celluloses generally have the property of taking up atmospheric oxygen and fixing it in the form of a peroxide, giving the reactions of the typical *hydrogen peroxide*. One of these is the oxidation of the methyl derivatives of para-phenylene diamine to resorcinol, a reaction which is used in the detection of colouring matters, and this has been applied by Wurster to the formation of an approximately quantitative method for determining the amount of wood-pulp in paper. A "test" or indicator paper is prepared by incorporating a definite quantity of the reagent mentioned with a pure cellulose paper; this indicator paper is pressed into a moistened portion of the paper under examination. The depth of colour produced is compared with the tints of a scale of standard coloured papers, when the percentage of wood in the paper corresponds to the depth of coloration in the test paper, the oxidising effects corresponding to a colour being also expressed in terms of normal iodine solution.

It is this formation of unstable peroxides which is responsible for the colour changes of wood-pulp paper mentioned by Mr. Pigg as occurring when they are exposed to light and moisture, and which render them so objectionable as a basis for photographic or other picture-making. But also, and bearing more directly on the main purpose of these notes, it is to this action that the deleterious effects of papers and woods on sensitive films are due. The researches of Dr. W. J. Russell on the fogging action of various woods will be remembered, one important point being the increased effect with light-exposed or "insolated" woods. In natural woods the effect is complicated by the presence of resins and turpentine oils.

Beside this primary objection to wood-pulp in paper which justifies the stress laid on its detection and estimation, we have next to consider the detection of foreign substances more or less accidentally introduced into the paper in (a) the process of manufacture, (b) storing and handling, (c) sizing or loading.

The substances which are capable of producing a developable impression or "fog" on sensitive films are so numerous that it were almost easier to name those which do not fog the film than those which do. The subject has, however, been dealt with in detail at various times in these columns, and a large number of substances are by no means likely to occur in papers. In dealing with the detection of these substances by chemical methods it must be remembered that their photographic effect is cumulative over long periods, and therefore surpasses in sensitiveness the most delicate chemical tests. The chemical analysis, especially when made for a considerable quantity of the paper, is a court giving a good preliminary judgment, but long contact with the photographic film may overthrow its decision. The following scheme does not pretend to be systematic or complete, but indicates the principal tests of value.

*Preliminary.*—It is supposed that an examination of the paper in the manner sketched above has decided the presence or absence of wood-pulp. If this be present, and also if the paper be sized with gelatine, these may confuse the results of some of the tests, but the necessary deviation will be mentioned in its place. In most cases it is desirable to use a considerable quantity of the paper, and extracts should be made by successive digestion with the same portion of solvent to obtain concentration. A valuable control for several of the tests is obtained by

\* "Brit. Journ. of Phot." 1904, 51, 634 (July 15).

† Lowmans, Green & Co.

jecting a pure cellulose paper such as analytical filter-paper to the same treatment as the paper under examination, and comparing the results.

After noting the acid or alkaline reaction of the paper, marked deviation from neutrality being unfavourable, may examine for:—

**Reducing Substances.**—The paper is soaked in separate solutions of auric chloride and ammoniacal silver nitrate, and warmed. If the paper is free from gelatine or wood-fibre there should be but very slight or no reduction in an hour. Gelatine produces a purple precipitate of gold, and in this case the modification is (a) to test the stannous extract obtained by prolonged and successive extraction with cold distilled water, (b) to remove the stannine with hot water and test the residue. Any strong reduction with these reagents compared with the control would lead to a separate examination for possible reducing agents. Stannous salts are the only likely bodies beside metals, which are dealt with later.

**Oxidising Substances.**—The preliminary examination should have indicated the presence of wood-pulp and any oxide from this. The behaviour of the paper compared with the control should be tested with extract of permanganate, or amido solution. The most likely oxidising substances are ozone and hydrogen peroxide, which are eliminated together in the following test. If these are not found, but the paper still has a strong oxidising action, a special analysis may be made.

**Hydrogen peroxide.**—The well-known fogging action of this substance has been investigated by Dr. Russell and others, and probably when the time is extended is more sensitive than ordinary chemical tests. The best characteristic tests are:—(a) The paraphenylenediamine reaction already mentioned; if this occurs when other tests show no wood-fibre is absent, then the peroxide is present as an impurity. (b) The paper is soaked in potassium bichromate acidified with sulphuric acid, and then treated with ether; the paper may be extracted with ether and chromic acid added. A bright blue colouration denotes peroxide, but the ether must be taken to use pure ether from a well-filled bottle and add chromic acid to a separate portion, as ether contains the presence of air and light forms a peroxide itself, giving the foregoing reaction. (c) The most sensitive test is to treat the paper with 1 per cent. vanadic or titanous acid. The former gives with peroxide a red brown precipitate, the latter a yellow one. The best way is to more or less pulp the paper, digest with water in the cold, and concentrate the extract by evaporation. Vanadic acid gives a red colouration with .005 grain of peroxide in 100 c.c. of extract and Otsuki claim to have detected peroxide with vanadic acid whenever the former produced a photographic fog.

**Traces of Organic Substances.**—The harmful substances are: (a) Turpentine oils. (b) Ether, methyl alcohol, and formaldehyde. (c) Acetic and formic acids. There is not much likelihood of these bodies being present, but the presence of peroxide being determined, they may all be eliminated as follows:—The pulped paper is extracted with acetone or ethyl alcohol, neither of which when pure has any effect on the photographic film. The extract may then be applied to a sensitive film for as long as is convenient (quite small traces by concentration will give an effect in 10 hours), and the results on development compared with a control plate in the pure solvent. A further test is to "activate" the extract by agitation with nickel powder for some hours and then test the filtrate as before. **Ammonia and Sulphur or Sulphides.**—The most delicate test for ammonia is Nessler's reagent, a solution of mercuric iodide in potassium iodide, rendered alkaline with

caustic potash. Very slight traces of ammonia produce a yellowish colouration.

Sulphides will already be indicated by the use of silver nitrate. Sulphur may be converted to a sulphide, and sulphide in traces revealed by sodium nitro-prusside, which in alkaline solution gives a violet colouration with the sulphide ion.

**6. Metals.**—It is well known that numerous metals in the free state and in alloys fog the photographic film even at a slight distance from it. The metals more or less active in this manner are magnesium, aluminium, zinc, cadmium, iron, cobalt, nickel, lead, bismuth, antimony, tin, and mercury. If these are in contact with the film or incorporated in the emulsion the effect is so much the greater. Small metal particles may get into the paper (a) in the pulping and other processes by attrition, (b) in the loading or surfacing with baryta. Baekeland has discussed the ill effects on photographic papers arising from these particles, and strongly recommends that all barium sulphate which is to be used for photographic paper manufacture should be treated with dilute sulphuric acid and then washed. Unfortunately these particles are likely to be locally distributed, and a particular test may not reveal them; coating the paper with a haloid emulsion and subsequent development will give black specks with a white surround, but this is a cumbersome procedure. Where any type-metal or other alloy or amalgam is founded, metallic vapours may be absorbed by the paper. A large quantity of this may be extracted with hot dilute nitric acid, and the metals tested for in the wet way. But a more general test is to compare the behaviour of the paper soaked in dilute hydrogen peroxide, with a control filter paper similarly treated. The strips are treated at intervals by the paraphenylenediamine method outlined above; an increased decomposition of the peroxide will be observed in the paper containing any finely divided metals.

Finally, radio-active bodies in extremely small amounts will, of course, produce fog; radio-activity, if suspected, should be tested for by the electrometer method, the gold leaf electroscope being capable of rapid and even quantitative determinations.

The foregoing notes are necessarily of quite a sketchy nature, but are put forward in view of the importance of the question to both the manufacturer and the user of sensitive films. In considering the suitability of a paper, the restrictions as to purity are more or less stringent according as the paper is required as a substratum of the sensitive emulsion, for packing in contact with the film, or for outside packing. General conditions of storage for films and papers are obviously suggested by the foregoing, and need no comment.

**A GOERZ BEQUEST.**—We see in the German papers that Herr C. P. Goerz, at the recent annual general meeting of his firm, has set aside 100 shares, of the nominal value of £5,000, but worth £10,000 at the present market quotation, for the benefit of employees who, according to the duration of their service, draw bonuses to the amount of about 10 per cent. of the net profits.

An exhibition of the work of Mr. Arthur Marshall, A.R.I.B.A., has been held for the past ten days in the Shepherd's Fine Art Gallery, Nottingham. Among the photographs is a Pompeian study, which possesses a special interest in that it was the only plate that Mr. Marshall was able to save from destruction by the sulphur fumes during his experiences in the vicinity of Vesuvius at the time of the recent eruption.

THE Royal Photographic Society has been invited to send collections of representative British pictorial and scientific photographs to the Berlin Universal Exhibition and to the New Zealand International Exhibition. The following committee has been appointed to invite exhibits:—Major-General J. Waterhouse, I.A., Mr. J. C. S. Mummery, and Mr. B. Gay Wilkinson.



## PIGMENTS FOR THREE - COLOUR PROCESSES.

It would appear that those asking for, and even those supplying, certain colours for use in three-colour printing, either as dyes for films, carbon tissues or printing inks, do not always clearly understand why these pigments are a blue, red, and yellow, and what particular hue such yellow, red, and blue should be.

The aim of three-colour photography is to reproduce automatically or mechanically the colours of the subject photographed, and without entering into any elaborate theory it is perhaps desirable to explain how it is that photography can do this. White light is composite, and is made up of an infinite number of pure colours, ranging from deep red, through red, orange, yellow, and blue. This is proved when we split up a narrow beam of light by passing it through a prism, which analyses it into its various pure colours, and this band of colours is known as the spectrum.

Now, it has been found by experiment that white can be reconstituted by taking a certain red, a certain green, and a certain blue-violet. On mixing these lights in equal proportions they will give white or greys according to their brilliance, and any other colour can be imitated by taking various proportions of them. As, for example, the mixture of red and green light will make yellow, the mixture of green and blue-violet will make blue. If no light is present there will be black; gradual addition in equal proportions of these three will give greys; as the equal amounts increase the greys will become lighter, until at last we have white.

Now, this fact is applied to making a photographic record of any coloured subject. Three photographs are taken, one recording the red light reflected, another recording the green, and a third the blue-violet. Suitably sensitive plates are required to record these three kinds of light, but they do not yet exist by themselves. Colour sensitive plates are obtainable, but not sensitive only to the particular regions of the spectrum required, so in practice means must be taken to prevent light other than that required to be recorded from reaching the plate, and this is done by means of a colour-filter somewhere between the object photographed and the sensitive plate. The nature of these filters will vary according to the character of the sensitive surface. Usually, however, the filters are red, green, and blue-violet. The point to remember is that the combination of plate and filter must allow only the desired light to be recorded.

### Negative Colour-records.

These three records will be negative; that is to say, the light reflected is represented by deposits of black metallic silver, and the absence of light is indicated by lesser deposits of silver, or none at all. The picture can now be reconstituted by means of projecting the three coloured lights, the method known as additive synthesis. To do this glass positives (transparencies) are made in which the red, green, or blue-violet light recorded will be shown by the greater or less transparency of the positive, and if these lights are projected through and superposed the picture will be reconstituted on the screen with great approach to truthfulness. Usually the work cannot be reproduced by means of coloured light, from the obvious difficulties in the way, so that another method must be used, that of absorbent pigments, which is known as subtractive synthesis.

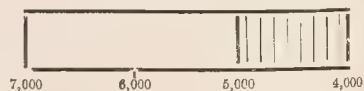
### Subtractive Synthesis.

The same principle is involved as in the first method, only in this case the white light is reflected from the white paper on which the reproduction is made. If we assume this white light also to be composed of red, green, and blue-violet,

then if we place on it a pigment which will absorb the blue, as, for example, a yellow, another pigment which will absorb the green, as a magenta, and a pigment which will absorb the red, as a green-blue, then if these pigments are applied in full strength all the light reflected from the paper will be absorbed, and the result will be black, or if applied in lesser amounts grey. If these pigments are of correct hues, they together will produce either a blue-violet (that is, the magenta and green-blue), a green (that is, the yellow and green-blue), or a red (that is, the magenta and the yellow), and mixtures of some or all of them in varying proportions will reproduce almost any tint; this is in practice what they do give in so far as the pigments available approximate to the correct absorptions. From the above it follows that hues of the colours having correct absorptions must be complementary to the light recorded. Just as an ordinary negative of a black and white subject records the white reflected and prints that which was not recorded, minus white, that is black, so each of the three records are printed in their complementary minus colours, pigments, which in the absence of any record on either of the three-colour negatives will all be printed, and so give black, while the presence of some record in equal amounts on the three negatives would mean a corresponding absence of the absorbing pigments, which would result in a grey, more or less approaching white, and similarly for every colour according to the amount of the absorbing pigments printed to correspond to the colour recorded on the negatives. Therefore we can know what light should be recorded, and in order to get a clear and definite idea of this resort must be had to the spectrum, the diagrammatic representation of which by means of a parallelogram may give sufficient indication of a spectrum extending from 4,000 A.U., the first visible violet, to 7,000 A.U., the last visible red.

### Relation of Printing Colour to Light Filter

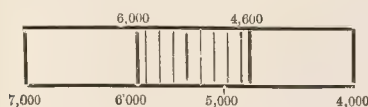
Now, if we photograph the spectrum and assume the red necessary to be recorded to be those arrived at after our experiments at the L.C.C. School of Photo-engraving in Lithography, an account of which is given in detail in the *Journal of the Royal Photographic Society*, October, 1905, then the blue record should give a negative having a silver deposit from 4,000 to 5,000 A.U., shaded in diagram, v.



from 5,000 to 7,000 will not be recorded on the plate, therefore this will constitute the shadows. If we mix together all the colours comprised between 5,000 and 7,000 A.U. will give the hue that the complementary or minus pigment should have. If a perfect pigment of this hue is placed on anything reflecting white light, it will be found to be a particular shade of yellow, because it absorbs all the blue which was reflected from the white surface, while it transmits all the remaining colours of the spectrum, and the mixture of these remaining colours is of a yellow hue. That if our blue record extends from 4,000 to 5,000 A.U., our ideal printing colour will be such that if analysed spectroscopically it will be found to absorb all the blue recorded, and to be perfectly transparent to all the colours not recorded, viz., from 5,000 to 7,000 A.U. Naturally, an ideal is not absolutely attainable, but it could probably

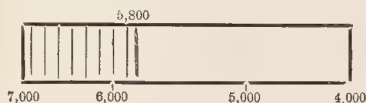
approached more closely than at present, if due regard were always had to theoretical requirements.

The green negative should record from 4,600 to 6,000 A.U.,



therefore the printing ink should be that colour given by a mixture of the lights not recorded, viz., from 4,000 to 6,000 A.U. and 6,000 to 7,000 A.U., such a coloured pigment, ideal, being one that, when placed above white, would absorb all the colours recorded and be perfectly transparent to all the colours not recorded.

The red negative should record from 5,800 to 7,000 A.U.



therefore the printing ink should be that colour given by the mixture of lights not recorded, viz., from 4,000 to 5,800, such a coloured pigment, if ideal, being one that, when placed above white, would absorb all the colours recorded and be perfectly transparent to all the colours not recorded.

In order to examine the properties of commercial colours for three-colour printing, I recently selected several sets supplied for different purposes. The results and the method of examination are detailed below. The four sets of colours examined are as follows:—

1. and 2, carbon tissues; shown 0000 and xxxxx.

3. Dyes for three-colour printing by imbibition; shown

4. Printing inks for half-tone block work; shown ————. In the various charts the ideal printing colours are shown by the thick black line

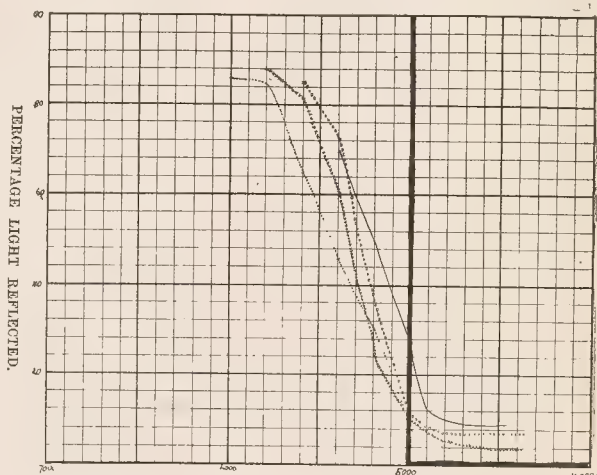
The easiest method of ascertaining accurately how nearly perfect are the colours intended to be used is by measurement with a spectrophotometer, and four sets are given here from amongst several kindly measured for the writer by Mr. Kenneth Smith. The measurement consists in producing two spectra, side by side, one from a white surface—for example, the paper on which the pigment is intended to be spread—the other spectrum reflected from the pigment after being put in position on part of the same surface. The spectra are compared in small strips for every 100 A.U., the lighter one—viz., the one reflected from the white surface—being cut down by crossed Nicol prisms until it exactly matches the spectrum reflected from the pigment itself. The amount by which the white spectrum has to be cut down represents the amount of absorption, and can be shown graphically by a curve, the ordinates of which represent percentages of the light reflected, that which is not absorbed being absorbed; the abscissæ represent the wave length of the spectrum. The angle at which the pigment is viewed is adjusted so that the surface reflection is at a minimum.

Considering these pigments separately, it will be seen that the yellows (fig. 1) approach nearest to ideal requirements. But all of these absorb too much of all colours, absorbing about twelve (12) per cent. of the pure colour of which they reflect most. They absorb a very great deal of the yellow-green and green that they should reflect entirely, and they reflect only two to nine per cent. of the blue and violet that they should completely absorb.

In the case of the reds (fig. 2), the curves show that their absorption is greater, varying from twenty-five (25) per cent. to forty (40) per cent. of the pure colour of which they

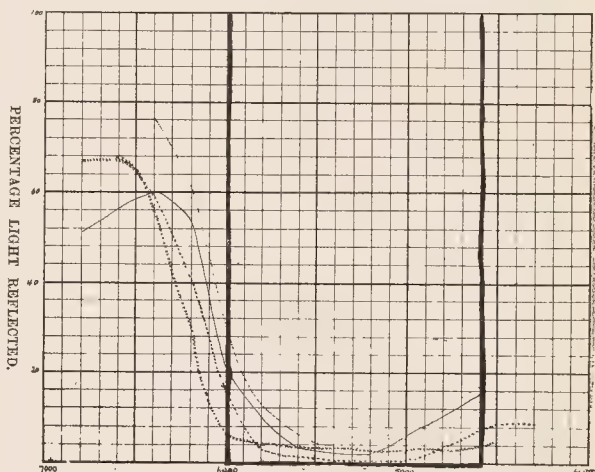
reflect most. They absorb a great deal of the red beyond 6,000 A.U., and absorb almost all the violet, and yet these colours should be entirely reflected. Then the absorption is not nearly complete between 6,000 and 4,600 A.U.; in parts almost twenty (20) per cent. of the colour is reflected; the absorption is only approximately complete for those colours between 5,600 and 5,000 A.U.

With the blue pigments (fig. 3) the matter is even worse.



Wave Lengths A.U.—Yellow Pigment.

Fig. 1.



Wave Lengths A.U.—Red Pigment.

Fig. 2.

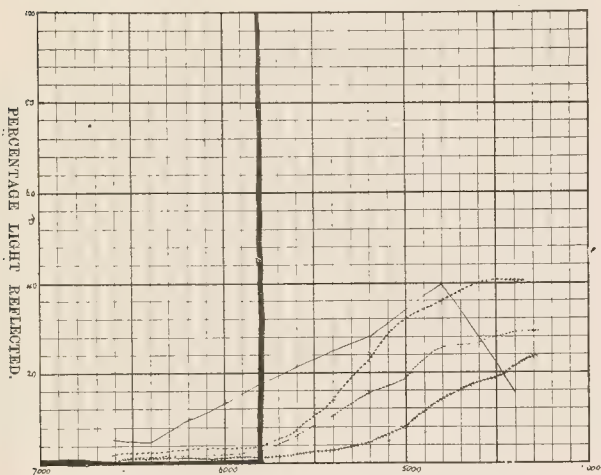
All these are much too dark; the printing ink is the best of them, and even this absorbs sixty (60) per cent. of the pure colour of which it reflects most; one of the carbon tissues absorbs no less than seventy-five (75) per cent. of its brightest colour. The ink does not absorb the red completely, as it should, but the other pigments are fairly satisfactory in this respect.

If we now consider the reproduction of five typical colours, of which we had secured ideal negative records, we shall see



how the defects of the pigments become apparent, first noting that the reproduction of any and every colour must be too dark owing to their general absorption.

A red (matching a mixture of spectral colours between 7,000



Wave Lengths A.U.—Blue Pigment.

Fig. 3.

and 6,000 A.U.) would be reproduced by full strength yellow and full strength red (i.e., magenta-pink) pigments. Now, it is seen that the yellow allows some of the blue to be reflected from the white paper, but this is not so important as the fact that the pink will allow so much of the yellow and yellow-green

to be reflected that the general colour will be orange rather than true red.

A yellow will be reproduced by the yellow alone; this will be fairly satisfactory, except for some degradation by reason of the absorption of the red and yellow, and the reflection of some blue, making it greyer than it should be.

Green will be reproduced by printing yellow in full strength and the blue in full strength. Some of the green is absorbed by the yellow ink, and a much larger amount of the blue ink, therefore the green is bound to look a very dark yellowish green rather than a pure green.

A blue (matching a mixture of colours between 5,000 and 4,600 A.U.) will be represented by the blue printing ink alone instead of this reflecting the whole of this light it absorbs almost three-quarters of it, and it will therefore be very much darker than it ought to be. A violet will be reproduced in full strength blue and full strength red; this is bound to be very much degraded, because neither of the pigments reflects all the violet as they should. In the case of the printing in the violet will be very reddish, because the blue is transparent to red instead of entirely absorbing it.

A true dense black could not be produced by the three printing inks, for example, because the red ink does not absorb sufficient of the blue green, and the blue ink does not absorb sufficient of the red; the black, therefore will have a slight violet tinge.

From the analysis of these pigments, which are far from the worst sold, but, on the contrary, are probably the best obtainable, it will be seen that even though filters and plates were perfect, exposure and development and all manipulations absolutely correct, an ideal which can never be quite attained there would still require to be considerable retouching of anything approaching a truthful rendering was to be secured on account of the poor pigments as yet at the disposal of the worker in three-colour.

A. J. NEWTON

## METHODS OF GETTING BUSINESS.

At the recent Convention of the Photographers' Association of Pennsylvania, Mr. J. C. Abel, editor of the "Photographer," read a paper on "Business-getting Methods," in which he spoke of ticket schemes, advertising cards and booklets, show-case and other means of attracting business to a studio. The discussion of his paper may be partly reported here, as it contains the experiences of several conventioners who may be supposed to represent the average middle-class photographer in the United States.

### A Successful Baby Contest.

J. E. Giffin (of Wheeling, West Virginia): I will give you some idea along the line I have been working. The first I will mention is that of the baby contest. I do not give free sittings in my studio, but I do have a baby contest. Last year I gave away fifty dollars in money to the prettiest child or the three prettiest children photographed at my studio. I offer no extra inducements, and make no reduction in prices other than the fifty dollars in money that I offer to those winning the prizes—first prize of twenty-five dollars, and so on. This year I have decided, as last year was a great success, to double the amount and make it one hundred dollars in prizes. That might seem to some photographers a lot of money, but when you take into consideration the great possibility of photographing children it doesn't amount to anything at all. This year I am getting out my three prize winners of last year, and am going to put them on a piece of paper about half the size of the ordinary newspaper page, so that if I want to publish it in a newspaper I can use about half a page. I put that out in circular form from house to house in my immediate territory, and mail it to

the surrounding towns. The pictures of the three prize winners last year will appear at the top of the page, full form, cabinet size with their names, the prizes they won, their addresses, etc. In five minutes you take up a bill of that kind you will appreciate it and hang on to it. It is a picture; it is not an ordinary handbill as is thrown around by advertising people, or even theatrical people who from time to time distribute literature after that style. The coming down on either side, there are little half-tones, also at bottom, of children. Then, of course, I go ahead with my real matter. There is no use in my trying to tell you in what form this out—I am just giving you the outline. I will say this: my experience last year has led me to repeat this; throughout the year I have had my attention called to it, and been asked: "When you going to have another baby contest?" But I will say to you above all things, when you do a thing of that kind, do it right, do it conscientiously, and do what you say you will do.

I want to take up one or two matters my friend Mr. Abel told you of; it has all been very interesting to me. One particular feature was sending out cards. As to the form of literature you send out, that, as you know by experience, is regulated by surroundings. I do not believe it would pay me to send out literature in Wheeling that Pirie MacDonald would send out in New York. I have a little caricature of myself which Mr. Abel criticised. I know it is not quite the proper thing, but I will tell you I do not believe I ever spent fifty dollars that gave me so large a return. These cards were mailed in a nice envelope, with a two-cent stamp, with a little reading matter underneath, and certainly has not done me any harm. I do not say you should do that, it might not do for you, but it has been a big thing for me.

### On Proper Booklets.

As to the matter of booklets, I do that every year. I try to get them up in form and with taste, and have as little reading matter as possible, and that has also resulted in great good. I send those select people and talk about them from time to time; as people enter my studio I ask them if they have received one of my little booklets, and if they have not we have a supply on hand and give them a copy.

Mr. Wills: Mr. Giffin referred to doing business and distributing different classes of literature in different communities. I certainly think he has made a point there. I do not think you can go into Wheeling, West Virginia, Charlottesville, Washington, D. C., and New York City, and distribute the same class of literature. I do not think you can go to a convention, pick out a certain class of work displayed in the hall, and go home and say you will turn that class of work; the people will not buy it. You have to determine on what your people want; you have to cater to the tastes of your community, and you must make the work that they will buy, and I do not approve the plan of picking out a few pieces, then going home and trying to copy them. I believe in proving your work and doing everything you can in that line. Let what you want to do is to make the work you can sell to your people and get the money for.

### A Matter of Individuality.

Mr. C. O. Towles (of Washington, D.C.): There have been a number of very interesting suggestions offered; some of them I partly agree with and some of them I do not. Referring back to the subject of business-getting in photography, I think that this is largely a matter of individuality. It is largely a matter that depends altogether upon the man as is the quality of work he sells to the community. I do not believe you have got to cater to all tastes to the public taste, because I think oftentimes the public taste needs cultivation rather than catering to. I think that is often the case, and in my roaming around over the country of which I cover pretty good scope, I find it in most instances the case that the public needs cultivation rather than catering to. Advertising, as I have said before, I think is an individual problem. I think, as Mr. MacDonald—who has been referred to—said the other day, that the show-case is the best medium for advertising that any photographer has got outside of direct touch and contact with his patrons. I think that a man should bend every effort to extend his name, and in putting his work before the public in such a manner that every dozen pictures he puts out would have a tendency to bring him a dozen new patrons, because certainly he has an opportunity that many other lines of business have not, that is, of getting into the hands of his patrons a product that is distributed among other classes of people, and is not entirely consumed by the people who buy of him. Every piece of his work, except one out of a dozen, perhaps, is distributed to some one else, each one of them bearing his trade mark, and each one is a speaking advertisement of the merit and quality of that man's work. Now, if his work is right there is no question about the balance of it; he is going to get the business; there isn't any question about it. You go into any community and show me the photographer who is doing the right kind of work and I will show you a man who pays his bills and is making money every time. If he is slipshod in getting his work out—careless in his products—the chances are that his trade is an indifferent one, and his prices are indifferent, and the amount of money he has in bank is indifferent, and all the advertising he can do isn't going to help him very much. As Mr. MacDonald said in New York, he would give a thousand dollars a year more rent for a room having a nice big show-case down at his door than for one without it. I believe he would be justified in doing it; that is, if the show-case is kept nicely. Note the people who stop and gaze at the photographs as they pass along the street. A good photograph has a charm, a magnetism, about it. Many a man and woman stops at a show-case to look at the pictures who don't think of having a picture taken; but sees the face of a friend nicely taken, beautifully mounted and prettily displayed, and that tends to create a desire for a picture, and the thought, "I will go up there and have some pictures taken next week." They go, and one brings another, and so the man's trade grows, if he is giving proper attention to the class of work, and to the display and general nature of his business.

### Convention-Attendance Pays.

Mr. Mitchell (of Maryland) said he began attending conventions about five years ago. In order to go he had to shut up his place of business, and he had a competitor. When he went to the national convention he locked up the Maryland building, and, picking up his home paper, saw his competitor's advertisement to the effect that "My gallery is open the year around." But when he went back he did more business in a month or two than he had ever before done in the same time. When he changes his advertisement he is careful not to conflict with that of his competitor. If he makes anything good he takes it down and shows it to the newspaper man, who gives him a little puff which is better than all the advertising. Last year he had three write-ups three weeks in succession on different matters, and they did him more good than the little advertisement he carries. Around the holidays he enlarges his advertising. That would not suit in large cities, but in a country town he feels that it has been a benefit.

### Show Case Ideas.

Mr. Abel: I will tell you one other method a photographer uses to get business. He posts the names each week of those who had photographs made the week previous, and everyone goes there every week to see the names in the show-case. That wouldn't get business in cities like Philadelphia, Washington, or Baltimore, but in small towns the names of the people are known to everyone, and the fact that Mrs. So-and-So had her picture taken last week is a piece of interesting news. People become interested, and next week they come around to have a picture taken.

Mr. Towles: A plan that I ran into some time ago might be of interest to some. In a town of twenty thousand people a man advertised for a few consecutive weeks that he would put a new picture in his show-case each day the following year, and he persisted in it conscientiously the following year. Every morning that year the first thing he did was to go to the show-case, take out a picture, and put a new one in. It was one of the greatest advertisements he ever had, and caused about a third of that entire population to make a visit to his show-case every day just to see whose picture was there. It struck me as being a good idea in a town of ten to twenty thousand, where a man knows everybody, and it will arouse more interest than anything else.

### THE METHOD OF PHOTOGRAPHING THE DEAD FOR PURPOSES OF IDENTIFICATION.

(From the "Lancet.")

At two inquests held last week on the bodies of persons unknown the coroner commented at some length on the very unsatisfactory character of the photographs of the corpses prepared by the police authorities, and suggested that means ought to be taken to make such photographs more like the individuals when alive, and therefore more useful for purposes of identification. The question raised by these criticisms, though it is obviously of some practical importance, does not seem to have received much attention from medico-legal writers in this country, and the bulk of the literature dealing with it is of foreign origin. One of the latest and most valuable contributions to its study is a paper by Dr. Minovici which appeared in the "Archives d'Anthropologie Criminelle" of November 15, 1904. The writer, who is director of the Medico-Legal Institute of Bucharest, gives in this paper a detailed account of the apparatus which he employs for posing the body and of the methods to which he has recourse for restoring the appearance of vitality to the features, his observations on this latter point being of special interest. One of the most serious difficulties in post-mortem photography is due, as is well known, to the loss of the brilliancy of the eyes, which has a large part in determining the characteristic expression of the individual. It has been usual to deal with this difficulty by the method suggested by Dr. Gosse\* of applying compresses to the eyes, but Dr. Minovici has found that much better results may be obtained by the use of artificial eyes, dark or light, according to the colour of the individual's iris. A natural appearance can be given to the orbital opening by introducing beneath the lids an extemporised speculum of lead foil or by fixing the upper lid to the ball of the eye by means of a fine pin. The jaws can be drawn together with thread, and by appropriate arrangements



of pins various emotional expressions can be given to the face. Even in cases where putrefactive changes have occurred, if there has been no actual loss of substance, the features can be in a large measure restored if the gases in the areolar tissues are evacuated through suitable incisions in the scalp and in the buccal mucous membrane. By the application of these methods in a case where the body had been immersed in water for six weeks Dr. Minovici succeeded in getting a photograph sufficiently life-like to establish the individual's identity. Photographs showing the successive stages in the preparation of the body in this case are reproduced in the paper, and give a striking illustration of the value of Dr. Minovici's ingenious artifices.

#### THE VALUE OF GOOD APPEARANCE.

The two photographs which we reproduce are from the trade circular of an American Company, the J. W. Butler Paper Co., of Chicago. They are sent out to illustrate forcibly the different effects of a letter written on poor stationery and good stationery, the man representing the letter and his clothes the stationery. The card bears the motto, "Clothes don't make the man, but they do make all but his hands and face during business hours." The illustrations are two views of one man, the difference being due to his clothes.



The lesson is one which may be impressed with particular appropriateness upon photographers. One direction in which good appearance counts is the photographer's stationery and advertising literature. The articles by Mr. W. J. Casey which appeared in these columns some time ago, offered many hints and suggestions which might be taken with profit to a studio. Good printing, the kind of printing which attracts business because it makes a favourable impression on the recipient, need not cost much more than printing which is poor enough to be useless for its purpose. We were recently shown a circular sent out by a photographer to possible customers, in which very little was said, but the whole effect of which, we found, had led our friend, who is no way connected with photography, to form the conclusion that the photographer did work of a high order. Merely a matter of good appearance. The particular circular we have since discovered was printed by Messrs. Pearce, of Brentford, and is being used by several professionals.

**SUNDAY Traders.**—Arguing before the Sunday Trading Committee that the opening of certain shops was necessary in Blackpool on Sundays for the sake of the excursionists, the Chief Constable of the town included the photographer among "necessities." "The bulk of the working people who get their photographs taken on the beach," he said, "never have a chance to be photographed in their best clothes except on Sundays."

In noticing the Royal Academy last week we omitted to mention that in the architectural room are hung two drawings, by Mr. C. H. B. Quennell, of Messrs. Speaight's palatial photographic galleries in New Bond Street.

\* La Photographie après Décès, Geneva, 1896.

#### A RESULT OF ORGANISATION.

In the reports of the Convention of the Professional Photographers' Society of New York, the question of the prices to be charged by schools elicited some discussion, and was quoted in particular at a point in regard to which agreement between the photographers of a town was very desirable if such work was to be done at a profit. We have since received a copy of the circular containing the terms agreed upon by the Rochester Section of the P.P.S. of N.Y., a body which represents, we are informed, all the photographers in the town. In sending it to us, Mr. Dudley Hoyt, the ex-President of the P.P.S., draws attention to it as an example of the practical manner in which members are getting together. There are a great many schools and colleges in the community, and in former years the photographers, actuated solely by a desire to swell the gross business of the year, have simply slaughtered prices until there was no more in school or class work for any one. When the season opened this year the Section met, and, as a result, the circular was agreed upon. The result has been that there is money in making school pictures now. The following is the text of the circular:—

To facilitate the fixing of uniform discounts upon school and college photographs, discounts have been agreed upon as follows:—

Number of persons contracted for.	Discount.
6 to 15 inc.	10 per cent.
16 to 25 inc.	15 per cent.
26 to 75 inc.	20 per cent.
75 or more	25 per cent.

The circular states the minimum list prices now existing in the respective studios upon which these discounts apply, and proceeds:—

It is agreed that these prices shall remain in force for one year from date.

That definite contracts be entered into between school or college committees and members of the Society based upon a specific number of students, for each of which a dollar must be deposited, before the prices go into effect; otherwise no discounts will be granted.

That school clubs and fraternities are to receive the same discounts and come under the same ruling as schools and classes.

That no further reductions of any kind whatsoever are to be made and that no concessions or inducements of any kind are to be made either directly or indirectly to members of committees or classes with the exception that on duplicate orders a discount of 25 per cent. from the respective list prices may be granted.

That any irregularities called to the attention of the members be reported immediately to the secretary.

#### ACTORS' PHOTOGRAPHS.

The following is the text of the proposals discussed by a deputation from the Actors' Association to the Professional Photographers' Association, a report of the proceedings in reference to which appeared in our last issue.

There being a certain amount of indefiniteness as the rights of theatrical artists who sit to photographers and of photographers to the negative made at such sittings, whereby the actor suffers considerable hardship as well as loss of income to which he is entitled, has been thought that a conference is desirable between the representatives of the photographic trade associations and the Actors' Association in order that the basis of a working agreement may be arrived at.

There are three classes of photograph to be considered:—

(a) The photographs taken for the purposes of advertisement, involving groups and scenes from plays about to be, or recently, produced.

(b) Photographs of individuals, taken at the express invitation of the photographer.

(c) The ordinary professional photograph taken of an actor on his own initiative, but paid for at a reduced or "professional" price.

In any one of these classes no hardship can arise where the sitting is preceded by a formal and just contract, signed by the parties embodying their mutual agreement, though there are contingencies which may arise out of such sittings which are seldom, if ever, provided for by the terms of such an agreement. It is suggested that a "General Form of Agreement" should be settled between the associations.

tations to be legally drafted and approved by counsel, which shall have the effect of obviating litigation.

But with regards to Class A:—

(a) It is in extremely rare cases that the individual members of a company can make any agreement with the photographer as to the terms on which they submit to having their portraits reproduced, there being no direct relation of actor and photographer, since the agreement is made between the manager and photographer; but it is clear that the right to put up a "photograph call" does not give the manager the right to enforce such a call, nor to dispose of the artist's right in his own face in any subsequent portrait, should he use it in response.

For the protection of the photographers, as well as to satisfy an undoubted equitable right, it is suggested that photographers, in making their agreement with the manager, should stipulate definitely and as a matter of course:—

"That all artistes posing for such 'advertisement' photographs shall be paid for their attendance a sum of (say) one guinea, and that it is agreed that the acceptance of that sum by the artistes gives to the manager (or photographer) the absolute and exclusive ownership of the negative so taken (except as hereinafter provided) with right of publication, reproduction, and alienation."

And further, for the avoidance of possible difficulties as to damage that might be inflicted on an artiste owing to misrepresentation arising from possible unhappy posing or fault in negative or other use of a like kind) that:—

"In all photographs of individual members of a company, or of portraits for which not more than two artistes are posed, the portraits so taken shall not be deemed available for printing or publication unless the approval of each sitter shall have been obtained of a 'proof.'"

(b) Where photographers invite the attendance of an artiste at the studio for the purpose of having his portrait taken, it will save misunderstanding, and obviate the risk of disputes if the photographer will clearly state, in such invitation, the purpose and intention of each offer.

This being a matter of individual contract, the terms will, of course, be private, and no suggestion can be made as to remuneration, but it is submitted:—

(1) That inasmuch as the portrait of an artist may be of great value to him for the purposes of his business, and may consequently of corresponding damage, no negative should be allowed to remain in existence to which the artiste opposes a reasonable objection, and should be broken on demand.

(2) That the "life" of a negative should be limited to a term of years, i.e., that the licensee to deal with or reproduce, should require renewal by the sitter after (say) two years.

(3) That it is desirable that in postcard reproductions of such photographs, the sitter should be offered payment for the rights on the same terms of a royalty on all copies sold.

(c) In this class of photograph it should be clearly defined that no right of publication or reproduction is vested in the photographer. His right is only to the property in the plate, and the right to reproduce at the instance of the sitter at the price determined between them. It is possible that the sitter may be willing to give to the photographer the right to sell the photographs as printed, and approved and accepted by the sitter, but this license should, if given, stipulate the retail price of such copies, and does not include the right of reproduction.

It is very strenuously urged that in all cases of professional photographs (a), (b), or (c), the "life" of the negative should be defined and established.

Questions arising out of a conference between the Professional Photographers' Association and a Deputation of the Actors' Association.

Query 1.—Is the P.P.A. agreeable to the making of such an agreement with theatrical managers, with regard to Class "A" of the A.A. proposals, as will make each member of the group or company photographed a party to the contract with the photographer?

Query 2.—Is the P.P.A. agreeable to the setting of a limit to the "life" of a negative, i.e., to define a period of years from the time of taking, after which it shall not be lawful to publish copies without express sanction of the sitter, so long as he be living?

Query 3.—Does the P.P.A. agree that no photograph should be published the negative of which has not received the approval of the sitter? And further, that negatives of which the sitter reasonably disapproves should be forthwith destroyed?

Query 4.—Does the P.P.A. assent to the contention that the payment by the sitter of a reduced fee (or "professional discount price") does not vest in the photographer the right of reproduction, nor the right to sell the negative or transfers of the same?

Query 5.—Will the P.P.A. agree to the proposition that "advertisement photographs" of plays should be withdrawn at the same time as the play they represent: unless a further agreement be made with the parties portrayed in such photographs?

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between May 7 and 12:—

WASHING PRINTS.—No. 10,831. A water circulator for washing photographic prints, plates, and films. Charles Edward Dodsley, 47, Shrewsbury Road, Birkenhead.

POSTCARDS.—No. 10,878. Improvements in photographic mailing cards. Samuel Aaron Markoff, 7, Southampton Buildings, London.

FILMS.—No. 11,033. Improvements in photographic films and their manufacture. John Edward Thornton, Altrincham, Cheshire.

PHOTOGRAPHY.—No. 11,072. Improvement in photography. John William Ippers, 65, Chancery Lane, London.

CINEMATOGRAPHY.—No. 11,168. Improvements in a combined photographic frame, and cinematographic apparatus. Henri Louis Huet, 53, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

CINEMATOGRAPHS.—No. 8,341, 1905. The invention relates to the simultaneous use of a projection lantern and cinematograph, the picture of scene of action being thrown on the screen by projection-apparatus, and the movements taking place in that scene are represented independently by means of one or several cinematographs. A source of light is used for the cinematograph, about 15 per cent. stronger than that of the projection-apparatus, whereby the cinematographic picture is rendered clear with respect to the background. A blind-slide is used behind the window of the cinematograph, which is provided with an irregular perforation or perforations by which the image thrown on the screen is irregularly bordered: the bordering line of the picture being rendered less visible on the background. The picture plate used in the projection apparatus is provided with a coating impervious to light and of the shape of the perforation in the blind-slide of the cinematograph, so that the portion of the background on which the cinematographic image is to be projected becomes of a more suitable tint. Paul Effing, 56, Charlottenstrasse, Berlin.

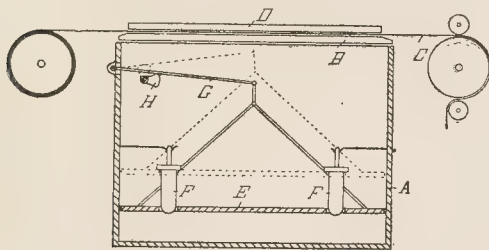
DEVELOPING SHEETS.—No. 9,248, 1905. The invention is the method of applying chemical solutions to photographic plates, films, papers, and the like in an evenly distributed quantity over the whole surface, and in such a manner that each portion of the surface is, during the whole time of contact, only subjected to the action of the portion of the developer immediately superimposed thereon. A paper is specially made of pure cellulose material, without chemical treatment, and coated with gelatine; also gelatine sheets alone or backed with porous or non-porous elastic supports, these materials being impregnated with developing substances. The method is described as applicable to fixing, reduc-



ing, etc. Douglas William Hart, 17, McDowall Road, Camberwell.

**MACHINE PRINTING.**—No. 17,605, 1905. An apparatus for printing from photographic negatives, comprising an arrangement for moving the negative and web together, a stationary exposing device presenting a narrow slot, a supply roller and a winding-up roller for the sensitised web, means for reciprocating the negatives and the web between the pressing and exposing devices, and means for feeding the web forward after each to and each from passage. Frederick Heinrich Lange, 52, Steinmetzstrasse, Berlin, and Oscar Prange, 75, Gitschinerstrasse, Berlin.

**COPYING MACHINE.**—No. 26,612, 1905. The claim is for an illuminating device for a photographic copying machine, in which the illuminating chamber is provided with a movable bottom adapted to be passed over the lamps. The photographic plate B is placed on the illuminating chamber reservoir A. The copying or printing band C which is to be passed over it, is alternately pressed against the plate B by means of the cover D, and released. During such pressure the illumination must take place, whilst during the lifting of the cover D the illumination must be interrupted and the forward movement of the band C effected. The intermittent illumination is effected by means of the movable bottom E having apertures for passage of the electric lamps F. This bottom E may act at the same time as a reflector, since a diffused light is the most suitable for the production of photographic prints or copies. The bottom E is impenetrable to light so as to render



the upper part of the chamber A entirely unilluminated when the bottom is raised during the period it is desired to cut the light off (as shown in dotted lines). In the uppermost position of the bottom the apertures therein for passage of the lamps bear against the sockets of the lamps and are thus closed. If the bottom E is impenetrable to light, the latter cannot enter the upper part of the chamber in this position, but, on the other hand, in the lowest position of the bottom E, the lamps illuminate the chamber to their full extent. This operation can be assisted by providing the surface of the bottom with a reflector so that no direct but only reflected light is used. It is obvious that the apparatus may be used in a vertical or inclined position instead of in a horizontal one as shown. Otto Lienekampff, 9, Johannisallee, Leipzig-Reudnitz, Germany.

**CAMERA MOVEMENT.**—No. 1,317, 1906. The invention consists of a folding camera in which on the opening of the cover forming the slide way, the forward movement of the lens carrier into the position required for "infinity," is automatically effected by means of a spring roller which is connected with the lens carrier by means of traction devices. Optische Anstalt, C. P. Goerz Aktiengesellschaft, of 44, 45 and 46, Rheinstrasse, Friedenau, near Berlin.

**PNEUMATIC COPYING FRAMES.**—No. 7,253, 1906. The invention applies to large printing frames in which the drawing to be copied and the sensitive paper are pressed against the glass of the printing frame by means of an airtight cover mounted on a rim which is pressed tightly against the glass whilst the air is exhausted. To secure contact of the rim with the plate a pressure bar is necessary, but the present claim is for means for pressing the cover against the transparent or translucent plate by atmospheric pressure, consisting in the formation of a hollow space between the cover and the plate along the rim of the surfaces to be pressed together, such space being made to communicate with

the air-exhausting apparatus so as to exhaust the air therefrom simultaneously with and to the same degree as the exhaust from beneath the cover. Siemens-Schuckert-Werke, Gesellschaft mit Beschränkter Haftung, No. 3, Askanischer Platz, Berlin.

## New Books.

**Die Grundlagen der Farben Photographie.** By Dr. B. Donath. Brunswick: Friedrich Vieweg und Sohn. 5s.

The purpose of this work as outlined by the author in his preface is to present a clear conception of the theory involved in colour photography; it is no handbook nor complete instruction in photographic processes. Read in this light it is certainly satisfactory up to a certain point.

It is divided into two sections, the first dealing with the direct processes of colour photography, such as those of Becquerel, Poitevin and Lippmann—the last naturally absorbing the greater portion. In the practical instructions for this process we note the omission among sensitisers of methyl violet, which has been adopted by Lippmann as the most satisfactory, and also all mention of the communication which appeared in our issue for June 30, 1905, p. 500 which suggests the possibility of multiplying prints in colours in the ordinary way in the printing frame.

The bleach-out process is also dealt with fully, and here the author has had the advantage of private communications from Dr. Neuhäuss, who, it is well known, has made a special study of this subject. We refer to this communication under "Ex Cathedra."

The second edition of the work is devoted to indirect processes and the historical notes are sketched in with a fairly liberal and accurate pen, though we note that in one place the date of H. W. Vogel's discovery of the orthochromatising action of dyes is given as 1865, whilst further on it is given correctly as 1873.

There is one notable omission, and that is any reference to S. Wm. Abney's work on the colour sensations; otherwise the chapter dealing with this subject is extremely satisfactory.

In dealing with the sensitising dyes, one notes, however, a mere casual notice to pinachrome, and no mention of pinacyanol or dicyanine, ethyl-red alone being considered at any length. One may question, too, whether the author's statement that most colour filters present gaps in the yellow-green and blue is correct. No specific formulæ are given for filters, merely those regions which should be transmitted, and these only for an additive or projection system, and according to Dr. Miéthe.

Sensitising of the plates is again merely treated from the point of view of the use of ethyl-red alone, nor is any mention made of von Hübl's suggestion as to the use of alcohol and omission of ammonia in the sensitising bath, which considerably improves the keeping powers and does away with the necessity of washing and rapid drying.

Possibly our objections may be considered somewhat captious particularly when the work as a whole is extremely readable, and gives one a very clear enunciation of the theories involved. A three-colour print from negatives taken by Dr. Miéthe is given, the constituent prints being also shown, and a useful bibliography of the authors and papers quoted is included at the end.

**"To Make Bad Negatives into Good."** By A. Horsley Hinton. London: Haeßell, Watson, Viney, Ltd. 4d. net.

The man who can chat—not write or discourse—on intensification and reduction, could probably interest a Patagonian in local optics or the law of primogeniture. Certainly, Mr. Horsley Hinton does not convey information on the ways and means of improving negative without ever being technically dull. Placing ourselves in the position of the youthful reader we can feel our palate tickled to try what intensification is like, and whereunto in the whole world of remedial we are to liken ammonium persulphate as the destroyer of photographic ills. The little book, which is well-printed and contains some half-tone examples on art paper of a negative's defects, deals also with the making of a new negative and with the elements of spotting and retouching. Throughout the technical pill is carefully enveloped in colloquial jam, and at times the jam is laid

a little thickly. But what of that? The young photographer is glad to take an interest in the technics of his craft, and on this point alone Mr. Hinton deserves to be thanked for discharging the duties of a guide so agreeably.

**The Red and Blue Books.**—The two publications of the Royal Photographic Society Affiliation and of the Scottish Federation respectively, which have appeared within a few days of each other, are pieces of evidence of the multifarious activities of photographic societies. The Red Book grows a little thicker year by year; the Blue Book, on the other hand, evidently dreads obesity as a disease, and strives successfully to retain the waistcoat pocket size at it assumed on its first issue. Thus, it does not set forth the particulars of each federated society as does the Red Book those of the societies in the Affiliation. Its chief aim appears to be the assistance of the Scottish photographer when on tour in his own or other lands, in pursuance of which it prints a long list of resorts and beauty spots, with the addresses of Federation representatives and of the available dark-rooms. A list of photographic experts who are willing to advise Federated photographers is another of its commendable features. The Red Book also actively watches the interests of its touring readers by a comprehensive list of particulars relating to permission to photograph. In many cases the production of the Red Book is sufficient permission. The innovation of last year of embodying tickets for the R.P.S. Exhibition in the Red Book is continued, a proof, we may suppose, that the plan was found convenient and labour saving.

## New Apparatus, &c.

the "Graflex" and "Premo" Reflecting Cameras. Sold by Kodak, Ltd., Clerkenwell Road, London, E.C.

The first-mentioned of these two cameras has constantly been referred to by writers in the American Press as a standard instrument of the reflex pattern in the States, and so far as we can learn has earned golden opinions for itself among photographers who undertake work for the Press, or devote themselves to other branches of accurate photography. And the "Graflex" possesses certain

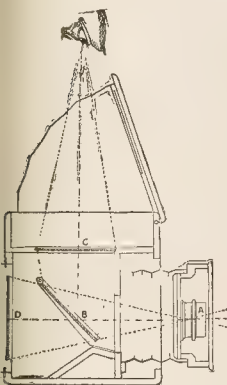


Fig. 1.

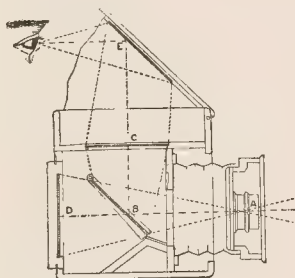


Fig. 2.

features which mark it out among reflex cameras of any country, chief among which is a special accessory mirror in the hood by which the image on the ground glass can be examined when the camera is held at the eye level. The two figures 1 and 2 show the two methods of holding, and emphasise the obvious advantage of the instrument in permitting the taking of a higher point of view, often a matter of very great importance when photographing at public events.

The shutter of the "Graflex" is of the focal-plane type, and of the multiple slit variety, containing five slits of different widths in the complete blind. This arrangement we have known to be very

convenient in practice, and in the "Graflex" the alteration from slit to slit is very conveniently made. In other respects the instrument is one of the highest class, which is not to say that it is overloaded with movements or finished with unnecessary cabinet-making. In our estimation it is produced with a very careful eye to its practical performance, and for that, among other reasons, may anticipate receiving the notice of all who contemplate adopting the reflector principle in hand-camera work. It is made in two sizes, quarter-

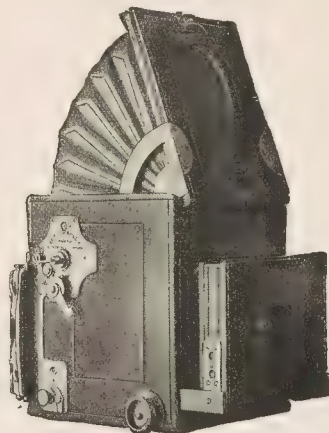


Fig. 3.—The Graflex fully opened.

plate and 5 by 4, the former costing, without lens, £15 12s. 6d., and the latter £17 14s. These prices, it may be judged, do not apply to an instrument which has not received, both in its initial stages and in its regular construction for the market, all the care and attention to details which a camera of this class demands from its maker. That such is the case with the "Graflex" is evident from the ease and smoothness of the working parts, and the

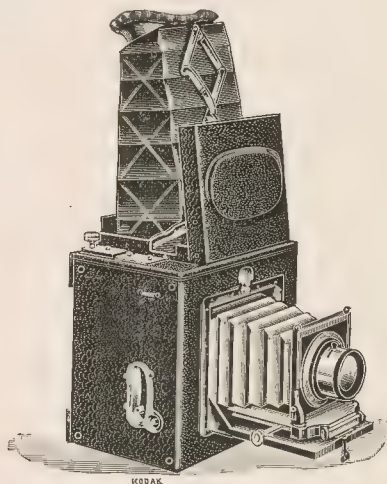


Fig. 4.—The "Premo" Reflex Camera.

freedom of the mirror and shutter from jar and abnormal noise when in operation. A critical inspection of the camera justifies the opinion that it is a highly efficient instrument of its class.

The "Premo" reflecting camera which the Kodak Company are also introducing differs from the "Graflex" in having a reversing back. It has a focussing hood which is of convenient depth, and erects itself on drawing the release. The shutter movements as re-

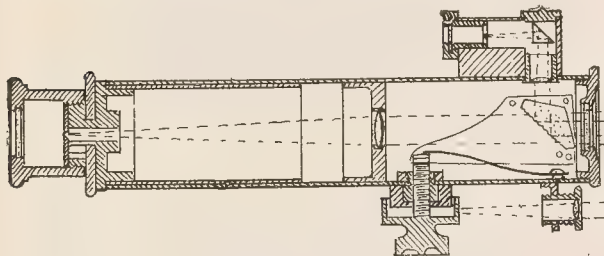


guards setting the shutter and altering the width of slit are all conveniently made, and the range of exposures are comprised between 1-1,200th and 1-75th of a second, time exposures, both in the case of the "Premo" and "Graflex," being made by opening the shutter to the full width of the plate.

The camera is handsomely made, and in the 5 by 4 size costs £17 15s.

Thorpe's Direct Vision Diffraction Reading Pocket Spectroscope. Made by R. and J. Beck, Ltd., 68, Cornhill, E.C.

This new diffraction pocket spectroscope is a very handy form. The slit, which is made of platinoid, and adjustable with a milled head, has one of its jaws movable, and can be readily focussed by sliding the tube out. A first order spectrum is used and is of considerable brilliance; the dispersion is very nearly normal, and is about 30deg. There are two distinctly good features, which will make this little instrument very valuable for determining the position of any unknown line. The first is a brilliant little triangle of white light, with the apex just above the spectrum, which can, by means of a micrometer screw, be made to travel very rapidly from end to end of the spectrum so as to coincide with any line. The second feature is that the micrometer screw is provided with a milled head, divided into 500 divisions, which enable one with very slight shift of the eyes to read at once the division on the scale correspond-



ing to the position of the line, a small eye-piece enabling these divisions to be very easily read; we were thus able to locate the positions of the eight principal Fraunhofer lines, and their scale reading, in less than five minutes, and from these, of course, with the aid of a table of wave-lengths, the position of any other unknown line could be read off. The construction is very clearly shown from the accompanying figure, in which the upper tube is the indicator, provided, as will be seen, with a focussing adjustment, the image of which is thrown down to the spectrum by the small right-angle prism, whilst underneath is the micrometer screw drum and eye-piece. Although not meant to show it, there is no great difficulty in seeing the second order spectrum also.

The instrument is very compact, and should be very serviceable, as the dispersion is quite sufficient to distinctly separate the D lines. The price of the complete spectroscope is £4 4s.

The Photo Appliance Company, Englefield Green, Surrey, send us an accessory which they have just brought out in the shape of a single lens of  $1\frac{1}{4}$  in. diameter and about 6 in. focal length. It is mounted so that it can be attached to the camera for use as a supplementary lens, and in this capacity may be applied for various purposes of copying, as it forms, with the lens with which it is used, a combination of considerably shorter focus.

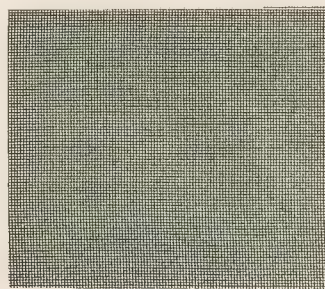
Messrs. Kodak, Limited, call our attention to recent improvements in the well-known "Premo" film-pack, whereby it is possible to remove one or more films for development before the whole pack is exposed. As now issued, each of the twelve films in the pack may be removed and developed before proceeding with the exposure of the next.

RECEIVED.—Self-toning P.O.P. (Wellington and Ward, Elstree, Herts); Boryl-Caramel (Lichtenstein and Co., Victoria and Royal Albert Docks Chemical Works, Silvertown, London, E.). We shall report on these new introductions in a forthcoming issue.

## New Materials.

Autotype Texture Films. Made by the Autotype Co., 74, New Oxford Street, London, W.C.

An old device in modern commercial form for convenient use brought to our notice by the Autotype Company in their new "texture films." The method of imparting the appearance of texture to a print by the expedient of interposing between the negative and the papers a transparency representing some particular fabric or surface is here placed at the disposal of the photographer in an extremely handy shape. Each "texture film" consists of such a transparency, prepared on thin celluloid by the carbon process. At present nine different varieties of texture are available, most of these representing canvas or other fabric, but one or two possessing a less definite structure and giving the print the appearance of being made on rough drawing paper or wood of a not very pronounced grain. The method of use is, as we have said, simply to place the film between the negative and the paper during the whole time of printing. The celluloid is thin enough to prevent any loss of definition, except in the case of such work in which highly critical



definition is required, work, in fact, of a kind for which the qualities imparted by the "texture films" would never be desired. The finished results on smooth matt papers are most realistic at a short distance, the print possessing the appearance of a rough surface. The advantage of the process over carbon with transference to such rough materials is very great, as the long soaking before transferring is entirely dispensed with. The method, however, is just as applicable to silver and bromide printing, and there would seem to be a distinct advantage in using it for prints in which the effect of texture is to be reproduced in half-tone or other reproduction process, inasmuch as the pseudo-texture is free from the corrugations and irregularities of surface which make such originals the bane of the process man. The prices of the films are 3s. 6d per sheet,  $14\frac{1}{2}$  x 10 inches, and 1s. per sheet suitable for cabinet pictures. The illustration gives a fair idea of the effect produced by one of the films.

"Rotograph" Slow Bromide Paper. Made by the Rotary Photographic Company, Ltd., 12, New Union Street, Moorfields, London, E.C.

In issuing a new brand of paper, the Rotary Company are acceding to the wishes of their clients who prefer a slower emulsion but one considerably more rapid than the Rotary gaslight paper "Rotox." "Rotograph Slow" requires about nine times the exposure of the ordinary rapid paper, and such a slower paper will doubtless be appreciated for the somewhat different character of its results. The paper, as we have found it from the sample supplied to us, bears the same relation to the more rapid brand as the observable in other cases—that is to say, the prints are more brilliant, and for that reason the paper should assist users of "Rotograph" papers in handling flat or fogged negatives. The paper deserves all the good things which have been said of its more rapid prototype, and perhaps that is as high praise as can be accorded to it. It is issued in five grades: A, thin glossy; B, thick glossy; C, thin matt smooth; E, thin rough; H, half-matt; and is sold in the usual sizes and at the usual prices.

## CATALOGUES AND TRADE NOTICES.

MESSRS. KODAK, LTD., draw our attention to a circular of reductions in the price of Premo cameras.

THE Charles Urban Trading Company, 48, Rupert Street, announce long cinematograph films of the San Francisco disaster taken on the spot by their American agents.

The Kodak Company are to be congratulated on the cover of their newly issued list of amateurs' photographic requisites. At the moment when the West-End policeman is the observed of all observers it is something more than a coincidence to represent him at the instant of being photographed in a stylish thoroughfare by a gorgeously apparelled lady. The contents of the list appear equally up to date.

A VERY stylishly produced list of prices for architectural and engineering work is sent us by Mr. Charles H. Horton, Rupert Chambers, Quay Street, Bristol.

## Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

May.	Name of Society.	Subject.
26	Hull Photographic Society ...	Outing to Barrow.
26	South London Photo. Society ...	Outing to Southfleet.
26	Leeds Camera Club ...	Excursion to Helmsley.
26	Manchester Amat. Photo. Soc.	Outing to Nether Alderley.
26	Aberdeen Photo Art. Club ...	Outing to Newburgh.
26	Halifax Camera Club ...	Outing to Todmorden.
26	Bristol Photographic Club ...	Outing to Crook's Peak.
26	Coventry Photo. Club ...	Outing to Whitley and Baginton.
26	Cripplegate Photo. Society ...	Annual Rummage Sale.
26	Bradford Photo. Society ...	Outing to Esbith.
26	Manchester Amat. Photo. Soc.	"Discussion on L. & C. Union Follo."
26	Hackney Photo. Society ...	Dr. A. T. Lakin.
26	Everton Camera Club ...	"Platinochrom Paper."
26	Cricklewood Photo. Society ...	"Bi-Gum." Demonstrated. The
26	North Middlesex Photo. Soc. ...	President.
		"Flashlight." Mr. Wilfred Emery.
		Technical Meeting.

## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held May 22, Mr. F. F. Renwick in the chair. A paper by Messrs. C. E. K. Mees and S. E. Sheppard was read in summary by Mr. Sheppard. The paper dealt with "The Theory of Fixation and the Action of Thiosulphate in Development." In their experiments the authors had measured the densities of small portions of plates in course of fixation in very weak thiosulphate solution. The piece of plate was placed in the Schultz cell of the spectro-photometer, the volume of solution thus used being 2 c.c.s., equivalent to .006 of a gramme of thiosulphate. To avoid errors from scattered light the observations were made by diffused light from a screen of opal glass, and a filter of yellow gelatoid was also employed to prevent darkening of the plate during or after fixation. Experiments made in this way showed that the addition of potass bromide up to N/10 strength did affect the rate of fixation, which was found to be directly proportional to the concentration of the thiosulphate. Ordinary plates were found to fix more quickly than rapid ones, probably owing to their greater fineness of grain and lesser content of iodide. In regard to the theory of the process the authors concluded that the efficiency of the fixing agent depends upon the stability of the compound, or complex ion, formed with the silver halides. The course of fixation appeared to be governed by the rapidity of the penetration of the fixing solution into the gelatine film: the chemical action was probably very fast compared with this latter process. The velocity of fixation was found to increase up to a certain point and then remain constant.

In examining the fixation of films tanned with formaline the authors found no difference in the velocity of fixation between the tanned and untanned films, nor was it possible to distinguish any difference between exposed and unexposed plates in this respect. Stirring was found to accelerate fixation, and also to modify the course of the reaction.

The authors' general conclusions were that in fixing three processes are concerned. First, the diffusion into the film as a whole of the fixing solution. Secondly, diffusion through the grain of the plate; and, lastly, the chemical action of the fixer.

In studying the action of solvents of silver halides in developers they examined development with ferrous oxalate and with alkaline developers, containing in both cases small quantities of thiosulphate. They ascribed the well-known alleged accelerating action of hypo in the iron developer to the formation of a germ image of silver sulphide from the action of the acid developer on the thiosulphate. In the case of alkaline developers the effect of the hypo is to retard development, similarly to bromide, but much more irregularly. A brief discussion, in which the Chairman, Mr. C. P. Butler, and Mr. C. E. K. Mees took part, followed the reading of the paper.

The lateness of the hour—Mr. Sheppard's summary had occupied sixty-five minutes—prevented the reading of the second paper—"Some Notes on the Sizing of Papers for Printing-out Emulsions," by Mr. P. L. Thornton—but Mr. Thornton summarised his communication in the two words "animal sizing." He then proceeded to demonstrate the properties of the paper "Mattos," in which his ideas of sizing have been carried out. A similar demonstration has been lately reported in our pages, hence we need not repeat the description of the manipulation, except to say that the speaker exhibited a number of prints and a variety of fabrics, in addition to specimens of the new "Mattos" papers now ready for the market. A number of these were of smoother surface than the original papers. A large number of prints were handed round and greatly admired. Mr. Thornton also showed the very simple methods necessary for toning the prints with gold and platinum.

WORTHING CAMERA CLUB.—A most attractive summer programme has just been issued to the members of the W.C.C., including a list of ten excursions and eight monthly competitions. The first excursion took place last Saturday, and the members availed themselves of this opportunity to present Miss Rosa Crouch with an Heyde Actinometer, as a recognition of the help she has given her brother in his work as hon. secretary to the club.

LEEDS PHOTOGRAPHIC SOCIETY.—Dr. Tempest Anderson, B.A., F.G.S., received a very enthusiastic reception by the Leeds Photographic Society, upon his return from Vesuvius, last week. The committee of the Society entertained him to dinner at Powlney's rooms prior to his lecture. After dinner Dr. Anderson delivered his lecture, "South Africa with the British Association," to a crowded audience in the Philosophical Hall.

CROYDON CAMERA CLUB.—The session closed on the 16th inst. with a lecture by Mr. C. E. Kenneth Mees, on some general principles underlying orthochromatic work, with particular reference to the production and properties of orthochromatic plates, of a high degree of sensitiveness to the entire visible spectrum. As the text of the paper will shortly appear in these pages, it will be sufficient to briefly indicate here the salient features so far as they relate to the discussion which followed. The President, Mr. W. H. Smith, in a few introductory remarks, humorously reminded his hearers that when Mr. Mees first joined the club he somewhat failed to appreciate that the ordinary member did not exactly revel in the calculus or other forms of mathematical recreation. Happily, since then, he had stooped to more graphic means of expression and simpler forms of explanation, for which they were all duly grateful. Mr. Mees, whilst admitting the truth of the charge brought against him, hoped that the present and the future would wipe out "the unhappy past" alluded to, and thereupon proceeded with his lecture. The spectra of various plates were first shown, including many by Mr. A. J. Newton. Much interest centred in yet another new plate, being introduced by Messrs. Wratten and Wainwright, which may be broadly stated to combine the valuable properties of a pinachrome, and a pinacyanol bathed plate, without the gap in the green which the latter presents. With this plate, sufficiently good correction can be obtained for nearly all purposes with a  $\times 4$  filter. With a  $\times 8$  filter the intensity and luminosity curves practically coincide. The last filter, Mr. Mees said, was unfortunately apt to fade if exposed to strong daylight. The lecture concluded with a capital diagrammatic method, showing how light-filters acted, and a series of slides representing spring landscapes, by Mr. H. P. C. Harpur. The slides were from negatives taken on bathed pinachrome plates, behind a  $\times 3$  light-filter, and nothing could have more conclusively shown the value of a highly orthochromised plate and adjusted filter for faithfully rendering



landscape subjects at this time of year. Mr. Baldock queried whether any particular screen could be said to have a given multiplying factor. He also thought a differentiation should be drawn between a coloured pigment chart, shown by Mr. Mees, and colours in nature. The eye was a very poor judge of colour; for instance, when using a solution of bichromate of potash as a filter, the eye entirely failed to detect a considerable amount of green let through. Mr. Woodland (a visitor) enquired whether the multiplying factor varied with the time of day. He would also like to know how long bathed plates would keep in good condition. The lecturer, in reply to the above speakers, said that the multiplying factor of any filter was fairly constant to daylight so far as black and white was concerned; neither did it materially vary at different hours of the day, except, perhaps, at sunrise and sundown. Any variation, at all events, would be less than unavoidable errors in manipulation. Coloured pigments and colours in nature acted in precisely the same way, viz., by absorption. Bathed pinachrome and pinacyanol plates had kept perfectly for ten weeks; he could not say more until further time had elapsed. He objected to the use of bichromate of potash in fluid filters, as it cut the blue too abruptly. Mr. E. A. Salt drew Mr. Mees' attention to a report of some observations of Baron von Hübl, it being alleged that academic theorists often lead others astray, as they failed to distinguish between pure spectral colours and radiations from coloured objects, as might produce an identical effect on the visual organs. Von Hübl had instanced chrome yellow as reflecting not only yellow, but red, orange, and green, and had pointed out that chrome yellow and a spectral yellow corresponding in visual effect would have a widely different action on the plate. He (the speaker) had his own opinion as to academic theorists' views in the matter, but would be glad to have the lecturer's. Mr. Mees, replying, said no one theorist, or otherwise, would ever suggest the hypothetical misconception advanced. If chrome yellow reflected back the colours mentioned, then, obviously, all that would be required to correctly translate it in monochrome would be a pan-chromatic plate and adjusted light-filter. Mr. Salt, continuing, enquired whether in three-colour work the secondary spectrum existing in most lenses impaired definition; he should expect to find this to be the case. He next drew attention to a point Mr. Mees had raised a long time ago, as to the lessened latitude a plate possessed when exposed behind a light filter. Had he any figures on the subject? Personally, he had found when working with a filter, one had to be careful to obtain approximately correct exposure. He had also experienced a far greater tendency to halation when employing a filter. Without a filter, the blue rays chiefly acted upon the plate, and being in great measure absorbed by the film, were prevented from being directly reflected back by the glass support. With a filter the blue rays were more or less cut out, and the less actinic rays brought into action; these traversed the film more readily, with possible attendant halation. When using highly colour-sensitive plates with a filter in landscape work, the use of a black backing appeared very desirable. Mr. Mees agreed with Mr. Salt's remarks on halation; the remedy was to back the plates as suggested. An ortho. plate behind a filter had less latitude than when exposed without one, but he would have to reserve a full consideration of this until a later date. The residual chromatic error in an anastigmatic lens did not in three-colour work perceptibly degrade definition, the secondary spectrum being very close to the focal plane; only under very severe and critical conditions would an apochromat show a difference in its favour. Mr. A. J. Newton concurred: a good quality rapid rectilinear met the requirements of three-colour work; in only one case, that being a lens of extremely long focus, had he found chromatic error obtrude itself in practice. He warmly congratulated Mr. Mees and Messrs. Wratten and Wainwright on their latest plate, and in this connection he thought the first-named had exaggerated the fading properties of the  $\times 8$  filter. He had exposed one to bright sunlight for a whole day, and the amount of fading was insignificant under ordinary conditions, and used with care the filter should remain in good condition for a very long time. The President, in proposing a vote of thanks to Mr. Mees for a very interesting and certainly the most important paper they had heard during the session, also acknowledged the indebtedness of the club to Mr. S. H. Wratten, and to Mr. A. J. Newton and Mr. W. J. Smith, of the Bolt Court School. The last-named, he understood, had kindly assisted Mr. Mees in the preparation of his lecture. He was very pleased to see so many visitors present that night.

## Dews and Notes.

**NATURAL Backgrounds in Studio Portraits.**—A correspondent calls our attention to the publication, some thirty years ago, of a process of obtaining natural backgrounds in portraits without resort to combination printing, which is practically identical with that of Dischner, described in our issue of May 4. The process was devised by a Mr. Tilley, of Stafford, was demonstrated by him before photographic societies of that day, and attracted a good deal of attention at the time. A full description of it will be found in "The Photographic News" of September 24, 1875, but we cannot discover that the process ever became generally used. Probably it did not, owing to the fatal necessity of keeping the background transparency out of contact with the wet collodion plate, which was at that time universally used.

"THE Magazine of Fine Arts," the handsome monthly of Messrs. George Newnes, reproduces in its May issue two photographs by R. Dührkoop from the present exhibition at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY. Among other contents in an interesting number are "The Chalk Drawings of William Strang," "Sketches of John Constable," and "A House for an Art Lover."

A FEATURE of the "Country in Town" Exhibition which will be held from July 5 to 19, in the Whitechapel Art Gallery, will be photographs illustrating what can be done to beautify urban gardens, streets, and parks, and our readers are invited to help by taking photographs and exhibiting prints. There are some very beautiful views in some of the London parks, for instance, and no difficulty would be found in obtaining the necessary permission to photograph them. All inquiries should be sent to the Honorary Secretary, Mr. Wilfred Mark Webb, at Toynbee Hall, Whitechapel, E.

MESSRS. GEE AND WATSON send us a reference circular of mechanical tints and stipples which they can offer their customers for use with blocks from black-and-white drawings. The circular illustrates the thirty-six varieties available.

CINEMATOGRAHY Day by Day.—"The Daily Bioscope" is the title of the exhibition of animated photographs to be held at 27-29 Bishopsgate Street Without from noon till 9 p.m. The exhibition is to present events of the day on the screen with all possible speed. The cinematograph arrangements are in the excellent hands of Messrs. Gaumont, and at a Press view which took place on Wednesday last we learned that the intention of the management is to supplement the daily newspaper by cinematographic methods, and to provide cheap and attractive entertainments in all parts of London. At the noon hour on Wednesday the exhibition was thronged with City men.

MRS. ALSTON, of Alston's new process of crystoleum painting, has acquired larger premises for her studios, at 52, New Bond Street, where free demonstrations are given on Tuesdays and Fridays, 11 to 12 a.m.

A FLASHLIGHT Accident.—Whilst assisting Mr. Jaques, a photographer, in taking a flashlight photograph at the Leysian Mission, Islington, last week, one of the assistants, in working the flash, did not get sufficiently clear at the moment of the flash, and was rather badly burned.

MESSRS. CHANCELLOR AND SON, photographers, of Dublin, have been granted a special Royal warrant, appointing them photographers to his Majesty. The warrant comes through his Majesty's Privy Purse Department, and indicates the King's personal appreciation of Messrs. Chancellor's work and services to his Majesty.

An exhibition of colour photography, including a number of specimens, which were recently shown at the BRITISH JOURNAL OF PHOTOGRAPHY, was opened last week at the studios of Mr. Frank R. Moffat, Princes Street, Edinburgh. Sir William Turner, Principal of Edinburgh University, who declared the exhibition open, complimented Mr. Moffat on enabling the public to inspect it. Mr. J. Tudor Cundall, B.Sc., President of the Edinburgh Photographic Society, said he had seen a great many exhibitions of the kind, but he had always come away with a keen sense of disappointment. In many cases the reproductions were excellent, in so far as general objects were concerned, but in the quieter colours of natural objects the process sadly failed. There was evidence in the exhibition of

very great step in the right direction. Flesh tones and landscapes are very satisfactorily reproduced. He looked forward to the time when colour photographs of natural objects might be made in a convenient way.

SELECTION of work by the members of the Linked Ring will be shown at the forthcoming Salon of the Photo Club of Paris.

AN exhibition of photographs, arranged by the Photo-Secession, has been held for the past four weeks in the Pennsylvania Academy of the Arts. To quote from a brief prefatory note: "The pictures, with very few exceptions, been chosen from those which were in a series of exhibitions at the Photo-Secession Galleries in New York during the present season. They summarise in a broad way the trend of that international movement of which the Photo-Secession is the organised American exponent, a protest against the conventional conception of what constitutes pictorial photography." The poster of the exhibition is from the striking original photographically designed by Mr. Edward Steichen for the firm of C. P. RTZ.

## Correspondence.

\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE THEORY AND PRACTICE OF INTENSIFICATION.

To the Editors.

Gentlemen,—Mr. Thorne Baker, in his letter of May 7, accuses me having taken some of his phrases too literally. May I ask what is the precise value of a scientific article that is not to be read literally? His second article he stated, in reference to chromium intensification, that "the bleached" image after washing may be redeveloped in an alkaline-reducing solution, when certain chromium compounds precipitated upon the original silver, etc. If this sentence is not "too literally," but in an ordinary common sense fashion, no interpretation is possible, and that is, that the developer precipitates certain chromium compounds. A second and third thing of Mr. Baker's articles do not reveal the slightest suggestion that the chromium deposit is precipitated by the silver and not by the developer. On the contrary, these re-readings simply tend to affirm my previous idea that Mr. Baker was indulging in pure speculations with regard to a process that he had not investigated and did not understand. He states that he read our articles before writing the subject, and that he does not think his statements "disagree" in the facts we already know about chromium intensification. Mr. Baker is under this impression I am afraid our articles must have been very obscurely worded, and that our explanations must have been very inadequate, for repeated readings of his articles fail to reveal any points of agreement.

I see that Mr. Baker has not yet answered Mr. S. E. Sheppard's query as to the meaning of the so-called densities given in various places. As Mr. Baker has definitely referred to these numbers as densities we may presume that he considers them to be properly described, unless we are again guilty of too literally interpreting his statements. If, however, these really are densities, many of our readers would be only too glad to learn how to measure a density of 27.1, and where to obtain the necessary photometer. If they are, on the other hand, only densities multiplied by ten, as Mr. Sheppard suggested, it would be interesting to know the reasons for so multiplying them, and for still calling the results "densities." As to the process of intensification by rehalogenising the image after exposing it to the light, I can say positively that no such effect takes place when bromine, chlorine, or iodine are the halogens employed, therefore I shall be much interested in Mr. Baker's promised further information. But I may be permitted to hope you will confirm it by practical experiment before proceeding to the next stage of publication.

My experience with the permanganate process is on all fours with that of the continental writer quoted by Mr. Wall, but I see that the same writer suggests the formation of chromate of chromium (chromium dioxide) in the chromium process, and with this I cannot quite agree. The point cannot be settled definitely, as direct analysis is impossible, but we conducted a number of comparative tests that strongly suggested the presence of, not the dioxide, but the tetroxide. These tests lasted over some weeks, and were repeated again and again, and the result showed that while the unknown compound behaved in almost precisely similar fashion to the tetroxide, it was affected by the various reagents to a rather different degree, and at a very different rate to the dioxide, which appeared to be a more stable compound. Here I may take the opportunity of correcting a slip in my former letter, where I referred to the developer reducing the chromium compound to a lower oxide. If the compound is dioxide the statement might be correct to a certain extent, but if it is the tetroxide it is obviously wrong, as that is already a lower oxide than chromic oxide. The precise nature of the change that takes place cannot be suggested. All that can be said is that all these brown compounds are decomposed more or less readily by water and by alkalis, which reagents remove chromic acid, and leave some compound that eventually can be identified as chromic oxide. Similar final results are attained with either the dioxide or the tetroxide, but it is obvious that the mechanism of the change must be different in the two cases.

With regard to Eder's solution, referred to by Mr. Wall, we did not find "no intensification," but only very slight intensification. Small traces of chromium compound exist in the image, but the great bulk of the compound is in the solution, which contains too much acid and is too powerful a solvent.

In respect to uranium intensification, Mr. Baker's recent letter does not seem to be in accord with his articles, where he distinctly recommends different formulæ to meet different cases. I am, however, disposed to agree with him that there is something wrong in the idea that the colour depends on varying the formulæ. The brown colour that is supposed to be due to an excess of uranium I am more disposed to attribute to a deficiency of ferri-cyanide, and consequent incomplete action, for the same effect can be produced with almost any uranium bath if the action is retarded. In bromide toning I have never been able to control the colour satisfactorily by varying the proportions of the ingredients, though it is easily done by varying the dilution. Complete toning always gives practically the same colour in my hands, and properly brown tones are only attained as the result of very partial toning. Good sepias can be produced only by partial toning, but there are several ways of arriving at them. Complete toning gives a red-brown of very constant tone, and a final reducing bath of sulpho cyanide and ferri-cyanide to remove the silver is the only satisfactory method I know of attaining a good red. I once, however, used a ready-made one-solution uranium intensifier, that converted the image into a pure red transparent stain. The composition was a secret, but it was evident that the solution removed the silver, and I think that potassium cyanide was probably an ingredient. It was a useful intensifier, but I never solved its mysteries.—Yours, etc.,

C. WELBORNE PIPER.

### LUMINOUS BACTERIA

To the Editors.

Gentlemen,—In the last number of the BRITISH JOURNAL OF PHOTOGRAPHY you refer to the work of Molisch, of Vienna, on luminous bacteria.

As the paragraph in question is likely to give the impression that this is the first instance of anyone having succeeded in photographing the spectrum of these organisms, I trust you will allow me space in your valuable paper to point out that as far back as 1902, J. E. Barnard published an article dealing with luminous bacteria and containing, amongst other illustrations, one showing the spectrum of these bacteria with a hydrogen spectrum as control. (See "Nature," 1902, p. 536 to 538).

In the same article Barnard points out that the light emitted from these organisms is confined to a small portion only of the visible



spectrum (green and blue), and that it never extends into the ultra-violet or infra-red.

There is nothing new either about the photographing of a thermometer or any other article by the light given out by the luminous bacteria alone. Reproductions of some photographs have been published in dozens of scientific and other illustrated papers. A very fine example was printed in "La Nature," April 6, 1901.

If I remember rightly, the BRITISH JOURNAL printed during 1902, on two occasions, extracts from J. E. Barnard's papers dealing with his researches on luminous bacteria carried out at the Jenner Institute of Preventive Medicine, as it was then called.—Yours faithfully,  
12, Churchill Road, ALEX. CHRISTENSEN.  
Willesden Green, N.W.

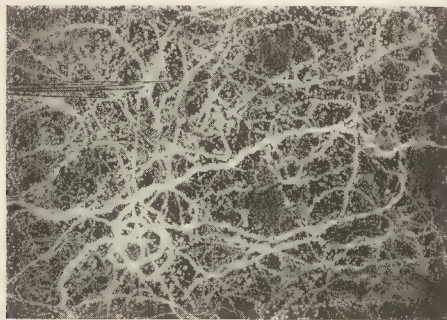
[Reference was made to Barnard's work in our issue of April 18, 1902.—Eds. B.J.P.]

#### A DARK ROOM MYSTERY.

To the Editors.

Gentlemen,—Some time ago I fitted my dark room window with a "Geka" (flexoid) light screen, the flexoid sheet being supported and kept flat by a pane of glass. This particular dark room is used only for the purpose of changing plates, etc., and not at all for purposes of development. It is not in any way exposed to the weather, being built inside a chemical store-room, which latter, however, has no heating appliances, and so is apt to get rather damp during the winter season.

In course of time the flexoid buckled a great deal and contracted right away from the window rebates. At the same time the strange



sinuous white markings shown in the upper portion of the accompanying photograph made their appearance on both sides of its surface.

At first I was inclined to regard this pattern as the spoor of some insect or small animal that had used the flexoid as a pleasure. A friend who inspected the window expressed the conviction that the markings were due to a fungoid growth.

The other day I removed the flexoid sheet and submitted it to an examination. The white deposit constituting the markings was easily detached by gentle rubbing, and on examination under the microscope it showed no traces of a fungoid character. On the contrary, it dissolved very readily in water. This led me to suspect some volatile salt, such as ammonium chloride. I therefore added to the solution on the slide a drop of concentrated silver nitrate

solution. Contrary to expectation, large rhombic crystals (and not a white flocculent precipitate) almost immediately formed. This behaviour indicated the presence of a sulphate, an indication which was confirmed by the addition of barium nitrate and nitric acid to a fresh portion of the solution. The metal combined with the sulphuric radicle is evidently sodium, for the deposit gave a strong sodium flame, and neither the usual group reagents nor Nessler's reagent had any effect in its solution.

Remembering that I had preserved in the original package the surplus of flexoid over that which I had used for the window, I examined it and found that it, too, was covered with markings, which here, however, took the form of white star-like patches, such as are shown in the lower portion of the photograph. The flexoid had been wrapped in tissue paper, outside which came two sheets of cardboard, the whole being done up in brown paper.

The following questions suggest themselves:—

(1) Has any other portion of flexoid had a similar experience?  
(2) Whence does the deposit come? Is it an efflorescence from the flexoid itself or is it derived in any way from the wrappings in which it is sent out? (An aqueous extract of the tissue paper showed the presence of small quantities of S O<sub>4</sub>; I was unable to detect any thiosulphate in the extract.)

(3) Why are the markings on a sheet of flexoid, which has been exposed freely to light and atmospheric vicissitudes, of a totally different character from those which appear on flexoid which has not been so exposed?

(4) Have some of Mr. John Butler Burke's radiobes escaped and taken sanctuary in the dark room? DOUGLAS CARNEGIE, M.A.  
Blackheath, S.E.

#### THE COLOUR OF URANIUM-TONED IMAGES.

To the Editors.

Gentlemen,—Your footnote to Mr. Baker's letter in last week's issue, p. 398, has led me to make a few experiments on this point.

A 10 per cent. solution of pure uranium nitrate, and a 10 per cent. solution of pure potassium ferricyanide, were made up in distilled water and mixed in the following proportions, glacial acetic acid being added in definite and fixed quantity throughout.

Not having H. and D. strips of convenient size, a bromide print was cut into ten narrow strips, and each immersed in the solutions for five minutes, rinsed in water acidified with glacial acetic acid, and dried. The strips were not washed, so that no removal of the uranium deposit by our water (which is intensely hard) could take place.

The solutions were:—

	Uranium nitrate, 10 ccs.	Ferricyanide solution, 1 cc.
1.	10 ccs.	2 ccs.
2.	10 ccs.	4 ccs.
3.	10 ccs.	8 ccs.
4.	10 ccs.	16 ccs.
5.	10 ccs.	32 ccs.
6.	10 ccs.	64 ccs.
7.	10 ccs.	128 ccs.
8.	10 ccs.	256 ccs.
9.	10 ccs.	512 ccs.
10.	10 ccs.	

Each strip was immersed for five minutes. The colour increases in red with increase of ferricyanide, as proved by the strips which are herewith enclosed. I cannot conceive that the nature of the support, that is, paper instead of glass, can have any influence on the colour.

Mr. Baker states that "if the bath containing the excess of ferricyanide be allowed sufficient time to work, the colour of the negative is *precisely the same* as when an excess of uranium nitrate is present." Now, as my strips prove that with excess of ferricyanide the image is redder, it is obvious that a longer immersion, according to Mr. Baker, must produce a browner, that is a less red image.

I enclose also four bromide print strips, which were immersed in a bath of uranium nitrate, 10 per cent. solution, 10 ccs, ferricyanide 10 per cent. solution, 128 ccs, A for five minutes, B thirty minutes, C sixty minutes, D fourteen hours. I presume these times are sufficient.

The difference between A, B and C is certainly easily seen, the

being very much darker, but this is more particularly noticeable in those parts of the prints which were black in the original. Possibly, I should not say they were less red.

At the end of ninety minutes practically the whole of the uranium cyanide had precipitated, leaving the supernatant liquid very clear; still, D was left in fourteen hours, that is all night. The result is certainly darker, and the paper more deeply stained, but I do not call it less red.

Possibly you will give your readers your impressions of these strips. Your correspondent is dissatisfied with these tests and cares to try me with strips of negatives  $6\frac{1}{2}$  in. long and about  $\frac{1}{2}$  in. wide, I am pleased to repeat the experiments.—Yours faithfully,  
E. J. WALL.

In the first series of strips the colours steadily pass from brown to red. That treated in the No. 10 solution is yellowish brown, much paler, evidently as the result of bleaching by the excess of cyanide. In the second series treated for increasing times with solution No. 8 of the first series, that is, with excess of ferric chloride, the colour even of the strips longest immersed are distinctly darker than those of the first series treated with a solution containing excess of uranium. The strips do not confirm the experiments of Mr. Butler, to whom we have forwarded the examples for any comment they may have to make on them.—Eds., B.J.P.]

#### SULPHITES AND THE PYRO DEVELOPER.

To the Editors.

Gentlemen,—In the B.J. ALMANAC for present year, page 699, Thorne Baker gives a formula for a pyro developer, which highly recommends as giving the highest speed and gradation on rapid plates.

Now, while I hardly care to question the dictum of such an acknowledged authority, I must say that, to my mind, there are one or two objections to the formula in question. The proportion of acid is much too large, and the use of sulphite of soda as a preservative of the pyrogallol objectionable. As regards the former, the less the acid is neutralised in the mixed developer, especially the presence of so much alkali, but I would point out that this result in the formation of sodium citrate, in itself a powerful reducer. On the second point—and this view is confirmed by many practical men—I am bound to express the opinion that the use of such preservatives of pyro is a mistake altogether. When you make such a combination may work tolerably well; it is the solution has been kept a week or two that the great drawback is noticed. This is a more or less marked retardation of development, with, if the solution has been long kept, a difficulty in getting detail, the plate having the appearance of under-exposure. This points to the conclusion that while the sulphites undoubtedly retard the oxidation of pyro solutions, they also, in time, bring about some chemical change, which tends to retard development and the power of the reducing agent in producing detail.

In conclusion, I may add that a careful trial of Mr. Baker's formula on rapid plates has in no way led me to alter the opinion above expressed. To those who desire the utmost speed, combined with sharpness and gradation to be got with pyro, I would say always use a fresh solution if possible, or, if you must have a solution that keeps, nothing is equal, as a preservative, to metabisulphite of soda, in the proportion of one drachm to the ounce of pyro. More than this is unnecessary, and such a solution will remain good for a reasonable time without discoloration or undue protraction of development.  
H. C. PARLOW.

#### "PROFESSIONAL COLOUR PHOTOGRAPHY."

To the Editors.

Gentlemen,—I see in the BRITISH JOURNAL OF PHOTOGRAPHY of May 18, page 391, regarding "Professional Colour Photography," a paragraph where Mr. Otto Pfenninger claims to have opened a photographic studio for portrait colour photography in July, 1903. I do not see how he can claim this, for the following reasons:—In 1903, being short of Lumière B plates, and not having

the time to purchase the plates from my usual dealer, I called on Mr. Otto Pfenninger's shop in West Street (it being nearer to my laboratory) to ascertain whether he could get me some. At this time Mr. Pfenninger had certainly a good stock of all the leading plates and films on the market, but Mr. Pfenninger's knowledge of tri-colour photography was very slight, and he was very surprised when on other visits to his shop I showed him some of the results done by the then Jumeaux-Davidson three-colour process. He was at this time experimenting with a well-advertised three-colour process, but he very soon procured particulars of the Jumeaux-Davidson process and practised privately with it.

I frequently visited his studio, it being better adapted for portraiture than mine, in order that he should get a good set of negatives of myself in uniform (scarlet-blue colour test) for Dr. Jumeaux to experiment and obtain good results. This went on for some time, until we wanted more subjects (about July, 1903), when he procured some lady friends (including his wife) to pose for him as a favour, and most of these negatives were taken on a sliding repeating back, with occasional tests with a  $\frac{1}{4}$ -plate one-exposure camera for me. He exhibited in his shop window a few somewhat crude results in colours printed from the above negatives. This naturally caused some interest in the town, but I doubt very much if Mr. Pfenninger ever received a genuine order for a three-colour portrait up to the time he closed his establishment, when he came to me as assistant, or even up to the time I finished with his services.

I quite agree with Mr. Butler's answers to Mr. Pfenninger's letters published in your journal a few weeks ago.—Yours faithfully,

W. N. LASCELLES DAVIDSON, Captain.

(Late 4th Batt. "The King's.")

#### THE STATE OF WINCHESTER CATHEDRAL.

To the Editors.

Gentlemen,—Mr. A. Gandy, photographer, of Southgate Street, has to-day drawn my attention to the par. "Ex Cathedra" of the 18th inst., published in your JOURNAL OF PHOTOGRAPHY, as you state that the builders are at work on no part of the exterior and inside, the only portion to which their operations extend is the intro-choir (kindly note that presbytery is the more correct term). To take the exterior first. Besides the presbytery being propped up on its three sides, i.e., from the south transepts to the end of the building (and by July the east wall of the south transept will be in a similar condition), we have an awning of wood, supported by scaffold poles, over the west entrance. Most probably these supports will not be taken down for at least two years. As for the interior, your statement is quite correct as to the workmen being engaged on the presbytery only; but what does this phrase mean? That the Beaufort and Waynflete Chantries are covered up, including the Clobenay monument, Lord Northide, De Foix, Bishop Summer's cenotaph, the Ladye Chapel, Bishop Langton's Chapel, and the Chantry of Bishop Fox (partly exterior)?

Distant views of the Cathedral (S.E.) can be obtained from the entrance tower of Winchester College, and from St. Catherine's Hill (telephoto), and of the west front from the upper windows of Mr. A. Gandy's studio in Southgate Street, who has, I believe, already offered his services to the Convention, Winchester Cathedral and College, one of the three volumes of the ninety-nine view series, published by Messrs. Warren and Son, the High Street, Is., by post 1s. 3d., contains all the chief views of both edifices, and may perhaps be found useful as a guide to the visiting members of the Convention.

To show you the present state, both of the exterior and interior of the Cathedral, I have great pleasure in sending you a series of photographs recently taken by myself.—I am, Sirs, faithfully yours,  
28, Upper High Street, May 21, 1906. W. T. GREEN.

[We are obliged to our correspondent for correcting a statement made by us on the strength of particulars supplied to us from a quarter which we had reason to think was accurately informed. Mr. Green's photographs show the extent to which the scaffolding disfigures the Cathedral.—Eds., B.J.P.]



## Answers to Correspondents.

- \*\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.**
- \*\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.**
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### PHOTOGRAPHS REGISTERED:—

- G. A. Dean, 14, High Street, Rugby. *Photograph of Butler's Leap, Clifton Road Rugby. Photograph of Brage, Clifton Road, Rugby.*
- J. L. Hopper, 4, Fendle Street, Nelson, Lancashire. *Photograph of Tom Grave Flying the Revolving Wheel.*
- J. J. T. Glover, 124, Stephen's Green, Dublin. *Photograph of Football Team of 2nd R.I. Rifles.*
- A. Rollin, 1, Mayfield Road, Gosforth, Newcastle-on-Tyne. *Photograph of Fire at Saddler's Chemical Works, Middlesbrough.*
- F. Harle, 68, Manchester Road, Hyde, Cheshire. *Photograph of the Hyde Coal Pit.*
- H. Sartoris, Weekley House, Kettering. *Two Photographs of Rushden Hall, Northamptonshire.*
- A. Hinkins, Exchange Street, Retford. *Painting in Oils (Presentation Portrait), of Ex-Alderman Denman.*

I. R. CEDDES.—We do not happen to have any such memorandum by us. Any shareholder in a photographic company you may know will be able to get the memorandum of that particular association for you. Of course, the memorandums of different companies vary considerably.

THISTLE.—As we understand it, the screen of tulle is used on or near the hood of the lens, between lens and sensitive paper, i.e., when enlarging.

TONING WITHOUT GOLD.—Could you kindly tell me through your columns the method and formula used for toning p.c.'s the same as enclosed. I am told that no gold is used, but some sort of acid, and that from 300 to 500 p.c.'s can be toned for the cost of 2½d. Time also is claimed to be saved, and, as the results seem fairly permanent, perhaps you might throw some light on the matter.—POSTCARD.

We cannot recommend you to adopt any process of "toning without gold," for the alleged advantages are illusory. You probably refer to the simple and vile method of adding a little acid to the fixing bath. The results which are due to sulphur toning are not permanent. A better process is that on page 813 of the "Almanac," viz., fixing the prints first, well washing, and then toning in ammonium sulphide.

P. HENDERSON.—We should advise you to effect the exchange.

BARYTA COATING.—1. Will you give a formula for a baryta solution for coating postcards before coating with chloride emulsion? 2. Will the baryta solution require filtering, and what temperature should it be kept at for coating? 3. Are there any books on the above work.—J. HARRIS.

1. Hard emulsion gelatine 90 gr., sodium sulphate (not sulphite) 38 gr., water 5 oz. Allow the gelatine to soak for an hour, then melt in a water bath at 120 deg. Fahr., and add barium chloride 30 gr., water 2½ oz., stirring well. Allow the emulsion to set hard, and then break up into small pieces and wash for about four hours, then drain. 2. Yes, it is advisable to filter through fine linen or flannel, and the temperature should be about 100 deg. Fahr. 3. Possibly "The Photographic Picture Postcard," by Wall and Ward, might help you.

GODD HOPE.—We believe there is a paper published in South Africa. Apply to Messrs. Marshall, Brookes, and Chalkeley, Harp Alley, E.C. We can tell you that most of the better appointments in South Africa are filled in England through the shipping agents, and by advertisements in our columns.

WATER COLOUR FOR PHOTOGRAPHS.—I want to get some dry colours

of various tints, to use as water colours (mixed with water, etc.) for large-sized enlargements. Where I could procure such would ordinary painter's dry colours be unsuitable?—COLOUR.

Powder colours are supplied by all artists' colourmen. You must ask for them ground in water, not in turpentine. Ordinary house-painter's colours are useless for colouring photographs; they are not ground nearly fine enough for the purpose.

WITNESSES' FEES IN LAWSUITS.—I have recently taken photographs to illustrate points in a lawsuit. Then I understand I have to give evidence on in court. The case will be tried in London, and will mean practically a whole day off for me. Would you kindly let me know what is the fee I am entitled to charge for attendance at court (apart from taking the photographs).—LAWSUIT.

There are no recognised scales of fees for experts in law cases. They may range from a couple of guineas to fifty and upwards. These are usually arranged when the expert is engaged. In your case, we expect, you will only be called to prove that you took the photographs. You will get a guinea with the subpoena, and you should arrange with the solicitor for the side you go on as to what further remuneration you are to receive.

RETOUCHING.—S. B. D. (Liverpool).—Very good and long-exposed retouching. The man with moustache has the character and likeness excellently retained, and a difference in touch shown between the female and male studies—which is quite correct, and as it should be. The lady, however, has rather the appearance of "two lovely black eyes," and the depth of shadows might have been reduced with a more pleasing effect. When working a hard quality negative like the other man, make for a looser and more open grain, and a softer effect will result.

B. T. H. (Chatham).—If the bath is not overworked there is no reason why permanent results should not be obtained, even though it contains lead. We advise one without lead, just as we advise separate toning and fixing, but with systematic working the results should be satisfactory in either case. The formula for a bath without lead is:—Ammonium sulphocyanide, 15 grains; sodium chloride (salt), 30 grs.; hypo, 2 oz. water 10 oz. Add little by little, gold chloride 1 grain, water ½ oz.

RETOUCHING (E. E. L.).—Your work has improved so far, but touch and solidity are concerned, since last sending to us, your modelling is still defective. Two months is not a sufficient interval to show much advance. The nose is too flat, requires higher lighting to accentuate width. The chin, however, over-lighted, rendered smaller than natural, and upper curve is much too sharp and cut-out to be correct. Soften all edges, and respect the dimensions of the features, and you will improve considerably. For an eight months' retoucher you show excellent form, and should go far.

INDIA.—We have not examined one of these lenses, but we believe the range of equivalent focal lengths lies between 16 and 24 inches, requiring extensions of from 12 to 24 inches (back to ground glass). Major Puyo, in his book, advises the photographs to be used at an aperture of 1.20th the focal length. Apparently a less separation is needed. If you will let us see the lens we will advise you further.

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## SUMMARY.

exhibition of photographs of flowers and domestic pets, by Stevens, will be opened at the offices of THE BRITISH JOURNAL PHOTOGRAPHY on Thursday next, June 7, and will remain open July 21.

series of novel photographs advertising the chief shops of Geneva been published by a photographic firm of that town. The book- which they are reproduced suggests similar opportunities for photographers able to produce photographs of advertising merit. (P. 425.)

publish a description of the San Francisco earthquake and fire the pen of Dr. d'Arcy Power, of the Western Journal, "Camera t." The illustrations are by Dr. Power. (P. 423.)

preliminary announcement is made of a new printing process, in which several pigment images are obtained from a bromide print out exposure to light. (P. 422.)

has been proposed to assemble professional photographers ending the Convention in July for a discussion of business topics. (P. 427.)

ractical methods in increasing sales, and questions which affect making of saleable portraits, occupied two speakers at the recent convention at Washington, U.S.A. (P. 427.)

simplified method of constructing hand-camera focussing scales is published on page 422.

brief account of the marine home of Mr. F. W. Speaight appears page 429 as an example of taste in interior design, for which Bond Street house of Speaight, Ltd., is noted. (P. 429.)

A paper by Messrs. C. E. K. Mees and W. J. Smith, before the London Camera Club, recently gave directions for the making of a photograph for use with a plate of given colour sensitiveness. (P. 430.)

A lamp for full length and bust portraiture and a new construction of folding cameras are among the week's patents. (P. 433.)

## EX CATHEDRA.

### A Photo-grapher Amid Earthquakes.

This week we are able to put before our readers the sensations of a photographer at the terrific upheaval of nature which in a few hours, directly or indirectly, destroyed a large portion of the city of San Francisco. Dr. d'Arcy Power, who is the writer, is known personally to many in Europe, and to a still larger circle through his contributions to the photographic press and his conduct of a department of the well-edited San Franciscan paper, "Camera Craft." We are sorry to hear that of the assets of the proprietor of that journal only the goodwill and copyright remain undestroyed. Printing plant and office equipment are gone in the ruin. What such a disaster means perhaps only those who have organised a newspaper office can properly appreciate, but no doubt our readers will join with us in wishing "Camera Craft" a speedy return to regular publication.

### Practical Fraternity.

Meanwhile, photographers in the United States are responding to the appeal for help for their 'Frisco brethren. New York professionals have contributed 670 dollars, those in the Rochester district 580 dollars, and the manufacturers have come down with donations of money and goods, the list being headed by the Eastman Kodak Company, which has delivered fifteen hundred dollars worth of materials and apparatus to San Francisco. These first fruits of an appeal to the photographic community are being steadily supplemented by donations accumulated by businesslike methods, and the total result, it is anticipated, will minimise the disasters to the photographic inhabitants of the Western capital. The victims of the fire, however, if they lack money, are not overwhelmed by their calamities. One man, with almost the humour of the shopkeeper who announced on the smoking ruins of his premises, "Slightly disfigured, but still in the business," writes that he has lost everything, including his books, but says he has still nerve to get another outfit and "go at it again." Also he sends to New York a ten cent piece for a copy of the "Photographer." It is a grim bit of humour. Imagine Birmingham in flames and a photographer forwarding twopence in stamps for his B.J.

### The Cape Town Society.

From every point of view, except the financial one, the recent exhibition organised by the Cape Town Photographic Society was held to have been completely successful, and it is therefore satisfactory to put on record that, by the efforts of the Society and the assistance of its friends, the deficit of considerably over a hundred pounds which was left at the close of the exhibition has been almost entirely wiped out. The report of a recent ordinary



meeting of the Cape Town Society suggests a very healthy condition of things. Accessions to the membership and to the life-membership are reported, and the support of many interested in photography is evidently being accorded to the executive, which is to be congratulated on having just acquired a new home for itself in the Old Town House of Cape Town, where a reading room and other facilities will be at the disposal of members.

### The Photographic Convention.

From the secretary of the Photographic Convention of the United Kingdom, Mr. F. A. Bridge, we are glad to hear that the prospects for the forthcoming meeting at Southampton are of that degree of brightness which should precede the celebration of the twenty-first anniversary of the Convention's inauguration. The Southern rendezvous—if we are to judge from applications for membership—promises to be highly popular, and to be attracting members whose faces have not been seen at Convention gatherings for some few years past. Indeed, the only cause for anxiety is likely to be the appropriation of accommodation for all those who will be in Southampton during the Convention week. The town, of course, has a large hotel service, but a good deal of it is naturally reserved for the passengers travelling by the liners. Hence the advice may be opportunely given to reserve rooms, and, at the same time, to notify the Convention secretary of intention to take part in the meetings. The task of providing for the wants of two or three hundred people is made considerably easier if the exact numbers are approximately known beforehand, and for this reason those who express their intention to visit Southampton will not only be doing the best thing for themselves, but will be oiling the wheels of the machinery which is to carry out the desires of the whole body of Conventioners.

### Business Matters at the Convention.

The suggestion conveyed through a letter from Mr. Bridge, which appears in another column, is one which we hope will prove possible of execution at the Southampton meeting. The photographic profession is usually represented by a number of men well able to discuss such matters of business importance as have occupied the conferences of their confrères in the United States, and even if the numbers which may be expected to take part in such proceedings is not as large as in America, it will be a good beginning for the Convention, and will lead to increased interest being taken in its programme. It is not to be expected that at such comparatively short notice the discussion of business topics can appropriate any considerable share of the Convention's proceedings, but we take it from the secretary's letter that a meeting might be arranged which would not interfere with the engagements of the main body of conventioners. At any rate, we hope that the suggestion will not be lost sight of, and that it may be kept before the Council of the Convention in arranging fixtures for another year.

### Carbon via Bromide.

Something of a sensation is likely to be created in photographic circles in the course of a month or more by a development in pigment printing, which owes its existence to Mr. Thomas Manly, the inventor of the well-known ozotype process. It is nothing less than a process by which one or more carbon prints or enlargements are obtained from a bromide without exposure to light, and without the intervention of a negative. The method, which is distinct from catatype processes, of which much has been promised, but by which, also, little in a practical way has been achieved, has, it need scarcely be pointed out, the very widest com-

mercial possibilities before it among professionals (more perhaps than among amateur users. Any notice of the principle of the process must be reserved for a more convenient occasion, as must also the announcement of commercial channels through which the process will be accessible to the photographers. We shall have more to say of the process the moment information is available for publication. Meanwhile these few facts will give readers quite sufficient food for thought as to the way in which such a process can be turned to profitable account.

### A GRAPHIC METHOD OF MARKING FOCUSSED SCALES.

THE ordinary methods of marking focussing scales are somewhat unsatisfactory when a scale showing a fairly close series of distances is required. It is seldom possible to mark more than a few near distances by actual measurement in the camera, while any method of calculation gives a series of small dimensions in fractions of an inch which cannot be readily set out. Perhaps the most usual method is to ascertain the infinity mark, and also the scale mark for some near distance, and then arithmetically divide the space between these two marks by observing the ratio of the scale distances from the infinity mark to different divisions are inversely proportional to the distances they represent. Under this rule a division halfway from the infinity mark to the 5ft. mark represents 10ft., while another at a third of the distance represents 15ft., and so on. This method has the defect that it only enables one easily to arrive at marks representing certain distances. Thus, in the case assumed, a mark representing any simple multiple of 5ft. will be readily arrived at, while other distances that are not simple multiples are not easily allowed for. It seems, however, to have hitherto escaped notice that there is a very simple geometrical solution

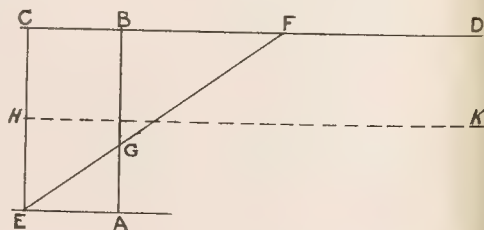


Fig. 1.

of the problem, and that the space on the scale between the infinity mark and any other mark representing a near distance can easily be so divided as to represent any required distance in feet, or even fractions of feet. The method is quite accurate in principle, and any error that exists can only be due to peculiarities of the lens. The procedure is as follows:—

First ascertain the infinity mark by focussing on a distant object. If the distance is 500 times the square of the focal length, the infinity mark can be fixed within 1-500in. of its true position. Next ascertain the extension of the camera beyond the infinity mark when focussing on an object at some definite small distance from the front principal focus of the lens, say, for example, 5ft. This gives the scale length from the mark representing infinity to that representing a distance of 5ft. Let this scale length be represented by the line AB in Fig. 1, A being the infinity mark and B the 5ft. mark. Through B and at right angles to AB draw the straight line CBD. Then take any convenient scale of feet (a small scale, such as 1/2 in.

16in. to the foot, is best), and from B to C set off a distance of 5ft., which is the distance represented at B. The figure, B C equals 5ft. on the scale of feet. Next draw C E, parallel to B A, and from A draw A E parallel to C B D. These two lines intersect in E, and they complete the geometrical construction. Now suppose we want to put a mark on the scale A B representing a distance of, say, 14ft. From C set out along the line C B D a distance, C F, equal to 14ft. by scale, and join E F. The line E F cuts A B in G, which is the position on the focussing scale of the mark representing 14ft. It is thus possible to represent any distance whatever, within reason, on the focussing scale A B, and distances less than 5ft. can be shown if A B is produced.

For very long distances are required it is most convenient to set them out, not on C D, but on a parallel line, half way between C D and A E. In this case, if an intermediate scale is used for C D a 1-16th scale should be used on the new line, H K, all measurements being made on H. If, however, two scales are not available, one may be used, the distances being halved along H K. For example, suppose we wish to mark the focussing scale 40ft. If C D is not long enough to permit a distance of 40ft., to be set out along it with a  $\frac{1}{16}$ th scale, we can either set out 40ft. on H K, with a 1-16th scale, or 20ft. on the line with the  $\frac{1}{8}$ th scale.

The advantages of this method of dividing a focussing scale are obvious. There are no troublesome calculations, and one is absolutely unfettered in the choice of distances, any one distance can be shown just as easily and accurately as any other distance.

By a slight modification, a diagram serving as a universal focussing scale adaptable to any lens is easily produced. In Fig. 2 the line C D is divided into a scale of equal parts representing feet, and from various selected points on that scale lines are drawn to the point E, which is situated vertically under C. To use this scale, find by

test in the camera the length of the focussing scale between the infinity mark and any other mark representing a near distance of, say, 5ft. Then tick off that length on the edge of a strip of paper, and lay the strip on the diagram parallel to E C, and with the infinity mark on the line E M (which is parallel to C D) and the 5ft. mark on the line joining E to 5ft. on the scale C D. One can then tick off on the slip the intersections of the various lines radiating from E, and mark the ticks with the distances given on the scale C D. A supplementary intermediate scale (constructed as before described) gives the distances from 40ft. to 80ft. In making such a diagram as this the exact distance from C to E is of little consequence. If

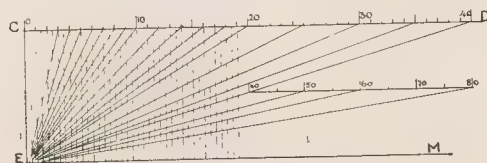


Fig. 2.

insufficient to admit the paper scale made in the camera, the dimension lines radiating from E may be produced upwards. The vertical dotted lines are simply to facilitate placing the paper slip parallel to C E.

By a further modification a scale of focal lengths can be added, and then, without any camera test at all, a focussing scale can in a few moments be ticked off that will fit any particular lens. This scale of focal lengths renders the diagram rather intricate, and introduces very minute divisions. It is extremely convenient for drawing a magnified focussing scale, but is hardly practical for a scale of actual working size, therefore it is not shown. Moreover, it is generally desirable that the limits of the scale should be settled by actual tests in the camera.

## THE DESTRUCTION OF SAN FRANCISCO.

SAN FRANCISCO, like most modern American cities, was a place of immense buildings. I am fairly well acquainted with the great capitals of the world, and there are few of them that could vie with her in beauty of site or in the imposing appearance of some of her architectural effects. Her great mansions, perched on commanding hills, backed by the setting of distant mountains, the great and beautiful shaft of the Call Building rising from the valley containing her business centre, and the enormous mass of the Fairmont Hotel flanking one of her best hills, presented an ensemble that, viewed from the heart of the town, was only equalled by some of the attempted reproductions of Imperial Rome. The morning of April 18 rose with all the placid beauty of a perfect spring day. I occupied my room on the fourth floor of one of the largest brick structures in the city, and was just about to arise, when, without the slightest warning, the whole house lurched violently to the north. Earthquakes are old acquaintances, for, though the newspapers seldom refer to them, no Californian is disturbed by seeing the chandelier swing; therefore, the first blow, violent though it was, did not alarm me. What followed no words of mine, or any human pen, can adequately describe. It seemed as though that massive building, containing over a hundred rooms, was in the hands of a colossus, who, holding it by the four corners, was wrenching it, first this way, then that, until it broke in pieces, as a man might tear apart a match-box. The walls rocked and crashed, the

floor heaved and buckled, the chandeliers and ceiling fell in on us. Time is a question of relation. There are hours that pass as minutes, there are moments that grow to hours. For sixty seconds, an eternity, that fearful movement continued, accompanied by a pandemonium of sound that haunts me still. To the roar of the earthquake, like to that of a mighty wind, was added the crash of hundreds of tons of masonry. The three storeys above my head, separating at the line of my ceiling, were hurled into the street below; the immense dome, the mighty pillars, and all one side of the great City Hall (a pile larger than Westminster Abbey) fell in thunder to the ground; two brick apartment houses, of many storeys, crashed into a heap of debris before our eyes. Not even the thunder of a bombardment can approach the terrific effect of that awful crash. It was useless to move. We lay silently awaiting the death that seemed inevitable, when, suddenly as it had begun, the earth rested in silence. Seizing some scant covering, we rushed through escaping gas, clouds of plaster, and streams of water, into the street. The debris of the upper floors lay piled across the road, covering the bodies of two it had overwhelmed. The ground was dangerous with broken electric wires; and through the air, dim with the dust of fallen palaces, the skeleton frame of the great dome hung awry, an embodiment of the universal ruin. I had no camera to record that first terrible impression, and it is doubtful whether any record was made; yet few



subjects could offer a more dramatic field for a great artist than the wreck of that mighty building standing in its yellow cloud of dust against the tender blue of the opening day.

Such was the great earthquake. As we sought safety in



Effects of Earthquake on the City Hall, San Francisco.

another part of the city we had an opportunity of observing its effects. These varied greatly, in accordance with the character of the buildings and the local nature of the earth. Thus wooden frame buildings never collapsed, unless they stood

The newly constructed buildings made of steel frames covered with bricks were generally unaffected, and no greater testimony to the value of this mode of construction could be afforded than the great tower-like structure of the Call Building standing erect and perfect, 270 ft. above the street. It was the plain brick buildings that suffered the most. In many cases they collapsed entirely; in others, owing to the direction



A Common Street Scene in San Francisco after the Earthquake.

the force, the north and south walls fell out, leaving the floors in position. Brick cornices almost invariably fell, and often carried the supporting wall with them. Examples of these effects will be found in the accompanying illustration. If the effect of the earthquake on the buildings was remarkable, it was no less so on the solid surface of the earth. The crust, including the rigid surfaces of the streets, moved



Four Square Miles of Ruins—San Francisco after the Disaster.

on piers rotten with age, when in some cases they broke up into masses of kindling wood; these buildings usually have brick chimney stacks, and these were invariably thrown down, often passing through the roof, and doing great damage.

billows like those of the ocean; and there are regions in the city where the ground did not return to its original even surface, but remained like a frozen sea, rising in hummocks and broken by deep fissures. The earthquake

ruined all, it terrified many, and it killed a few; but, taken as a whole, the direct loss in lives and property was not so great. Had nothing else occurred, we should have rebuilt new structures, moved out of old brick buildings, and gone on as usual; but, before ten minutes after our escape from the wrecked building, I looked over to the south side, and there five columns of smoke ascending. The conflagration had begun. This caused neither surprise nor concern, as the department of San Francisco is one of the most efficient in the world. That the fires would be out in an hour was the usual expectation. Alas, within an hour the five isolated fires were a devastating wave sweeping southward before the wind like a prairie fire and creeping northward like a glacier. The earthquake had destroyed the water mains, and the fire department was powerless. Then followed confusion, panic, and destruction. The fire department could use dynamite, but not dynamite. Tinkering, spluttering attempts were made to check the advancing ruin, but no organising, no competent head guided the use of the only agent that could have saved the city. It would have been, in the early hours, easy to isolate the advancing fires by cutting a broad area of destruction across their path; and, unfortunately, such a course saved the remnant now left standing, but it required the bitter experience of two days to discover that fact.

During the first day houses were blown up here and there, usually after they were in flames, and the dynamite never aided than checked the destruction. From the roof of a house on a high hill in the centre of the town I watched flames spread in a mighty crescent over two miles from tip to tip, and sweep back to the bay, licking up like dry grass the homes of thousands of working people, who trudged wearily on with little or nothing. Hour after hour the long procession streamed countrywards, a depressing and melancholy sight. Then the two horns of the crescent struck northwards towards our place of refuge, and we were compelled to move

farther west. Before I left, I saw the house I dwelt in go up in flames, and with it most of my property, all the results of my labours in photographic art, and over two thousand negatives. I went to the house of a medical friend, and spent the night in watching the advancing fire, and in comforting the sick that had been transferred here from his sanatorium.

Towards five o'clock in the morning the fire was again near at hand, and we were compelled to take final flight from the ruined city. Like thousands of others, all my property, including the art accumulation of years, had gone in the flames. That morning the beggar and the millionaire met on common ground: they alike had nothing.

For yet two nights I watched from my country house, twenty miles away, the glare of the fire, and constantly picked up fragments of paper carried that distance by the wind. Over all that area, and farther, the ashes descended in quantities sufficient to whiten our roofs. Such was the burning of San Francisco!

Viewed as photographic subject matter, it was too large for adequate portrayal. The lines of fleeing people, the scenes of activity around the burning buildings, were, on the other hand, the very best of material for the clever snap-shooter. How far the opportunity was utilised I am, as yet, unable to say; most of us were too deeply concerned in saving our families or property to give much heed to the greatest photographic opportunity of our lives.

If the fire, as fire, offered little to the photographer, it gave to the painter lessons in colour and aerial perspective such as yet has never appeared on canvas. As that vast mass of smoke and vapour rose through the singularly pure atmosphere of a lovely spring day the sun gradually took the aspect of the orb when viewed through smoked glass. Finally, about mid-day, a most remarkable appearance presented itself. The solar disc assumed a tint of the most violent red.

H. D'ARCY POWER.

## A TOWN'S PHOTOGRAPHIC ADVERTISING.

I have spoken on several occasions of the photography which is now done for advertisement purposes, pointing out that such appli-

graphic matter with greater freedom in their announcements, usually combining the photograph with artist's line or wash drawing, by



At De Bay's (Articles of Toilet).



A. Wallner-Muller, Optician.

tion of photography is greatly on the increase, and represents, at present, a remunerative field of work. Every month sees the chief advertisers in the large weeklies and magazines using photo-

contrast with which greater strength is given to the subject proper of the advertisement. One objection which has been urged by photographers to whom such work has been recommended has been



the very legitimate one that it was extraneous to their business, and while it might put a few pounds in their pockets from time to time it did not in any way help along their regular profession in their town of residence, and for this reason might cost them more



au Maison Bertrand.

than it brought in by diverting their energies occasionally into other channels.

Those holding this view may be glad to have their attention drawn to the scheme of a Swiss photographer, Mme. L. Fueslin-Rigaud, of Geneva, which should handsomely repay the photographer for his work, and at the same time be the means of making him widely and favourably known in his town. The essence of Mme. Rigaud's plan, which possibly may have been carried out in other places, is a booklet of about twenty pages, advertising indirectly and in an uncommon way the principal shopkeepers of Geneva. The booklet contains letterpress and half-tone illustrations in equal proportions, is well printed on art paper, and is, we presume, distributed free for the photographer. The outside cover bears no indication of the very commercial mission of the publication.

It is entitled "La Rève d'Yseult," and the letterpress recounts in very readable fashion the dream-experiences of this young lady, in the course of which she has the gratification of visiting a selection of leading shopkeepers in Geneva, and purchasing necessities and luxuries befitting a lady who dresses well and has a fine house. Thus, Yseult soon finds herself at the confectioner's (Maison Finay), where she partakes of ices and purchases chocolates, whilst an elegant gentleman engages her in agreeable conversation. The need of

articles of toilet brings her to De Bay and Co., whose establishments and specialties are the subject of an appreciation by the writer of Yseult's adventures, in accompaniment of the photograph by Mme. Fueslin-Rigaud, which we reproduce. In the evening Yseult is to occupy a box at the opera, preliminary to which a call is paid at the opticians for lorgnettes for herself and a pair of glasses for her companion. The imaginary incident elicits the information



Shopping at Badan & Co's.

that the optician, Wallner-Muller by name, offers a discount of 10 per cent. during the Christmas shopping season. Thoughts of feminine attire which come to Yseult in her dream transfer her to the corsetier, from whom, to her delight, she is able to obtain a corset which gives her no discomfort in moulding her figure to the fashionable shape. Silks and frou-frous of the "dernier chic" are likewise sought by Yseult at the firm of Badan and Co., and so, altogether twenty-four establishments she satisfies the cravings of a modern woman and provides herself with innumerable good things to eat, drink, and wear upon her person.

The four photographs of this series are reproduced by permission of the successor to Mme. Fueslin-Rigaud, M. Louis Minner, Cours de Rive, Geneva, by whom the issue of another booklet on the lines of "La Rève d'Yseult" is in preparation. As may be judged from the reproductions, the quality of the photographs is of the somewhat high standard required in prints intended for advertising purposes, and it is noteworthy that many of the subjects might be used for other advertisement purposes than those for which they were originally taken. In more ways than one, therefore, the producers have profited by their enterprise, for the booklet, with its twenty-five attractive photographs, has no doubt benefited the business of those responsible for it as much as it has the various firms to whose goods attention is drawn in its pages. It may, perhaps, be of service to some of our readers if we mention that M. Minner is open to accept an offer for the right to reproduce the series in Great Britain and the Colonies, an offer which might easily repay advertisement agents and others able to place the photographs in suitable quarters.

**SOUTH Essex Camera Club.**—Mr. Walter D. Welford, President of the South Essex Camera Club, will conduct a party to Belgium in August next at an inclusive cost of £6 only. Arrangements are also made for single week trips.

**PHOTOGRAPHIC Picture Postcards.**—Of late it has not been an uncommon thing for a householder to be approached by a photographer's agent with an offer to photograph his house and reproduce it in the shape of picture postcards. This demand for private picture postcards, if new, is a growing one (writes the "Daily Mail.") The London Stereoscopic Company, of Regent Street, is experiencing it, and, apart from the thousand or so copies of a country house ordered by estate agents with a view to business, not infrequently gets orders for smaller numbers from private individuals. Many ladies have ordered photographs of their pet dogs to be reproduced as postcards,

which are sent to their friends. Photographs of private individuals are also treated in this fashion. The cost for these hand-printed cards in the bromide process is £5 5s. for 500, including the sitting. Now that sensitised postcards can be obtained for 1s. a packet at any photographic dealer's, hundreds of amateurs print from their own negatives. Many professional photographers take a portrait and reproduce it as a postcard at the rate of 3s. 6d. a dozen.

**THE Borough Polytechnic Society.**—We are asked to state that the present secretary of the above society is Mr. W. F. Harrap, who has succeeded Messrs. Francis and Wynne. The society's address is 103, Borough Road, London, S.E.

**THE late Mr. Matthew Boak**, of 66, Lyell Street, Scarborough, Yorkshire, retired photographer, and formerly in business in Bridlington and Driffield, left estate of the gross value of £6,486.

## BUSINESS TACTICS AND SALEABLE PORTRAITS.

(Two Papers read before the Washington Convention of the Photographers' Association of Pennsylvania).

trouble with many photographers of the better grade (and those who attend conventions belong to this class) is that we are poor business men, or, what amounts to the same thing in the end, is that we do not give the business end the attention that we should.

Sometimes we allow outside matters to dominate our attention to the detriment of our business; when this is the case, we should as soon as possible draw out of this condition of things. Again, with those who make their own sittings, and do much other work of the studio, it is hard to find time to develop the business. The economical employment of time, our own as well as our assistants', with a good system of accomplishing this, would largely help to get some time each day to give to this matter. If we employ assistants, then it should be easy of accomplishment.

### Offer Something Better.

One very good and impressive way to increase sales is by the work we produce, and if care is taken and good judgment displayed, it could be most effective. When you have patrons who are able to do anything in reason for worthy things, arrange to make different sittings in addition to what they desired in the first place, but make them "winners"—something that will be sure to please. They may, in the first place, have thought only of having work of the value of ten or twenty dollars, or even a smaller amount, to fill a want for photographs that has come up. It rests with you in addition to the supply of this demand, to enthruse them by the result of the sitting, as shown by the proofs submitted. When finished with them in the studio—and this should be done within a reasonable time—tell them that you would appreciate it greatly if they could call in the next day, for you would like to look over the proofs with them. Mention to them that you have in addition made something a little different from what they desired, because it appealed to you as presenting great possibilities, and you would in consequence like to see how they come out. Do this, and if you are personally a good salesman you will get the goods; if not, let your expert receptionist do so. Everyone likes to receive personal attention, and everything that savors of it, especially so if it impresses them that it is unusual on your part. By this means, you see them first when they receive the proofs, which is always an advantage, as you have an opportunity to adjust any adverse opinion as to their merits, before their friends have possibly raised a feeling of dissatisfaction, which is hard to eradicate. It also enables you to coach them as to what changes could be effected to improve them, which information could be conveyed by

them to those who sit in judgment over the results of your labours. In this connection, I am strongly inclined to think that it is inadvisable, when a would-be patron comes to our studio to make an appointment for a sitting to do anything more at that time than to show her an assortment of interesting things, leaving the matter of final selection and the exact decision to be made later.

### Make Sales at an Interview.

In a general way, if information as to prices are asked, quote them clearly and carefully so there will be no misunderstanding come up, or the integrity of the studio questioned. When the patron comes to fulfill the engagement, ascertain her wishes, secure your deposit, and arrange if possible to have them bring in the proofs, at which time only should sales be made. If this cannot be done, then make the sale at the time of sitting. Results are always most successful by personal intercourse when the proofs are returned, otherwise you endanger the success of your "building methods" in the studio.

I mentioned, a short time ago, about having the patron come in next day to look over the proofs with you. If possible, make an appointment with them for the purpose, say from 4 to 5 or 6 p.m., when the sittings for the day are over, and let this hour or so be devoted daily towards increasing your output. This would be one of the directions in which it could be done, being the simplest, most effective and economical. I often hear of patrons coming to a studio and not being able to see the proprietor because he is busy developing, —a most ridiculous state of affairs, neglecting something that might increase his sales for that which could be done at another time.

If you have a tactful and efficient saleslady, your presence will not be asked for, unless important. Do not 'phone down stairs "that you cannot come, as you are busy with your chemicals," etc.

One of the most successful men in our profession to-day—one who is also famous as a workman—has for years made it a point to be at his studio certain hours the later part of the day. On one occasion when in that city for a day, I went to his studio about 5 p.m., to talk with him prior to a dinner appointment we both had. While waiting for him to be at leisure, I saw him angling, and finally securing an order for a large picture and frame for \$150 from a customer who called to see him by appointment to talk over his sitting of the day before.

This is the result of a system founded on good lines. With a haphazard way of doing things, the proofs might have been mailed, and my friend might have been developing. The opportunity for which he planned would then have been lost.

CHARLES WESLEY HEARN.

### SALEABLE PORTRAITS.

offering my service to you on the subject of saleable portraits, I would divide the photographic trade into three groups or classes: The impressionistic man, the modern photographer, and the conventional photographer.

Now the question is, which of the three groups or classes of photographers are the most successful ones from a business standpoint of view? By analysing their conditions, we will see that in each group there are some more successful than others, inasmuch as they have different ideas as to what should be offered to the public. While one class photographs—plain and simple—and gets the trade, another combines art with common sense in his work and sells his pictures, and the third one produces pictures of a high æsthetic and pictorial conception, and also sells them. We will not discuss the last-named photographer for the time being, but will take up the former two, and, in speaking of them, we will see that next to the quality of work they produce, nothing is more essential than the manner in which they display the work to the public. The display in their show-cases is a very important matter, and in this connection I would say there are a great variety of methods.

Very often we find among the conventional photographers the same kind of pictures displayed in their show-cases year in and year out,

and if it happens that they do make a change, the styles of the pictures are the same. He has fallen into a rut, and digs on day by day in the same way, and if you should comment on it he usually confronts you with the reply that times are hard, he has no money to spend on improvements; little thinking that with improvement in the treatment of his customers things in general would be bettered. While in other places you will find all the latest processes employed, and displays of a large variety of work on view to the public, something, in fact, to please everybody. It makes but little difference as to the size of your show-cases, keep your display down in number, but high in quality, and change often. The public at large are attracted by tasteful displays in your show-cases.

### The Show-case Inducement.

When you exhibit only a few pictures at a time, it stands to reason that when a change is made it is all the more noticeable. Another important item is that you should have your studio just as tidy and as neat as you can make it, and your show-case should be so arranged that the public will become fascinated by it, and to such an extent that they will venture into your studio, and your opportunity should then begin; as we all know, human nature requires



some coaxing. The best method to pursue is to study your patrons and get an idea of their tastes and their ideas, and then put the proper pictures before them in the proper manner. We have all found in our experience that prospective customers are not always decided as to what they want, and yet they are willing to spend a little money. Therefore, the next important thing for us to do is to employ the services of a good receptionist. To sell pictures is a born tact, and not one that is easily acquired. You cannot use too much care in the selection of your receptionist for the simple reason that, if a mistake is made in the lighting or posing of your sitter under the skylight, there is a remedy, of resitting; but, if a mistake is made in the handling of your patrons in the reception room, and they are allowed to leave your studio dissatisfied, there is no remedy. The incident is closed to the detriment of the business. In view of these facts you can readily realise that it is of vital importance to have a qualified receptionist.

### A Protest Against Cheapness.

Charge all your work is worth, and always strive to improve the quality of it, and to see how good and not how cheap you can sell pictures; for the public to-day stands ready to pay more for good photographs than ever before—as its taste has become more cultivated. Put as much energy in your work as you can, thus advancing the standard of same, and do not try to outbid your competitor in low, ruinous prices. Following out this course your success will be assured.

I feel quite positive that here among us there are photographers who started to make pictures at about \$3.00 per dozen, but by diligent application to their chosen vocation are to-day, perhaps, among the honoured and successful ones in the profession, and who are obtaining prices as high as the highest for their pictures. To such men is due the highest respect, for it was through their continued effort to the betterment of their work, and also through the love of same, that has crowned them with success, for no man can do justice to himself and his work unless he loves it.

Now let us take up the photographer himself, taking for granted that his shop and his personal abilities work in harmony with his reception room. We are now entering the place, where he gets results—and how he pleases his patrons. We must admit that manners and good tact are very desirable factors, yet the desired results cannot be obtained with them alone, but they must work in conjunction with his camera and the subject before him; he must carry out all the promises made by his receptionist.

Treat your sitter under the skylight in a most natural and simplified manner; use the simplest means of lightening or posing of the subject, and arrange the lights in a most unpretentious way, and at the time you make your exposure see that their faces have the most pleasing and natural expression. In other words, they should be absolutely relaxed at the time you expose your plates—and this is just what will please your patrons at all times. It is quite natural that your sitters do not always bear the same expression in their faces, therefore if we produce a picture that represents their most pleasing attitude, their most natural expression, we have given to them something that will always appeal to them, as it is human nature to want to be pictured in the most pleasing manner, and if you have succeeded in gratifying that desire they will advocate your work to their friends, and in that manner you convert your patrons into agents who will work in your behalf and make you popular, which is an incentive to prosperity, and you can then gradually increase the sale of your pictures by securing the confidence of your patrons, which is absolutely necessary for our existence—thus is the way to ascend the ladder, and there is always room at the top.

### The One-man Studio.

Now a few words about the impressionist. While he stands in an entirely different class by himself, it would hardly be necessary to analyse his peculiar condition in the way of selling his portraits. He enters into our profession as a dilettante, and, being an amateur, he learns to do things in his own peculiar way. He is a man of culture and refinement, and, above all, he is gifted. He takes up photography as a hobby, combines in his pictures all the artistic and æsthetic elements, he exhibits those pictures in various salons, acquires recognition, with the following result. His friends begin

to coax him to photograph them and they are willing to pay the price he puts on his portraits. He doesn't need any receptionist, display, or shingle at the entrance. You will find him in a quiet quarter somewhere in the skyscrapers or on top of the stairs or on the skirts of the city, having his shop in a most unique way, making portraits at an ordinary window. He employs no help, has had no expensive worth while speaking of, does not seek popularity. In fact, he plays more than he works, and produces results which humble professionalists are looking up to as towards a Mecca. Most of them don't depend on photography as a means of a livelihood, yet while the demand for their work increases among their friends, they are compelled to become professionalists. While their pictures are peculiar ones, they still have the feeling of fine art, and we are amazed to see what wonderful things are created by them to-day. They only sell single pictures to their friends, and procure high prices for them. While they are new in the photographic profession, I foresee the greatest material success for them in the near future, inasmuch as from an artistic standpoint their pictures are fit to be purchased at any price, not only by the subjects themselves, but as masterpieces.

### A Commercial Fusion.

While it is true that the taste of the public has been developed, it has not developed to such an extent that the art and the value of the impressionistic photographer is yet fully appreciated. There is a demand to-day for a kind of picture which merges those two peculiar extremes—the conventional photographer and the impressionistic photographer. Therefore, modern photographers, from a business standpoint of view, must have the same essential system as the conventional photographer, namely, the display at his entrance, the specimens in his reception room, and the salesmanship. He produces, he makes pictures which, photographically speaking, have a sufficient amount of technic, and yet are of such high refinement that it puts them in a class by themselves.

### The Modern Photographer.

Let us take a peep into the method of how the modern photographer sells his pictures. We know that he is a technical man. He can at any time make good ordinary photographs. He is the man who never fails to attend the convention; he never misses an opportunity to visit an art display of paintings and engravings. He is the man who subscribes to photograph magazines, reads them, too, which is a very important feature; he visits his competitors, never asks what developer is used or what plate is used, never pries into the secrets of another man's formulas. Why? Because, he has a good intuition and grasps things at first sight. When approaching his patrons he is not simply polished in his manners, but he makes you feel that he is a man who always deliberates before he starts on his work. That intelligence you can see in his establishment. He does not buy a thing simply because Mr. So and So uses it, or because it is a novelty; he does not change mounts according to the seasons, nor does he fancify his works. He is an earnest man and gives his patrons all the benefits of his intelligence. He very seldom submits to the taste of his patrons, unless they are essential to him or experimental. In other words, he is honest to himself, he makes things the way he likes them, and not the way the public demands them. He is the master of the situation, and while most of them have originated from the rank and file, to-day they keep in the profession that standard which is envied by the conventional photographer. That class of men, outside of selling their pictures at a profit, is growing in the profession. They are becoming leading men in their cities, not so much in wealth, but as professional people, because the conventional photographer is simply a tradesman, the impressionistic man is an artisan, and the modern photographer is a professional man.

### Capitalist Photographers.

In direct opposition to the cheap John picture seller are the capitalist photographers who go about from town to town; they cover the country and have established a chain of studios in leading places, investing large amounts of capital in opening elegant studios, putting up elaborate fronts, attracting the public by their immensity. They have in their reception rooms the most cunning saleswomen,

are wide awake. These capitalist photographers invite visitors to their studios constantly, aim to interest society folks, universities and lodges by offering pictures gratis, and then build their trade on these schemes. While their work is absolutely conventional work,

still they have the knack of presenting the picture in a striking manner, which appeals to the public. Nevertheless, while this class of photography is making a sensation among the public, the quality of work won't stand the test of time. ELIAS GOLDINSKY.

## THE HOME OF F. W. SPEAIGHT.

Bond Street, as everybody knows, the firm of Speaight, Limited, has built and furnished for their photographic business of child portraiture an establishment which cannot be easily over-described. "Palace of art," which was a term freely applied to the suites of reception halls and studios at the time of the opening of the premises, accepted without reservation by a visitor who is fortunate enough to have the opportunity of making himself acquainted with the beauty and harmony of the design and decorations. In every detail of the apartments, galleries, and stairways carry out the aim of the firm: to provide a home for their business which should

constant study, and his home at St. Margaret-at-Cliffe, near Dover, equally with the Bond Street house, is evidence of the success which waits on the patient and sympathetic labour which everyone may be expected to exert in the beautifying of their homes, though few may possess the intuitive sense which saves them from making bad mistakes. "The Corner Cottage," as the house is called, overlooks the tiny bay of St. Margaret's, and is built so that all its windows, except those of the offices, overlook the sea. The design of the exterior and interior is that of an Early English cottage, being entered through an enclosed porch, shown in the illustration on the left. The large entrance hall, placed in the centre of the



The Corner Cottage, St. Margaret's-at-Cliffe.



The Entrance Hall, The Corner Cottage.

impress the visitor, not as vulgarly rich and costly, but good and substantial and in the best of taste. The result of a plan conceived on these lines can be seen in the reception salons of the Speaight house. What is not seen, but is equally a factor in the firm's success, is the similarly assiduous attention to important details in the workrooms and other parts of the premises where the actual production of photographs is performed. Here, as in the public rooms, initial expense has not been spared to provide things so that the machinery of the business shall work smoothly, and the staff of assistants have everything to aid them in their work. It is no doubt known that for these successful designs Mr. F. W. Speaight is chiefly responsible. The Bond Street establishment represents in fact his ideal of what a photographer's place of business should be, and the success of one, therefore, who is content to call himself an amateur in architecture should encourage photographers generally to think more of matters of appearance in the arrangement of their premises. With Mr. Speaight architectural design, particularly of interiors, has been a

house, admits to the sitting room hall, round three sides of which runs a gallery reached by stairs within the room. A dining parlour, study, kitchen, and other offices are upon the ground floor. In the arrangement of these rooms, as well as of the bedrooms and servant premises, convenience as well as comfort has been studied, and quite a characteristic note of the designer is struck in the statements that "the house can be well managed by two servants, owing to a large extent to the great care shown in the planning of the domestic offices to save work," and that "the gardens are kept in their present perfect state by a man one day a week." The gardens, it should be added, are the completing surrounding of a delightful old-world residence. Clipped hedges, an old Marcus stone seat, yew paths, a trellis arbour, combine to provide a perfect setting for the house and the means of quiet enjoyment. The Swiss proverb, "To those whom the gods love they give a house in Zürich" might appropriately be modified to represent the favoured ones as dwelling above St. Margaret's Bay, and in such a house of ease as that in which Mr. Speaight has made his home.

THE Bristol Photographic Club have started a magazine, the chief aim of which appears to be the keeping of all the members in good spirits by the administration of plenty of good-natured chaff. The magazine has its serious pages, and then is dreadfully in earnest as to folios, art, and other matters. In its lighter moods it should achieve much towards the prosperity of the Club.

MESSRS. John J. Griffin and Sons, Ltd., announce their willingness to send a demonstrator to any photographic society, giving a lecture on their new Goldona paper, during the summer months. This lecture is likely to be of interest, as it deals with the theory as well as the practice of self-toning papers, and contains matters perfectly new in this respect. There is, of course, no charge to the society.



## ORTHOCHROMATIC PLATES AND FILTERS.

(A Paper Delivered at the Croydon Camera Club, May 16, 1906).

THE introduction of new colour sensitive plates has necessitated readjustments in three different branches of photography—in orthochromatic photography, tricolour photography, and in tricolour half-tone. In this paper we propose to present to you the result of our investigations so far as they concern orthochromatic photography; a research into tricolour screens is already in progress of in our laboratory, while the application of the plates to three-colour half-tone has been worked out at the L.C.C. School of Photo-engraving at

ness of the pinacyanol bathed with the green sensitiveness of the verichrome.

### The Light Filters.

We have made for these new plates three yellow filters. First, a light yellow filter such as is usually termed an eight or a ten times filter; this requires about twice the normal exposure on the new plates. Second, a yellow filter which gives practically perfect colour correction for landscape on the verichrome and for all colours, includ-

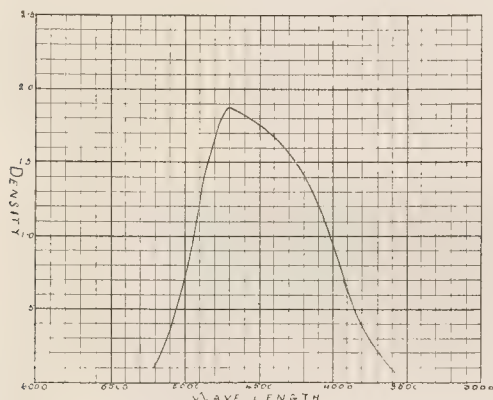


Fig. 1.

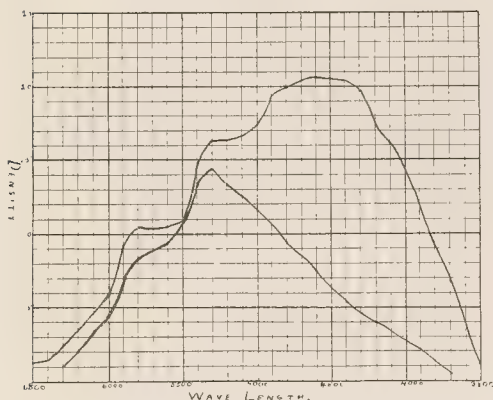


Fig. 2.

Bolt Court. These investigations will shortly be published. The experimental methods which have been used are simple. They include exposures in the spectroscope to the standard artificial daylight designed by S. E. Sheppard and one of us, and the measurement of the densities so obtained. (PHOTO. JOUR., March, 1906). It must be noted that in this work daylight and a grating spectroscope have been used throughout, since much better, but totally misleading, results can be obtained by the use of artificial light sources or prismatic spectroscopes.

### New Colour Sensitive Plates.

The four plates with which we are at present concerned comprise the "New Verichrome" sensitive to 6,000, the "Pinachrome Bathed" sensitive to 6,200, the "Pinacyanol Bathed" sensitive to 7,000, in the red, but weak in the green, and a new plate which has been named the "Wratten Panchromatic," and which combines the red sensitive-

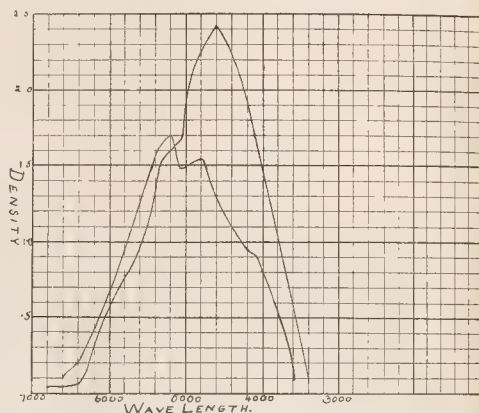


Fig. 3.

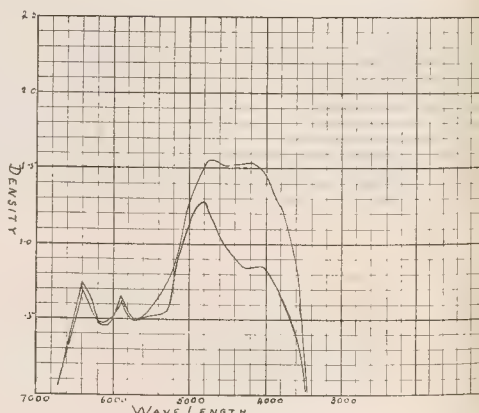


Fig. 4.

ing red, on the "Wratten Panchromatic." This screen requires about five times the normal exposure. Third, a "luminosity" filter which gives a luminosity curve on the panchromatic, by which perfect rendering for the most difficult picture copying can be obtained. This filter requires eight times the normal exposure.

### The Spectrum Curves of the New Plates.

These are shown in the figs. 1 to 5. Of these fig. 1 is the curve of an ordinary plate, the "Wratten" ordinary. Fig. 2 is the "Verichrome" plate. Fig. 3 the "Pinachrome," Fig. 4 the "Pinacyanol," Fig. 5 the "Wratten Panchromatic." In each case the curve which is lower in the blue represents the effect of the No. 1 yellow filter in cutting down the blue and violet.

### The "Luminosity" Filter.

The method by which this filter was obtained is as follows:—The curve of the Wratten Panchromatic was first measured and is shown

Fig. 5. Together with the spectrum plate there was developed a curve which had been exposed behind the sector wheel, thus giving connection between the density obtained and the light incident. Interpolating the densities of the spectrum record upon this curve

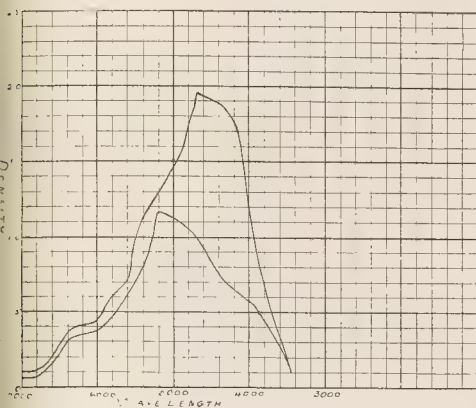


Fig. 5.

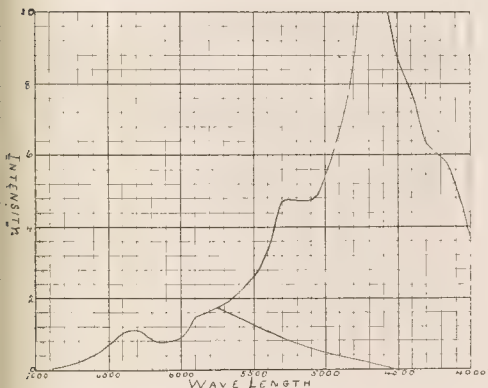


Fig. 6.

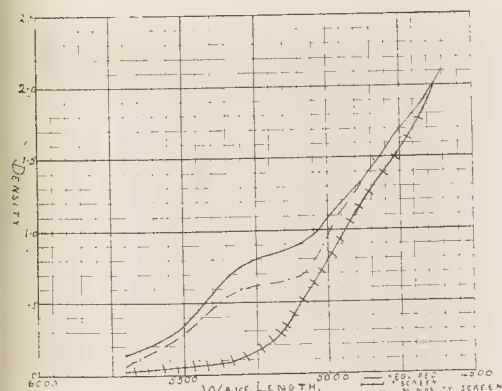


Fig. 7.

may obtain a record of the equivalent intensities incident. Thus 5,500 the spectrum record gave a density of .444. From the sector wheel exposure .244 corresponded to an exposure of .632 candle metre seconds, and .584 to an exposure of 1,264 candle metre seconds,

consequently a density of .444 corresponds to an exposure of 1.02 candle metre seconds, which is recorded for 6,300.

This curve is shown as the solid curve in fig. 6.

Now to give the luminosity curve. The blue part of this plate curve of the Wratten panchromatic was first measured and is shown the light, at each wave length, must be divided by an amount found

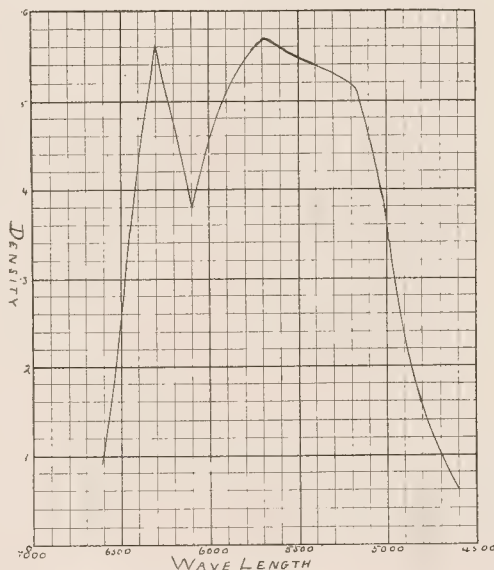


Fig. 8.

by dividing the height of the solid line by the height of the dotted line. This process gives the screen required, and the densities of the screen are shown in the solid line in fig. 7. Two screens were then made to this curve, the one, the No. 2 filter, and the other, the No. 3, or "luminosity" filter. The screens were made by adjustments of the dyes in the spectrophotometer to fit the curve, and then were prepared as gelatine filters.

The curves of these two filters are shown in fig. 7, and the effect of the "luminosity" filter upon the Wratten panchromatic is shown

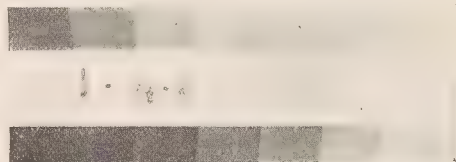


Fig. 9.

in fig. 8, where the slight drop at 6,100 due to the plate is distinctly visible.

#### The Exposures Required with Filters.

In order to find the multiplying factor of these filters for black and white subjects, the sector wheel exposure instrument was fitted with a filter so that the upper half of a plate is exposed to light which misses the screen, while the light reaching the lower half passes through it. Fig. 9 shows one of these plates, and the ease with which the increase required can be read off is obvious. The multiplying factors for the three filters are, as stated, two, five, and eight.

C. E. KENNETH MEES.

W. J. SMITH.



## THE NORTHUMBERLAND AND DURHAM FEDERATION.

THE following is the fourth annual report of the Northumberland and Durham Photographic Federation:—

During the past year one new Society has joined the movement, and two have left. The Federation now consists of thirteen societies, with a total membership of about 650.

The thanks of the Federation are due to those gentlemen who kindly consented to lecture without fee or reward, and who enabled your Council to submit a lecture syllabus of sixteen items to your societies. This is a decrease of eight items as compared with last year.

During the past season a federation class was held at one exhibition, Tynemouth.

The annual reunion, which took the form of a dinner, was held at the County Hotel, Newcastle-upon-Tyne, on March 14, and was a decided success, sixty-six persons being present, including the guest of the evening, Mr. A. Horsley Hinton, and the Mayor of Newcastle (J. Baxted Ellis, Esq.). The President (W. S. Corder, Esq.) opened up the question of the various societies taking a co-operative interest in a photographic record and survey of Northumberland and Durham. It is hoped that the Federation will give this matter their consideration.

The Federation Lantern-Slide Competition received twenty-four entries; the slides were judged by Messrs. W. E. Cowan and Arthur Payne.

A set of slides by Mr. Bert Jackson, of Sunderland, was placed first, and a set by Mr. W. Coats, Junior, Tynemouth, second. The Council note with regret, that the judges recommend that the plaque be withheld, as the work entered in the competition is not of a sufficiently high standard to merit a Federation plaque, and hope that the work will be of a better quality in future competitions.

A loan collection of slides was got together from some of the leading slide makers in the north and circulated along with the competition slides, amongst the various societies who applied for same.

It is with regret that the Council received the resignations of Messrs. R. Borrow and H. L. Thomson, editor and business manager respectively of the "Federation Record," the publication of which is thereby suspended, and trust that a Year Book or other such publication will be established to take the place of the "Record."

The finances of the Federation are in a satisfactory condition.

The federated societies are:—Bishop Auckland, Blaydon, Consett and District, Crook and District, Dudley and District, Gateshead, Gateshead Teachers' N. H. Society, Hartlepool P. and S., Jarrow and District, Newcastle and Northern Counties, South Shields, Sunderland, and Tynemouth.

Blyth and District Camera Club has newly joined.

President (re-elected), W. S. Corder; secretary (re-elected), J. B. Scott, 2, Walton Avenue, North Shields.

## CINEMATOGRAPH BLINDNESS.

DR. EDWARD MAGENNIS writes from Dublin to a recent issue of "The Lancet" reporting a case which recently came under his notice demonstrating the effect which an intense white light, such as is necessary for a cinematograph exhibition, may have on the sensitive retina.

"A young lady, aged twenty-one years, consulted me with regard to what she called 'a sort of blindness.' The history was that up to the time she had witnessed a cinematograph display of about fifteen or twenty minutes' duration she had 'good vision and strong eyes,' but that when leaving the hall she experienced a difficulty in seeing objects and felt as if she were entering a darkened room. This continued for two or three hours and then, as adaptation of the retina gradually took place, objects became more distinct. She had considerable headache, a sensation of dazzling, and spasmodic contraction of the eyelids. These symptoms remained for about twenty-four hours. On the following day there was slight eye pain, with considerable reduction of the visual acuity. The pupils were of medium size and the reaction was normal. I advised her to remain in a darkened room, to have the eyes gently massaged, and to take a hot bath. I gave internally bromide of ammonium. She wore tinted glasses for some days and is now quite recovered.

"The condition produced by exposure to excessive light is some-

times spoken of as blindness of the retina, anæsthesia of the retina, and neurasthenic asthenopia. 'Retinal electrocution' is the term Darier uses when writing of the cerebral and retinal shocks produced by the passage of an electric current through the upper part of the body and the head. This suggests to me the term 'retinal cinematocution' for the condition produced by the intense flashes of white light. Those who have witnessed these living-picture displays must have experienced that peculiar 'tiredness' of the eyes caused by exhaustion of the retina, and how gratifying it was to close the eyelids and thus relieve the strain. Until some improvement takes place in the mode of exhibiting these pictures and in rendering less intense the light the public should be warned of the danger and advised to wear tinted glasses when looking at them, and each display should not exceed one minute."

## ON LIGHTING PROFILES.

(A communication to the Photographic Society of Philadelphia.) The mistake most amateurs make in photographing in profile is getting the illumination too flat, so that even a beautiful contour is marred in the making. A profile will be made most successfully by introducing the light rather behind the head, so as to throw the receding boundaries of the front of the forehead, eyes, cheek, nose, and chin into half tint. The principal light will be on the upper parts of the temple, cheek-bone and the ear; and the principal shadows under the hair, upon the cheek and temple, and under the eye-brow, close to the nose. The whole of the front of the iris of the eye will be light, except close under the eyelashes. The pupil of the eye will be scarcely visible, but the eye-ball will appear darkest where the pupil is supposed to be. With a light background, a beautiful relief will be given the head, especially if the background is kept at a considerable distance from the head, so as to secure atmospheric effect.

A profile illuminated as suggested above ought never to be underexposed, and care must be taken not to make the contrast of light and shade too violent; the object is to get delicate shadows by judicious use of reflected light rather than by employment of direct illumination. The reflectors should be of different shades, so as to modify the light.

One thing to remember especially in making a profile photograph is that the slightest difference in the angle at which the top or side light enters the studio and falls upon the head makes either a picture or an unmeaning blur. (We are not referring to artistic blur.) The photographer who desires this may secure it by racking a little out of focus.

We have said above that the most effective profile illuminations are generally those made by a side light behind the head, but it does not follow that all profiles should receive an illumination of this kind. Some features are more effectively illuminated by light more inclined to the front, but when a front light is employed a dark background must be used to secure proper relief to the head. The student may find some beautiful examples of effective profiles in the impressions of ancient Greek coins.

JOHN BARTLETT.

THE Right to be Photographed.—German gipsies at Haddington near Duns, are alive to the money value of their portraits. One photographer appearing in their camp he was immediately surrounded, and told he would not be allowed to take a snapshot without first paying 10s. They refused a shilling. The photographer paid the Parish Church gate between him and the band, but they came after him in force with a blanket held up in front, and when money was still refused, and the photographer attempted to take a snapshot commenced to throw mud at him.

THE Yorkshire Union.—The arrangements for the annual excursion to York, this year—are now completed and described in a circular issued by the secretary, Mr. Ezra Clough, 10, Farncliffe Road, Bradford. Special photographic facilities have been granted for the occasion.

ACCORDING to a daily paper, the Kaiser has had a Röntgen ray apparatus installed in the Castle of Prokelivitz, where he is now shooting, to determine the course of shots in large game killed on the royal estate, and to study the wounds caused by modern firearms.

## Exhibitions.

### KODAK PICTURES OF THE PRINCE'S TOUR.

An exhibition of over 150 photographs taken by the correspondent of the "Daily Mirror," Mr. Ivor Castle, who accompanied the Prince and Princess of Wales throughout their Indian tour is now being held at the Strand Gallery of the Kodak Company, near Charing Cross Station.

The collection includes an immense variety of subjects, from prior portraits under the most unfavourable conditions to snapshots in the blazing Indian light. The negatives, it is therefore interesting to state, were obtained in every case upon the Kodak film, exposed in one or other of the Kodak cameras. In their exhibited form the products of Mr. Ivor Castle's skill and tireless energy are presented as bromide enlargements by ringing the changes four of the five brands of Eastman bromide papers. The effects obtainable upon the "Royal," "platino-matt," and other Kodak bromide papers are sufficiently well known to require no description in us; enough to say that the exhibition permits the visitor to know how the papers have been turned to good effect in treating negatives of widely different character. The prints, we may also mention, represent only a portion of those taken in the course of the tour. The whole number would fill a gallery with many times the area of the wall space which the Kodak Company are able to set apart in their cool and comfortable retreat from the heat and noise of the Strand. The exhibition is open free to the public daily from 10 to 6, and on Saturdays from 10 to 2.

## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes.*

The following applications for patents were made between May and 19:—

**SQUEEGES.**—No. 11,224. Improvements in squeegees. John Wilkinson and Alfred Wilkinson, 4, St. Anne's Square, Manchester.

**BORDERS.**—No. 11,227. Improved means for printing borders on photographs. Robert White, 46, Appin Road, Dennistoun, Glasgow.

**CARBON TISSUE.**—No. 11,304. Improvements in the carbon process by enhancing the keeping properties of the tissue. August Schrieber, 37, Richmond Terrace, Clapham Road, London, S.W.

**COPIES.**—No. 11,312. Improvements in the production of copies of tracings, drawings, and other transparencies. Henry Lionel Shawcross, 15, Water Street, Liverpool.

**FILMS.**—No. 11,346. Improved photographic films for film packs, change boxes, cameras, etc. John Edward Thornton, Altrincham, Cheshire.

**PROJECTION.**—No. 11,416. Improvements in projecting photographs or transparent pictures in instantaneous succession on a screen by sunlight, and apparatus therefor. George Robson, Lloyd's Bank Buildings, Canute Road, Southampton.

**ENLARGING.**—No. 11,620. Improvements in photographic enlarging and reducing apparatus. Houghtons Limited, and James Wright Craig, Birkbeck Bank Chambers, Southampton Buildings, London.

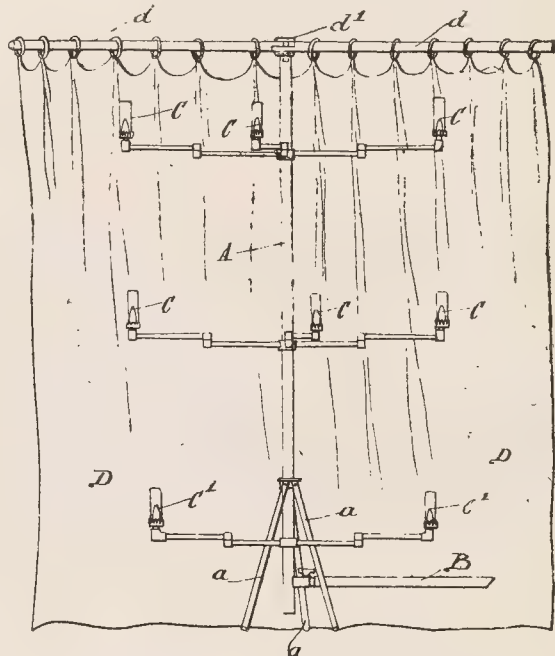
**CINEMATOGRAPH FILMS.**—No. 11,762. Improvements in cinematograph films. Compagnie Generale de Phonographes, Cinematographes, et Appareils de Precision, 1, Queen Victoria Street, London, E.C.

### COMPLETE SPECIFICATIONS ACCEPTED.

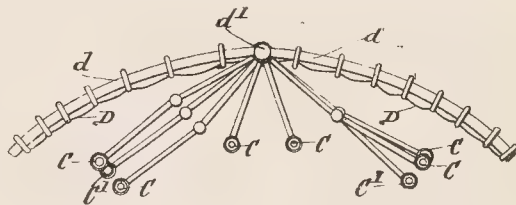
Specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**ARTIFICIAL LIGHT.**—No. 3,128, 1906. The apparatus consists of a stand, carrying burners in tiers, usually three in number, the lowest one at a short distance from the floor, while the others are distributed to give an equal illumination over the whole person. Behind these burners is a large reflecting or diffusing screen,

which may be of light cloth carried on rails at the top of the stand, and varied in width by altering the angles of the rails or drawing in the screen. The burners are also adjustable in position to concentrate or scatter the light as required. A is the stand supported on the tripod legs *a* hinged to it, or carried in any other convenient manner. Gas is led to the tubular post through the pipe B, and upon the post are secured the two upper tiers of burners C and the lower tier C<sup>1</sup>. Three burners are shown on each side of the upper tiers and two on the lower, but



of course the number of burners and their arrangement may be altered. All the burners can be turned to any position required so as to distribute or concentrate the light in the most efficient manner. Behind the burners and carried by the stand is the reflecting screen D, consisting of a light curtain suspended on the arms *d* at the top of the stand, and hanging down to the floor. The arms *d* are pivoted at *d*<sup>1</sup> to the stand and are adjusted to give the required width to the screen, which may also be fully or only partially extended as found desirable. Owing to the distribution of the light, part of which comes



from the burners close to the floor, the sitter is illuminated from head to foot, and sharp shadows are eliminated by the reflecting screen which softens the light by diffusion. For taking the head and shoulders only the upper tiers of lights would be used, while for groups all the lights would be employed, spread out to their full width. Marwood Short, 1, The Collonade, Ramsgate.

**FOLDING CAMERAS.**—No. 10,600, 1905. The invention relates to a photographic camera having the rearmost part of the camera case—which has the bellows attached and carries the sensitive



surface—movable towards and away from the body of the camera; the combination of a certain construction to ensure movement of the rearmost part in parallel planes towards and away from the body of the camera, and a certain mechanism—adapted to be operated from the exterior of the camera case—for moving and ensuring the parallel movement of the rearmost part towards and away from the lens for the purpose of correctly focussing without movement of the lens with respect to the lens front. Arthur Lewis Adams, 26, Charing Cross Road, London, W.C.

A process for preparing pigment images in monochrome, polychrome, or natural colours, and printing plates, with a silver salt or an emulsion of the same. M. J. Mézaros. Fr. Pat. 352,815. March 30, 1905.

The present methods of preparing images in pigments and printing plates are based on the light-sensitiveness of bichromated gelatine. There are, however, some notable disadvantages. Thus, amongst others, it is not possible to make plates that will keep; Further, the sensitiveness is comparatively small, so that it is not possible to make photographs direct or enlargements on them, and one cannot follow the progress of printing. The new process obviates these disadvantages in that one can use the ordinary emulsions of bromide or chloride of silver; with these the original may be taken in the ordinary way, and the development, fixing, etc., is as usual. Great stress is laid on the importance of thoroughly washing after developing and fixing. The chromate necessary for the preparation of the pigment images is added afterwards to the gelatine, and is not used as a sensitiser. The silver image is immersed in a solution of bichromate of potash, or ammonia, or other salt for three or five minutes. It is necessary to fix in the film the chromic acid which has been absorbed by the gelatine in proportions corresponding to the shadows of the image. This is effected by immersing the plate in a solution which can dissolve the metal of the image, whilst at the same time the chromic acid precipitates the solution of the metal in the form of an insoluble chromate. For this purpose it is convenient to immerse the plate, after the chromate bath, in 2–3 per cent. solution of nitric acid. The chromate and nitric acid baths may be mixed. The insoluble chromate precipitated in the image-bearing film in proportion to the shadows, combines with the gelatine, so that the image may be developed with warm water in the usual manner of carbon printing, and only the soluble parts of the gelatine are dissolved. A gelatine relief is thus produced which may be hardened in the usual manner, and can be used for printing, or an electrotpe may be cast of it. The film of the image may be coloured with any convenient colouring matter to obtain a transparency—a negative for printing or a positive on paper, coloured at will; or a precipitate can be produced of any desired colour in the gelatine, for example, sulphate of baryta to make the image visible. When pigmentary or coloured images are required, the necessary pigments should be added to the gelatine before the coating of the plates, films, or papers. It should also be noted that besides the necessary pigments, orthochromatic sensitisers may be added, but these are quite independent and have nothing to do with one another. With the new process it will also be possible to obtain polychrome effects by superimposing several films with different colours, at the same time the different films may be orthochromatised so that each is sensitive to the colour contained in the film, or any other. It is thus possible to obtain colour effects of great diversity, and also in natural colours. It is also possible to produce in the same way images in the complementary colours to nature, and in the same way print in natural colours.

THE death took place on May 24, at his residence, High Street, West Cornforth, of Mr. John William Chambers, photographer.

SUDDEN Death of a Photographer.—The painfully sudden death took place last week of Mr. James Frederick Lowrie, of No. 1, Rectory Road, Beckenham, a photographer trading at Beckenham and Bromley in the name of "Valery." Mr. Lowrie dropped dead while taking a photograph of a girl in his studio at Victoria Chambers, High Street, Bromley. The deceased was fifty-three years of age. The cause of death was aortic valve disease of the heart.

## New Materials.

The Gem Tricol Plate (Revised Issue). Made by the Gem Dry Plate Company, Willesden Green, London, N.W.

The new issue of the panchromatic plate made by the Gem Company evidences the activity of this firm in matters orthochromatic. The aim of the company has been to provide a plate of moderate speed which is highly orthochromatic, which can be used as a red-sensation plate in three-colour work and at the same time may be applied to landscape orthochromatic work without a yellow screen. In this last connection the makers have had in view the production of a plate of such a character that the orthochromatic effect upon it when screened would be obtained in less time than upon a more rapid ortho-plate exposed through a filter. Without questioning the wisdom of such an objective, it is our belief that a plate requires more enhanced yellow sensitiveness to imitate the results of a screen plate. That the Gem plate possesses orthochromatic properties to a very pronounced order we have discovered in our experience with it, and the fact is clearly shown in tests which we publish below. But we nevertheless have found it difficult to suppose that a very decided gain was not obtained by the use of a yellow filter. As the makers say, the plate is not a rapid one; but for many purposes where speed is not the chief desideratum, but where colour-rendering is important, the new plates should be found altogether satisfactory.

The following are tests made by Mr. S. E. Sheppard, B.Sc., the sample supplied to us, Batch No. 4,642:—

Inertia (H and D pyro-soda). .42.

Blue sensitiveness . . . . .

Yellow sensitiveness . . . . . 4.5.

K (velocity constant of development with standard ferro-oxalate): .040.

$\gamma$  (density giving power): 3.12.

T (time for standard gradation of 1 with above developer). 9 minutes.

The light used in these tests is acetylene with the later screen (Phor. Journ., 1906, 46, 116), giving a closer approximation to daylight than the one used for the former tests (Phor. Journ. Nov., 1904, p. 292), but measured against the former so as to make the above comparable with previous figures given in these columns.

Wellington Self-toning Paper. Made by Wellington and Ward, Elstree, Herts.

This new introduction of Messrs. Wellington and Ward's reaches us with no indication of its character other than that it is a paper of the self-toning class. However, we were glad to see from the instructions that the fixing bath in which the prints are to be toned is to be kept alkaline by the addition of bicarbonate of soda in the proportion of 30 grains to the pint of bath. We first satisfied ourselves that this quantity is sufficient for the purpose. The bath as compounded in Messrs. Wellington and Ward's instructions is distinctly alkaline, and therefore the objection which is brought against self-toning papers prints on which are immersed directly in a plain solution of hypo—viz., that the toning action may be due to acid decomposition of the bath—cannot apply in this case. The makers direct that the prints be placed immediately in the hypo-bicarbonate, and while they cannot be criticised adversely for recommending this procedure, we were curious to see the effect of washing prints before fixing. The result of doing so, we found, was to increase to a very notable extent the speed of toning, or what amounts to nearly the same thing in the end, the coldness of the tone obtainable in a given time. We say nearly the same thing, because we obtained tones of a coldness on washed prints which we could not get on those unwashed, however long, within reason, we kept them in the hypo. The effect of the preliminary wash is so distinct and so beneficial to the manipulation of the paper that we referred the point to Messrs. Wellington and Ward, seeing that no mention of it was made in the printed instructions. They inform us that the same thing has been recently observed by themselves, and that the procedure is one which they recommend, and which they will advise in future instructions. The preliminary wash is scarcely any extra trouble, and the results are in every

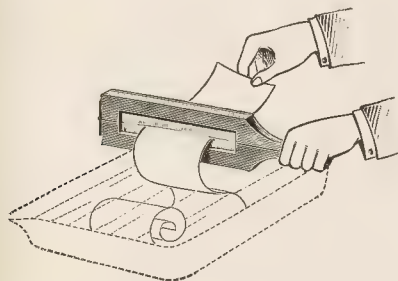
an improvement on those without the wash. We say this with respect to the usual aim of users of self-toning papers at producing normal effects of separate gold toning. If the aim, however, is to produce prints of a very pleasing warm brown or sepia tone, then it is an advantage to omit the first washing in using Wellington P. We need say no more of the paper except that in depth and richness its results are admirable, and we congratulate the firm on having placed upon the market a material which yields results of perfection by a process which is theoretically and chemically perfect.

Mr. Sandell Films and Plates, Ltd., notify us that in future all their films will be issued colour-sensitive, the character of forthcoming batches being of a kind which is the result of recent improvements in manufacture.

## New Apparatus, &c.

"Primus" Film Squeegee. Sold by W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C.

The drawing clearly illustrates the construction and use of this instrument. Lengths of roll film are drawn between the two



other blades, and so robbed of superfluous moisture. The handle which the rubbers are mounted is divided and hinged to facilitate insertion of the end of the band of film. The price is 2s.

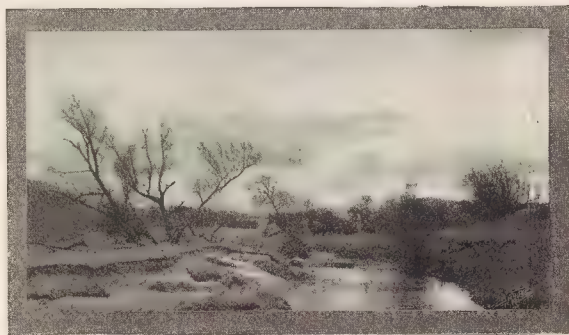
**ARTISTIC LENSES.**—Some recent notes on the Eidoscope lens of Heris, Paris, sold in this country by Mr. F. C. Clarkson, Colchester, particulars of the optical properties of the lens submitted to which we have reason to believe have been misinterpreted by those who possibly have not read the articles on the qualities permissible or even desirable in lenses for the specific purposes of portraiture and other work in which an artistic effect is aimed at. It is therefore well for us to state the facts which are a natural bibliography of the figures and results we quoted. The Eidoscope lens, when stopped down, is capable of giving sharp definition over a moderately wide angle—that is to say, it may be used successfully in outdoor photography of various descriptions. At its larger apertures a certain amount of aberration is introduced into the image, and this introduction produces the very effect of slight diffusion which it has been the aim of Major Puyo and others to secure—for artistic effects in portraiture particularly. A number of prints in negatives made with the lenses which lie before us bear out the quality of the instruments—which, we learn, have been purchased to the number of more than twenty-five by one leading London firm of photographers, and are in use in several of the leading studios in the West End of London. These prints can be seen at our offices by any one calling within the next fourteen days, and the best method of judging of the lenses' capabilities, we may suggest, is to take advantage of the offer of the English representative to allow fourteen days' free trial of a selected instrument.

**NEGATIVES BY POST.**—The Tress Company, 205, Oxford Street, London, draw our attention to a new introduction of theirs for facilitating the safe transmission of negatives through the post. It consists of a stout case of tinned iron taking a plate box of quarter, half, or whole plate size. The box is pushed tightly into the case, the end of which is then closed and fastened by a simple catch.

The case has then only to be tied with string and a label attached to be ready for posting. The cases are strongly, though not heavily, made, and should withstand a very great deal of wear and tear. The prices are: whole-plate 2s., half-plate 1s. 3d., and quarter 1s., all post free. Reductions on these prices can be made when a quantity of the cases is despatched at one time.

## CATALOGUES AND TRADE NOTICES.

Messrs. Mawson and Swan have just issued a book of instruction for the use of their photographic products, in which they have assembled formulae for developers, hints on lantern slide making, and two chapters on orthochromatic photography. These latter provide some very useful reading at the present time when orthochromatic matters are so prominently before photographers, and we are glad to see that the author, Mr. Arthur Payne, has revised the matter and added a new section on "Orthochromatic Photography for Pictorial Effect." The book, which is obtainable free from Mosley Street, Newcastle-on-Tyne, contains a number of instructive half-



tone illustrations, among which is one of a photograph made with ordinary stage lighting with two seconds' exposure at  $f/6$  on a Mawson "Ortho B." plate. Another illustration of the effective use of ortho plates in landscape photography is reproduced herewith from a negative made on the "Ortho B." plate through an adjusted light-filter in one quarter-second exposure at  $f/6$ . We would advise our readers to apply for the publication, which Messrs. Mawson and Swan offer free.

A new booklet of "Ferrotypes Photography" has been published by Messrs. H. Dawson and Son, 42, Norfolk Street, London, W.C., and deals with the opportunities for profit in the rapid outfits, well known as the "Quta" and "Takukwick." These instruments for beach and bazaar photography have met with considerable success, and the hints on their manipulation contained in the little volume should therefore be welcome.

Messrs. Elliott and Sons advise us that on and after June 1 Barnet bromide and gaslight postcards will be put up in packets containing eighteen cards and two masks at the following reduced prices:—Ordinary size,  $5\frac{1}{2} \times 3\frac{1}{2}$ , 1s.; midget size,  $3\frac{1}{2} \times 2\frac{1}{2}$ , 8d.

A special list for professional photographers is newly issued by the Tress Co., 205, Oxford Street, London, W. In the matters of price and novelty the list contains much to attract custom from professional workers, for the firm issuing it has the reputation for swiftness in developing any idea likely to be of use to the profession, and its business is evidently run on a small margin of profit.

The price list for enlarged negatives, retouching, and other trade work, which reaches us from the firm of Zano, 4, Manor Road, Stoke Newington, London, N., discloses the very moderate charges made for work which is in frequent demand and which, we are pleased to find, is turned out of commendable quality. A print (before us) from an enlarged cabinet negative done in the ordinary way of business is excellent in preserving the character of the original.

The large new catalogue of the City Sale and Exchange reaches us from 91-94, Fleet Street, E.C., and contains, we find, very com-



plete descriptions of modern apparatus for amateur and professional. The "City Sale" is confident of its power to serve professionals, and an inspection of the pages of its list should certainly convince the buyer of the very inclusive character of its business facilities. The catalogue (300 pages) is offered free to B.J. readers.

By favour of Messrs. A. E. Staley we have been able to inspect a large series of prints from negatives of Canterbury Cathedral taken by Mr. Stanley E. Fincham, of West Dulwich. All the negatives, which number altogether about fifty, were made with one or other of the "Planastigmat" lenses, of which Messrs. Staley issue several varieties suitable for outdoor and studio photography. Canterbury Cathedral, by reason of its great height, is a severe test of the covering power of a lens, and therefore the prints before us, in which the field is covered sharply to the extreme corners in all but a few instances, constitute a remarkable testimony to the quality of the "Planastigmat" in this respect. We should add, also, for the information of those who have not photographed these particular subjects, that in many cases an extreme rise of front is necessary, and the work of the lens is therefore seen under the most exacting conditions. We are bound to admit that the prints demonstrate the ability of the lens to come through such an ordeal with great éclat. Previously we have reviewed in these columns certain of the series of the "Planastigmats," and we are therefore glad to have the opportunity of drawing attention again to the creditable work of these moderate priced instruments.

"THE PROFESSIONAL PHOTOGRAPHER."—Under this title a monthly magazine has appeared, under the auspices of Messrs. Kodak, Ltd., and will be issued at a yearly subscription of 6s. 6d. The first number, May, but issued a few days ago, is excellently produced, contains some pages of technical information on Kodak apparatus and products, and evinces the excellent policy of promoting good prices for good work.

FROM E. Merck, 16, Jewry Street, E.C., we have received the May issue of their very comprehensive list of chemicals.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

June.	Name of Society.	Subject.
2 .....	South London Photo. Society...	Outing to Old Malden.
2 .....	Bristol Photographic Club .....	Outing to Bourton and District.
2 .....	Aberdeen Photographic Assn. ....	Outing to Bleidside and Corbie Linn.
2 .....	Scottish Photo. Federation .....	Outing to Loch Lomond.
4 .....	Everton Camera Club .....	Outing to Windermere.
4 .....	Worthing Camera Club .....	Outing to Midhurst, via Chichester.
4 .....	North Middlesex Photo. Soc. ....	Outing to Burnham and Paglesham.
5 .....	Hackney Photographic Society ..	"Question Box."
5 .....	Blackburn Camera Club .....	Annual Picnic to Chester and Eaton Hall.
5 .....	Southampton Camera Club .....	"Framing Photographs." Demonstration. Mr. T. L. Baker, Demonstration of "Platinochrom." Mr. S. G. Kimber.
6 .....	North Middlesex Photo. Soc. ....	Lantern Slide and Print Competitions.
6 .....	Edinburgh Photo. Society .....	Forty-Sixth Annual Meeting. Election of Office-Bearers and Councilors.
6 .....	Leeds Camera Club .....	Discussion on "Exposure."
7 .....	Hull Photographic Society .....	General Meeting.

NORTH MIDDLESEX SOCIETY.—Mr. J. McIntosh lectured on the 16th inst. on orthochromatic plates and filters. He pointed out that there is a doubtful advantage in using ortho plates without filters, and in nine-tenths of the work to be done a filter is absolutely necessary. And further, that the filter must be adjusted to the plate. Plates vary in regard to their sensitiveness to colours, some being adjusted mainly for yellow, others yellow and green, and the panchromatic down to the red. A careful test should be made with the filter employed upon a coloured diagram, as suggested by Sir Wm. Abney, to ascertain if it renders the colours in their correct value; and a further test should be made upon a chart with gradations of grey from very light to very dark, first without a filter, and then in varying increased times to ascertain how much more exposure is required. The two exposed plates to be developed together, and then it will easily be seen which gives the correct rendering to match the

plate taken without a screen. If a correct filter be used it will destroy atmospheric effects.

WALKLEY (SHEFFIELD) CONSERVATIVE CLUB CAMERA AND OPTICIAN SOCIETY.—At a meeting last week, a demonstration of bromide toning was given by Mr. H. S. Nutt, assisted by Mr. During the course of his remarks, Mr. Nutt particularly insisted upon his hearers that the platino-matt bromide of any make is most unsuitable for toning, this particular brand being made of black tones, as its name implies. No fewer than eleven different processes were demonstrated, four of them being (a) direct process, the remainder indirect, embracing, hypo-a-um, mercuric-platin, Ferguson's copper method; blue toning, which, by modification, gives green. The effect of bleaching with various agents, in the subsequent toning, was shown by successively bleaching on cupric bromide, cupric chloride, iodine, ferricyanide, and chloride of lime, followed by immersion of the bleached prints in a bath of sulphide 3 gr. to the oz., with one drop of hydrochloric acid added. Bichromate and Dr. Bradley's vanadium toning process were also shown.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—At a recent meeting, A. R. F. Evershed gave a demonstration upon the oil-printing process. He claimed that the process could be either essentially automatic or essentially personal, and was as much under the control as gum bichromate. He considered "oil" superior to gum because it is a constructive process, whereas gum was destructive. The process is based on the fact that bichromated gelatine hardens on exposure to light, and that if it is exposed under the negative and afterwards soaked in water it absorbs moisture in inverse ratio to the light action. The moistened parts of such film would repel any greasy substance, while the hardened portions would retain it. The process has been fully explained in our pages, but Dr. Evershed claims to have discovered that thymol is the best preservative agent, and that those photographers who have attempted the process will find the following hints, which are the result of long experience, of great value:—

Much ink will be deposited if (1) the image is nearly dry; (2) the dabbing is heavy and slow; (3) the pigment is fine, and the brush well charged; (4) the temperature of the air is high.

Little ink will be deposited if (1) the image is very moist; (2) the dabbing is light and quick; (3) the pigment is stiff and the brush comparatively clean; (4) the temperature of the air is low.

NEW CAMERA CLUB.—A meeting of those interested in this matter was held at Charing Cross Hotel on the 24th inst. Amongst those present were Mr. Fraser Sandeman (in the chair), Rev. F. C. Lambert, Messrs. R. W. Craigie, A. C. Beard, Leonard Marshall, Leslie Clift, Child Bayley, Calder Marshall, Horsley Hinton, Holding, J. W. Jones, Duncannon, Pearson, E. E. Austen, J. G. Evans, Perrott Smith, Sanders, G. S. Russell, Powles, Cator, Simmelkjaer, Gurney, Cope, Scrivener, Fairholme, and Evershed. After a few remarks from the Chairman, pointing out how the closing of the old club had created a void in the photographic world, and how the absence of a club for purely photographic purposes was felt by a great many, he called on Mr. Fairholme, who laid before the meeting a scheme for the re-establishment of a camera club. He said the premises, now being rebuilt, close to Charing Cross, could be obtained at a reasonable rent, in which the following accommodation would be provided:—Club room, studio, enlarging room, four or five dark rooms, daylight room, and printing room. Light refreshments would be provided, but not luncheons or dinners. To work the club without loss would need 250 town members at 2 guineas annual subscription, and seventy-five country members at 1 guinea. Towards the membership he had received between seventy and eighty promises of support, amongst whom are the Duke of Newcastle, Viscount Maitland, Baron de Meyer, Colonel Paget, Messrs. Linley Sambourne, J. W. Gordon, Hebler, Farquhar, Laurence, Bale Rider, and many of those present at the meeting. To put the club on a satisfactory basis it was proposed to form a small syndicate with a capital of between £500 and £600, and towards this amount over £120 had been subscribed. Those joining the club would be required to take up one share in the syndicate. After a short discussion it was proposed by Mr. Evershed and seconded by Mr. Evans, "That it is desirable a camera club should be formed, and those present at this meeting pledge themselves to do all in their

er to promote this object," and carried unanimously. Several questions were then asked, and a discussion ensued in which the following participated: Messrs. Sandeman, Craigie, Clift, Beard, Hiley Hinton, Cator, Leonard Marshall, Gurney, Pearson, Evans, Fairholme, and Evershed, and it was proposed by Mr. Austen, seconded by Mr. Gurney, and passed unanimously, "That the following, Messrs. Craigie, Evans, Evershed, Fairholme, Pearson, Sandeman, and Perrott Smith, be appointed a provisional committee, with power to take all the necessary steps to form the club. At the suggestion of the chairman a guarantee fund for the preliminary expenses was initiated, and £30 subscribed. After a vote of thanks to the Chairman the meeting dissolved.

## Commercial & Legal Intelligence.

**BRISTOL Bankruptcy.**—A meeting of creditors has been held in connection with the affairs of Harold Edward Brightman, photographer, of 39, Colston Street. Mr. Frank Richardson appeared for the debtor. The statement of affairs shows liabilities amounting to £373, and the deficiency is explained at £333. The debtor attributes his failure to bad trade. He is thirty-four years of age, and as that he began business about seven and a half years ago in partnership with his father, who died in February, 1902. He also states that accounts made up at the time showed that there was a small surplus after providing for the liabilities, some of which the debtor subsequently discharged. The debtor's effects were disposed of for rent at the end of April, when the debtor instructed the auctioneers to dispose of the whole of his stock-in-trade by auction; and accordingly done, and the proceeds, after payment of rent and expenses, were paid to the debtor's solicitors. The sum of £19s. in their hands will be accounted to the Official Receiver. Household furniture is claimed by the debtor's wife, having been settled upon her prior to marriage in September, 1901.

**The Burton Bankruptcy Court** on Wednesday, Mrs. Eleanor Burton, a widow, lately carrying on business as a photographer at High Street, appeared for her public examination. The liabilities were stated to be £200 12s. 8d., of which £162 5s. 2d. was expected to rank, and, after deducting the assets (£58 15s.), there was a deficiency of £162 5s. 2d. Her husband's liabilities amounted to £308, but she thought his stock-in-trade would be worth £100, the debtor having the same instruments to work with when her husband died. She could not tell what she made in any year, although she repudiated the idea of the Official Receiver that it would be £500 a year. In trying to pay off her husband's debts she had failed to keep her head above water. The examination was closed.

### NEW COMPANIES.

**NORTHERN Photographic Company.**—Capital £7,000, in £1 shares. Require the business of a photographer, carried on at 18, Bank Street, Carlisle, by T. M. Laws. No initial public issue. First shareholders (not less than three nor more than seven): J. Dorman, Stocks, W. Carrick, A. McFarlane, and T. M. Laws. £10. As by company. 18, Bank Street, Carlisle, Cumberland.

**THEOBALD and Co.,** dealers in photographic goods, Staines, Middlesex, Hounslow.—A meeting of creditors was held on May 11, and a statement of affairs was submitted showing liabilities £1,657, assets £369. A composition of 6s. 3d. in the £1 was agreed to, payable 2s. 6d. down, 2s. 6d. in November, and 1s. 3d. in March, the first two payments being guaranteed by the debtor's mother and sister.

**ELLA-GRAY Photo Paper Company.**—£2,000, in £1 shares. Require the business, premises, and patent rights of the Photographic Development Syndicate, Ltd. (in liquidation), and to adopt an agreement with H. Jenkins. No initial public issue.

## Correspondence.

\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE PHOTOGRAPHIC CONVENTION.

To the Editors.

Gentlemen,—It has been suggested that, during the Convention week, one or two "straight talks" on business methods (after the American pattern) should take place among the professional photographers attending the meeting.

If those of your readers who think such a thing desirable will kindly communicate with me, I will endeavour to make the necessary arrangements.—Yours truly,

F. A. BRIDGE, Hon. Sec. and Treasurer.

East Lodge, Dalston Lane, London, N.E.

May 28, 1906.

[We hope the opportunity will be embraced.—Eds., B.J.P.]

### THE THEORY AND PRACTICE OF INTENSIFICATION.

To the Editors.

Gentlemen,—I am very interested in the bromide strips kindly made by Mr. E. J. Wall, toned with the uranium and ferricyanide bath. I am afraid, however, that they prove nothing, as in the cases where an absurdly disproportionate excess of ferricyanide has been used the colour of the print is greatly due to ferricyanide staining, whilst where a great excess of uranium has been used sufficient time has not been allowed for the colour to become what it certainly could have become—viz., redder. It is interesting to note that Mr. Wall's strips No. 5 and No. 6, which have been toned with just about the relative quantities of uranium and ferricyanide, that Otterberg states give brown and images respectively, are so similar in colour that the eye cannot tell any difference. Also, why is strip No. 8 distinctly browner than No. 7? This entirely contradicts all the other colour comparisons. Microscopic examination of the separated films indicates also that the brownest images are due to a little red deposit on the black silver image; the reddest images are due to much red deposit on the same black image. A quantitative examination of 2 sq. cms. of each of strips 1 and 9 showed that the film of No. 9 contained considerably over eight times as much unaltered ferricyanide of potassium as the film of No. 1. The coloration of No. 9 was therefore obviously due largely to yellowish-brown ferricyanide.

However, I do not see how the matter can be settled without definite molecular weight determinations, to see if an excess of uranium nitrate or ferricyanide induces two distinct compounds. My first experiments were conducted with the precise quantities stated by Otterberg, and my results proved that by giving the necessary time the negatives became the same colour within the limits of eye estimation; and, as a general rule, intensification made the gradation less steep with the excess of uranium.—Yours faithfully,

T. THORNE BAKER.

Cricklewood, N.W., May 28, 1906.

### TONING WITHOUT GOLD.

To the Editors.

Gentlemen,—In your reply to your correspondent, "Toning Without Gold," I am in perfect accord with your remarks in reference to the addition of acids or any other substance to the fixing bath that will decompose it; such methods are indeed "vile."

But I do take exception to the earlier remark "that the advantages of any method of doing without gold are illusory," providing you refer to sound methods of development; and I call any developing formula containing an appreciable amount of acid in it unsound, as most of the published formulæ are; but I do say that a developed image depending on the toning action of pyrogallol and metol for its tone, apart from acid, is the equal in every way (never mind



about being superior) to gold. Both these chemicals possess a strong toning action, in contradistinction to hydroquinone, prints developed with which must be subsequently gold-toned.

I am sending you three developed prints on P.O.P. (matt, glossy, and a postcard) developed with the above agents, fixed in pure hypo only, and which are as permanent as any silver print can be.

I consider the pure sepia tones vastly superior to the purplish tones of gold, whilst there is no comparison regarding the relative simplicity of the methods.—Yours faithfully, H. J. MALLABAR.

59, Deane Road, Liverpool,

May 25, 1906.

#### To the Editors.

Gentlemen,—In your reply in paper of this date to postcard as to "Toning Without Gold," you characterised the acid fixing as a "vile method," which, in your opinion, it may be. But you say it is "not permanent." All I can say I have a print done and toned so fifteen years ago, which shows no change. It is framed and exposed to light.

1. I wash prints thoroughly.

2. I harden, etc., by using Ilford method: alum, salt, water. Wash well.

3. I fix in hypo, 3 oz. to 20 oz. of water, a drop (not more) of G.A. acid to each oz. of fixing, for ten minutes. Wash well. I get a reddish-brownish tone, which I find many like well. I find it as permanent as any method.

J. L. LYELL.

30, Christchurch Road, S.W.

[Our comments were obviously made in reference to toning not to development. Our first correspondent might have assumed our attitude towards development of P.O.P. from the fact that we have published a number of articles on the subject of late in the JOURNAL, and devote some pages of the current "Almanac" to the same process. Of the prints sent, two are a warm brown and the other a purplish brown. All are free from stains and markings on the backs.—Eds., B.J.P.]

#### THE STATE OF WINCHESTER CATHEDRAL.

##### To the Editors.

Gentlemen,—Your correspondent in the last issue of the B.J. is strictly accurate in his statements re the restoration work at Winchester Cathedral. But in case his laboured account should be taken more seriously than is warranted, let me say that the Conventioneers need not have the slightest fear of not being able to find abundant photographic work at Winchester Cathedral, as certainly only one-sixth of the building, either exterior or interior (and that not the best portions from a photographic point of view) is unavailable for photography, and in my opinion there is a far larger superabundance of splendid work available than can be done in the few hours at the Convention's disposal on the day they are to visit Winchester.—Yours faithfully,

S. G. KIMBER,

Local Hon. Sec., P.C.U.K.

Southampton, May 28, 1906.

#### PROFESSIONAL COLOUR-PHOTOGRAPHY.

##### To the Editors.

Gentlemen,—I thank you for allowing Captain Davidson unconsciously to corroborate my statement that in 1903 I started colour photography at my studio. Looking over my notes, I see that I took Dr. Jumeaux's first portrait negatives June 10, 1903, and I presented him with the same. Six days later Captain Davidson called for the first time for the same purpose, and he accepted the same favour. It was not necessary for him in fraternising ways to say he called frequently, without adding that I paid for all the three-exposure sittings with the negative sets.

This belongs really to my technical training, for which I paid the piper with Lumière's filters, plates, material, instruction, etc., and to question me as to what I received from customers is uncalled for.

I am sorry I cannot give a technically instructive reply, so please excuse me for omitting personal references from this condensed form of defence, but the fact remains that for three months, from August 1, 1903, I showed specimens in my show-window, and

I was perfectly ready to accept and execute orders for colour photography.—Yours respectfully,

OTTO PFENNINGER.

Gentlemen,—As doubtless Captain Davidson would regret publication of inaccurate statements, and in justice to Mr. Pfenniger whose efforts in the direction of portraiture in colour seem unhappily to have been premature, I will call to your notice the fact that Mr. Pfenniger, of Brighton, and Messrs. Heath and Stoner of Plymouth, had, previously to the date mentioned, viz., 1903, experimented largely in the direction of portraiture by tricolour methods then available.

One thing is quite certain, and that is that Mr. Pfenniger using Lumière plates and filters from October, 1902, and that I in my possession a set of three-colour negatives of myself taken by Mr. Pfenniger early in 1903, at which time Mr. Pfenniger showed me tri-colour results which were certainly exhibited in his reception room as samples of his work, and, as far as my knowledge goes, first to be exhibited commercially.

Personally, I am sorry to see that the pursuit of what is doubtfully destined to be the leading feature of the near photographic future should show petty jealousies which can only draw the attention of those concerned from the object in view.—I am, Sirs, yours faithfully,

THOS. K. GRANT.

4, Bloomsbury Street,

New Oxford Street, London, W.C.,

May 26, 1906.

Gentlemen,—I notice in the BRITISH JOURNAL OF PHOTOGRAPHY May 25 the letter of Captain Lascelles Davidson, in which he is quite accurate, leading one to suppose that Mr. Pfenniger does not use his studio for portraiture in colours as a business, but only for experiment. He was taking portraits in colour when I first called on him, early in June, 1903, and he showed me some of his work. He afterwards let me have two sets of negatives (portraits of ladies) for me to get some results by my process for comparison with the one he was using.

Very soon after, I introduced Captain Davidson to him, who has several sets of negatives taken of himself in uniform.

I really think it is due to Mr. Pfenniger that he should have the credit of having opened a studio for portraiture in natural colour in 1903.

Portraits of two ladies and myself in colours, by my process from his negatives, were among those of mine which were exhibited lately at the offices of the BRITISH JOURNAL. These were taken in June or July, 1903.—I am, yours faithfully, B. JUMEAUX.

Southwick, Brighton, May 28, 1906.

[Having allowed both sides to express their views, we must decline to permit our space to be used further for prolonging the discussion.—Eds., B.J.P.]

#### SULPHITES AND THE PYRO DEVELOPER.

##### To the Editors.

Gentlemen,—Like your correspondent, Mr. Parlow, I also tried Mr. T. Thorne Baker's developer, and found it not only much inferior to metol-quinol, but also less satisfactory than a normal pyro-soda developer.

As I did not wish to make up 50 oz. of each solution I calculated out the quantities per ounce of mixed developer, and the following is the result taken from my notebook:—

Pyro .....	4.375 grains.
Sulphite .....	21.775 "
Soda Carb. ....	54.687 "
Citric acid .....	4.375 "

Now, as the two latter must combine, I have calculated out the result, and as much as 9 grains of carbonate (or perhaps less) would be neutralised, and  $7\frac{1}{2}$  grains of sodium citrate be formed. Even then there are 45 grains of carbonate in an ounce; surely this is quite unnecessary, as the average quantity recommended by plate makers is 24 grains. If the extra quantity is used to neutralise the effect of the citrate restrainer, would it not be more reasonable to omit the latter and reduce the soda, and thus make a saving in the cost, and get a workable developer?—Yours faithfully,

London, E.C.

A. GASCOIGNE.

# METRIC MEASURES.

To the Editors.

lemen,—Surely the "Ex Cathedra" note at the bottom of ening page of your issue of to-day must have been written with- efficient consideration. Has it ever been proposed to abolish e of vulgar fractions in any reasonable man's advocacy of tric system—far less that of halves and quarters? Of course, ay be fanatics who have said things which may be construed n this, but such do not represent the generality of advocates. ould be quite open for anyone to use, if he chooses,  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{13}$ , or any other fraction of an unit which he may like, pro- only that when he proceeds to measure out such quantities in e he makes use of the weights or measures legally sanctioned at is pretty much the practice now.

s quite true, as you remark, that there are units of weight easure in the definitions of the metric system which are rarely and which have therefore become to a great extent obsolete; it an objection to a dictionary that it has too many words in ny of which are not in general use? They are available er required—as, in fact, some of these are—and a rich vocabu- usually considered as a recommendation to a language.

say there is no equivalent for the ordinary pound or chain. he half-kilo. is used in France instead of the old livre, and many for the pound. It is called by this name, but this e is not illegal any more than in England it is illegal to of a shilling as a bob.

next proceed to say that there is no chain. Assuming that ean a survey chain of 66 ft., I would call your attention to ct that the legalised chain for this purpose in France is the e decametre (65.81 ft.), which is as convenient a length in use. ain only derives its convenience from its relation to the acre ile; with them, it would go, but it is quite possible to replace

for dozens and grosses, as there are several of each as terms le, they might well make room for definite words, but no ones e, to make the use of the words illegal; only if disputes arise atter must be expressed in sanctioned units. There will then oublets arising from customs of trade, whether local or general. ry man knows exactly what a pound or a shilling is (money), less he is acquainted with the customs of trade he requires erpreter to make his bargain, and this is a hindrance to the ansaction of business.

re are two parties to a bargain. The buyer is obliged to pay l tender, and his side of it is quite definite; the seller takes age of customs, and may employ terms which in English mean ing quite different from that in which they are used, in fact, ight as well speak in a different language.

effort was made long ago to remedy this by the Imperial ts and Measures Act, but it has failed for reasons which need e discussed here. It remains to be seen whether the introduc- e the metric system will avail.

ourse, that system will not meet everyone's convenience and e perfectly, and it cannot but cause some trouble and inconve- at first; but it is approved wherever it is in use, that is, e civilised nations except British-born ones.

sting that you will pardon the length of this letter, I am, en, yours faithfully, J. F. TENNANT, Lieut.-Gen., R.E. Clifton Gardens, Maida Hill, W.,

May 23, 1906.

note was written in condemnation of the metric system, y drew attention to the remarkable report of the Postal Con- and to what appeared to be most probable reasons for the e being opposed by the representatives of metric countries. e regard to the chain, this unit, we believe, was originally d, and the double decametre (which has been supplemented econd chain of 25 metres) was only legalised in acknowlegd- e the fact that such a special unit was found to be necessary. as the whole point of our note. Units not forming part of mple decimal series have proved to be necessary, and con- exists owing to the retention of old convenient units, and euction of new ones. From sundry sources we have been led erstand that in several metric countries the confusion that n regard to weights and measures is as bad if not worse n this country.—Ebs., B.J.P.]

## Answers to Correspondents.

\*.\* All matters intended for the text portion of this JOURNAL, includ- ing queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\*.\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\*.\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\*.\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

A. G. Silvester, Church Square, West Hartlepool, Durham. Photograph of Sir Thomas Richardson.

E. W. Wiggell, 38, Alexandra Place, Sirhowy, Tredegar, Mon. Photograph entitled "Coming to Market in South Wales."

W. Sheeran, Watercastle, Duvrow, Queen's County, Ireland. Two Photographs of a Dinner given by Viscount De Vesci to his Workmen on his Estate at Abteyville.

J. G. Ewell, Oldtown, Abbeyleix, Queen's County. Two Photographs of Lord and Lady De Vesci.

R. Brown, Boulevard, Weston-super-Mare. Photograph of Christ Church Old Boys Football Club.

HUBL's "THREE-COLOUR PHOTOGRAPHY."—Could you kindly tell me the publisher of Von Hübl's book, translation by Klein, and the price for the same, stating whether it is nett or otherwise?—M. R. RONALD.

Penrose and Co., 109, Farringdon Road, London, E.C. Price 7s. 6d. published.

STUDIO BUILDING.—As I am about to build a studio I would like you to give me a little of your valued information. Is 10ft. wide enough? Is the glass side high enough at 8ft. for background? Is it good to block out the light at 3ft. from both ends, and do you think, generally, would you get a good light in it? It will have N light. Cheapness, together with good workmanship, is my chief object. Would I be able to take midget three-quarter length in this 27ft. By answering above you will much oblige.—"SPECULATE."

Ten feet wide will do, but a foot or two more would be better. With this length of studio 5ft. or 5ft. 6in. at either end might be opaque with advantage. It would be better if the ridge were carried higher than is shown in the sketch, if the garden wall will allow of it. With regard to the quality of work that can be done in the studio it should be excellent. Three-quarter midget pictures can be taken, unless the lens used is of extra long focus. The sketch has been returned as desired.

FERROTYPE PLATES.—(1) Can you tell me, through the medium of your paper, a way to keep thin ferrotype plates from denting? (2) Also a good preparation for cleaning same?—V. B.

(1) The only way we know of keeping them free from dents is to handle them with ordinary care. (2) There are many ways of cleaning the plates. Common whiting and methylated spirit is a very simple way. Rub it over and let the mixture dry on the plate, then polish off with a clean leather.

OWNERSHIP OF NEGATIVES.—Over a year ago I was asked by a client to take a number of views and to supply him with a print of each for the purpose of reproducing postcards. Including travel- ling expenses the amount came to £4 4s., which I had a little trouble in getting paid. He now threatens to take proceedings against me if I do not give him the negatives. Nothing was ever said about negatives. Are the negatives his property or mine?—N. B.

Let him threaten; the negatives are yours. It has been decided over and over again in County Courts, and also in the High Courts, that the negatives are the property of the photo- grapher, and not the customer. A number of cases are cited on page 738 of our volume for 1899; also a case in the High Courts,



on page 250 of the volume for 1903. See also the Almanac for the current year. You must bear in mind that although the negatives are your property, you must not use them for any purposes of your own.

**PLATINUM PRINTING.**—Can you give me in next issue of B.J. any information, or mention any works published on the manufacture of platinum paper?—**PLATINO.**

"Platinotype, Its Preparation and Manipulation," by Sir Wm. Abner and Lyonel Clark. 2s. 6d. "Photographic Reproduction Processes," by P. C. Duchochois. 2s. 6d.

**CLEANING PAINTING.**—Will you kindly, through your paper, tell me how best to clean a painting (oils)? Also could you give me the Photochrome Co's. address, as I cannot find it in the JOURNAL?—**F. R.**

If the painting is a valuable one we would advise that the work be put into the hands of a professional picture cleaner and restorer. If not, and it is only dirty, try the following:—First wash the picture with a sponge and lukewarm water, and wipe dry. Then cut a potato in half and rub over the surface with that—using a circular motion. After this go over the picture with the sponge and water again. If you desire further information we must refer you to the "Carvers' and Gilders' Guide." It may be had, if still in print, at Kent and Co's, the publishers. The address of the Photochrome Company is 35, Hosier Lane, Snow Hill, E.C.

**P. E. M. (Hford).**—We know of no such list.

**SUNDAY PHOTOGRAPHY.**—The superintendent of police in this division sent a sergeant down to my shop to tell me if I was caught taking photographs in my studio on a Sunday he would report the case, and that I was liable to prosecution. I write to ask you if he can do so, and under what Act of Parliament the summons will be issued? He said it was Sunday trading, and not a work of necessity. Do you consider it Sunday trading? I do not open the studio as a general thing on a Sunday, but I just go up to the place by appointment and take those who cannot get to the studio on any other day. I accept no money in payment for them on that day. I had no idea that photographers were liable at all, as I do not sell anything on that day. If I am liable in — I ask why are not others liable in towns of this Universe? What is the meaning of this particular case? I have taken photographs on Sunday, and so have my predecessors, and I am at a loss to know why I have been so suddenly stopped. I enclose two cuttings taken from the B.J.P. for this week, which shows that Sunday duty is quite common.—**S. K.**

The Act of Parliament under which proceedings will be taken, if they are taken, is the antiquated one passed during the reign of Charles II., which has never been repealed. While it is still on the Statute Book it can, of course, be put into force. This is rarely done nowadays, and when it is it is usually by local "powers that be" who are of the ultra "goody-goody" type. Photography, as a business, is largely carried on all over the country on Sundays, but it is seldom that any one is proceeded against, though, of course, all are liable to prosecution for carrying on their trade on the Sabbath, whatever it may be, with but a few exceptions. The fine, however, is limited to five shillings. You say you take no money on Sundays; that makes no difference. You are following your worldly calling. Under this same Act you cannot recover money for any work you may do on the Sunday.

**STUDIO LIGHT.**—Would you be so good as to advise us in the following studio query? The studio is 30ft. x 12ft., 14ft. to ridge and 7ft. 5in. to eaves. As originally built all glass was plain clear, the upright position being somewhat close to a shrubbery. The slant not having quite a clear sky space, the interruption being a very high red-brick side of house about 30ft. away. We have recently secured upright glass (ground glass effect) and improved lighting. The question we wish to know is whether obscuring the roof light in a similar way would improve the lighting further, or reduce the light too much? (We are inclined to think that ground glass does not make a studio slower). The trouble with all clear glass is a very hard and uneven shadow on dark side of face.—**CLARENCE.**

Ground glass, if kept clean, does not make the light materially

slower, and it certainly tends, with some aspects of the studio to give softer shadows by diffusing the light more than of glass. We should advise you to try treating the roof glass in the same way as you have done the side. This you may do temporarily by covering it with white tissue paper. You will see if it is an improvement or not.

**BLOCKING MEDIUM, ETC.**—1. I shall be glad to know if you have a formula which you can give us in your next issue for preparation of a paint of pigment for blocking out negatives. We use a large quantity, and require one that will dry quickly. 2. Also, we shall be taking at an early date a number of negatives at a motor meeting, necessarily giving very short exposures possibly so small as 1-1,000th of a second. In all probability some of these will tend towards under exposure, though we are using a focal-plane camera. Will you therefore be so kind to recommend a developer which will give bright results?—**A.**

1. As a blocking-out mixture for machinery, etc., in negative there is nothing better than the best Indian ink ground in china dish as a draughtsman prepares it for his drawing pen. For blocking out larger areas a quick-drying Brunswick black is very suitable, and so are the mixtures sold commercially for the same purpose. 2. Pyro-metol is as good a developer as for the purpose:—A: Pyro 80 gr., metol 70 gr., potass. metol sulphite 180 gr., potass. bromide 30 gr., water 22 oz. B: Sodium carbonate 3 oz., water to 20 oz. For normal exposures increase the proportion of B and add water.

**R. R. R.**—You would be able to obtain what you want from F. and Co., Fulwood's Rents, High Holborn, or possibly from Lumière N.A. Company, 4, Bloomsbury Street, E.C.

**GOLD CHLORIDE.**—I have an old 9 carat gold chain that is very much worn. Could I easily convert it into gold chloride solution for my own use?—**TONING.**

If the chain is immersed in nitric acid 1 part, hydrochloric acid 3 parts, and heated by means of a water bath it will gradually dissolve. Then you would have to precipitate the alloyed metals. You would find it much easier and quite economical to send the chain up to one of the refiners, who would send you its value in gold chloride.

**W. W. R.**—A neutral grey is about the most suitable colour. I should not recommend you to put in a dark room larger than, say, 4 ft. square, i.e., sufficient for changing plates and developing one or two exposures at a time. It might be placed in either corner at the back of studio.

**THREE-COLOUR PORTRAITURE.**—1. Some time ago you were recommending professionals to make use of specimens of the tri-colour photography as a new means of attraction. I have mislaid the article, and ask that you will either give me the address of the firm through your correspondence column or send along another copy of the JOURNAL of that date to me.—**F. R. W.**

1. The Rotary Photographic Company, Ltd., 12, New Union Street, Moorfields, London, E.C. 2. The "Almanac" is obtainable now with difficulty. Better write to a large dealer, such as Houghton's or Butcher. We have none. 3. Other three-colour firms are: Sanger, Shepherd, and Co., Gray's Inn Passage, London, W.C.; Fuerst Bros., Philpot Lane, E.C.; and The Autotype Company, New Oxford Street, London, W.C.; and the Lumière N.A. Co., Bloomsbury Street, W.C.

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## SUMMARY.

The Photographic Convention.—The full programme for the Southampton meeting is given on page 443.

The Paris Salon which was to have opened to-morrow has had to be postponed for a few days. It will open to-day week, June 15. (P. 445.)

Proposed improvements in London streets threaten the present use of the Royal Photographic Society in Russell Square. (P. 441.)

Protest is being made against the recent new arrangements for photographing objects in the British Museum. (P. 443.)

The value of a colour chart in ascertaining the properties of rhochromatic sensitisers in the copying of coloured objects is the conclusion of Baron von Hübl from a series of comparative experiments with the spectrum and a colour chart. (P. 446.)

The one-plate one-exposure colour method of Powrie is among the patents of the week. (P. 454.)

A modification of the method of making replicas of diffraction gratings has been published by Mr. R. J. Wallace. The advantage of the new method is that the replica dries without further shrinkage once it has been mounted. (P. 450.)

In the course of some notes on photographic varnishes, attention is drawn to the excellent celluloid varnishes sold as "cold lacquers." (P. 445.)

A review of photo-engraving methods by Mr. N. S. Amstutz is reprinted on page 451 in continuation of the recent paper by the same writer on the relief of half-tone blocks.

A new self-development paper containing gallic acid and free silver has been patented by the Lumière brothers. (P. 450.)

A recent work by the Hon. John Collier, "The Art of Portrait Painting," contains a number of lessons for photographic portraitists. A review of the book, by Mr. F. C. Tilney, appears on page 444.

The photographic portraits by Dührkoop are being shown in important provincial centres during the next twelve months. (P. 457.)

## EX CATHEDRA.

### Superb Technical Photography.

Yesterday there opened at our offices a small exhibition of photographs of flowers and animals by Mr. Henry Stevens, better known, perhaps, for his photography of these subjects ten years ago than he is to-day, when many possibly who are familiar with the auction rooms of "J. C. Stevens," King Street, Covent Garden, do not recognise in the present head of the firm the amateur photographer who has carried off a number of awards at past R.P.S. exhibitions at Pall Mall, and has received many other medals and prizes for his photographs of flowers and domestic pets. His renderings of subjects of such opposite character and of such opposite requirements in photography as a group of foxgloves and a couple of terriers show a mastery of technique which has probably never been equalled. Technical perfection, as that term used to be understood in photography, is rarely to be seen in these days of impressionism. The exhibitions offer no outlet for it. The R.P.S. which medalled Mr. Stevens's work three times in the old Pall Mall days would very likely place it among the refusés from the New Gallery, or accord it the debatable solace of space in the technical section. For this reason we have been fortunate in persuading Mr. Stevens to arrange a collection which does justice to his continuous work and is an education in what can be accomplished by the photographic process in the rendering of subjects which amateurs delight, and professionals are often called upon, to photograph. We shall refer further to the photographs next week, when we shall present an art supplement of one of the flower studies.

\* \* \*

### The R.P.S. House Threatened.

It may be remembered that the recent report of the London Traffic Commission advocated the construction of a new main road from Victoria Station to Whitechapel. This East and West thoroughfare was to be intersected by a widened Gray's Inn Road, which would be continued in a southerly direction across the river down to the Borough. The East and West road in this scheme would cut through the centre of Russell Square, and probably just miss the premises of the Royal Photographic Society, which are on the eastern side. The scheme is not altogether a satisfactory one, particularly as regards the North and South avenue, and an amended edition has now been suggested by Mr. Paul Waterhouse. (See "Architectural Journal," May 26, 1906.) This is distinctly superior, as the new North and South route is taken on the line of Kingsway and Southampton Row, but a point of interest to members of the R.P.S. is that it involves the destruction of the whole of the east side of Russell Square and the abolition of the present R.P.S. premises. At present it is only a



scheme, but of the two proposed it is so evidently the better that it will probably have the preference if the contemplated improvement is carried out at all. Possibly this compulsory move might be advantageous rather than otherwise to the R.P.S., and though the prospect is not imminent, it may be as well to bear in mind the fact that it is not altogether improbable.

\* \* \*

#### Visitation Day at Royal Observatory.

This annual event, which is much looked forward to by many interested in science, took place on Wednesday, May 30, and the visitors present included several members of the Royal Photographic Society. There is, perhaps, not very much to be seen of interest to the ordinary photographer, though the photographic work of the Observatory is carried out on a fairly imposing scale. From the report, it appears that no less than 12,000 prints were made during the year, while something like a thousand negatives were secured. This is not a bad record of photographic work, though, as a matter of fact, the number of negatives taken is less than in previous years, when the great photographic chart of the stars was in its early stages. It is to be noticed that the Observatory is still contemplating additional buildings. Since we first visited it, in 1893, the progress made in erecting new buildings and providing new instruments has been truly remarkable. The old Observatory can have never before witnessed such a busy thirteen years.

\* \* \*

#### A Menace to the Observatory.

From his annual report to the Board of Visitors to Greenwich Observatory, last week, we see that the Astronomer Royal complained that the continued efficiency of the Observatory is seriously threatened by the schemes for the supply of electric power for the whole of London and surrounding districts from generating stations situated in the immediate vicinity of the Observatory. Amongst these, he says, the chief and most serious danger arises from the generating station of the London County Council, which is planted exactly in the Greenwich meridian, in a position where its excessively tall chimneys will interfere with the observations of the stars near the northern horizon, and will render the results of observations untrustworthy on account of smoke and currents of heated air. He adds further that, as this generating station stands at a distance of only half a mile from the Observatory, there is grave risk that the vibration from the extremely powerful engines installed there for the supply of electro-motive power for the tramways and other works, will seriously affect the value of observation by reflections from the mercury horizon which are essential to the fundamental work of the Observatory. It would be a serious matter if the extremely delicate work carried on at the Greenwich Observatory were materially interfered with by the London County Council's generating station. But that body, we fear, has little consideration for such places as Royal Observatories. The curious thing is that the Greenwich authorities should not have anticipated the effects of the electric station before it was erected.

\* \* \*

#### Photography at the Madrid Outrage.

It appears, according to Reuter's special service, that some one succeeded in securing a snap-shot of the late dastardly attempt on the lives of the King and Queen of Spain at the moment of the explosion of the bomb, and that a reproduction of it had appeared in one of the Spanish illustrated journals. The account goes on to say that the picture shows a dense fog of dust, from the middle of which emerge

the figures of three mounted soldiers, one apparently headless and another with his arm upraised. In front of the carriage one horse is lying dead, and the other seven are spread across the street in a panic. One is oftentimes apt to discount largely anything relating to photography which appears in the daily press, but there is nothing improbable in the assumption that a very successful snap-shot was actually taken at the exact moment the bomb exploded, seeing that photographs were being snapped continually during the procession all along the route. Quite by accident, this one might have been obtained at the precise moment of the explosion. The negative should be of great value to its owner, whoever he may be, but, possibly, the publication of prints from it may be prohibited.

\* \* \*

**The Size of Enlargements.** We were recently reminded of the need which at times exists of advising a customer as to the size of an enlargement by seeing, in a new restaurant recently opened in London, a photographic enlarged portrait of the proprietor hanging on one of the walls, presumably for the purpose of attracting the attention of visitors. Yet the portrait, a 12 by 10, appeared utterly insignificant in its position on a panel of considerable size, and, at the distance at which the stream of outgoing persons passed it, could not be recognised for anybody in particular. A print at least 30 by 20 was needed for such a position, and, no doubt, had the management had their attention drawn to the fact when the enlargement was supplied, they would have been glad to have ordered one of the larger size. We mention the matter as a reminder of the occasions when the photographer will not be out of place in questioning his client to the end the work which he is about to execute will be satisfactory in every respect.

\* \* \*

#### Sunday Photography.

Sunday photography, as a business, is now being practised to a great extent throughout the country as well as in the metropolis. Many who follow it may not be aware that they are doing anything that is illegal. Nevertheless, it is illegal for anyone to carry on his business on the Sabbath. Last week we answered a correspondent who had been warned by the police authorities that he would be proceeded against if he continued to take photographs on Sunday. The writer, like many others, was unaware that he was infringing the law by what he was doing, and asked under what Act of Parliament he can be prevented from plying his trade. The only Act under which proceedings can be taken is the practically obsolete one passed in the reign of Charles II. It is still on the Statute Book, but is very rarely put into force. If it were there would be no Sunday trade carried on at all, either in photography or anything else. The Act permits meat to be sold in public-houses, and milk and mackerel between certain hours of the day. Neither by this Act is anyone allowed to work on the Sabbath, except works of necessity or charity. We allude to this portion of this Act to show the absurdity of it at the present day. However, it is only in country places—where the ruling spirits, the local magistrates, "the great unpaid," are of the strict Sabbatarian type—that the Act is put into force. In one small town the same tradesman has been fined between two and three hundred times for carrying on his business on the Sabbath. He still goes on, undeterred, in his Sunday business. The utmost fine that the magistrates can inflict is five shillings, whether the offence is the first or the hundredth, and in most instances the trade done will leave a fair margin of profit on the day's work after the payment of this sum.

**day ing.** If one looks through our advertisement columns, "Situations Vacant," one sees commonly that "Sunday work" is stipulated for, and is quite sufficient to show the extent to which Sunday photography, as a business, is followed without let or hindrance. We have heard that in some places more business is done on the Sunday than on all the other days of the week put together, and this is not altogether surprising. It is considered that many want their portraits taken on their "Sunday best" clothes, and to don them on a day would often, with the working classes, mean the end of a day's work. Notwithstanding this, photography is not to be classed as a work of necessity, neither can it be a work of charity. Therefore everyone who practises it as a business on the Sabbath is liable, under the antiquated law of prosecution and being mulct in a fine of five pounds. Lord Avebury's efforts to obtain legislation on any closing must be considered in connection with the fact, though it is improbable that the present Parliament will forward any Bill on the question.

**ography** Until recently reasonable facilities have been afforded by the authorities for photographing books, MSS., prints, and other objects in the British Museum without payment of any fee, but in February last new regulations came into force which are meeting with considerable disapprobation on the part of those who have gone on to make photographs or who employ others to do so. Under the new arrangements a fee is payable according to the following scale:—For one negative, two pence (if the exposure should exceed an hour, the fee is a time fee). For more than one negative the fee is a time fee—viz., two shillings for the first hour or part thereof, and one shilling for each succeeding hour or part thereof, in the day. The time spent in preliminary adjustment of apparatus and in clearing away to be charged. Beyond these fees, the authorities may also demand copies of each photograph taken, so that in some cases might happen that the expense of complying with the regulations was prohibitive. There has appeared in the "Times" and elsewhere some correspondence on the subject. Naturally, the imposition of a fee at all rouses some objection, but, granting its necessity, the system of charges does not appear to be an ideally equitable one. As the Museum is a public institution, and as the dissemination of photographs of its contents directly assists the object for which it exists, the restriction on photography should be no more stringent than absolutely necessary.

## OUT PHOTOGRAPHIC VARNISHES AND VARNISHING.

For persons, we imagine, when they have had a valuable negative injured or, perhaps, irretrievably ruined through contact with damp printing paper or, possibly, from the negative having inadvertently been left out in rain, have regretted that it had not been varnished in the first place. Yet such an incident, in many cases, does not prevent them from protecting their negatives in future by making a rule to give them a coating of some protecting varnish. In the days of the collodion process, varnishing was absolutely necessary, as it was next to an impossibility to get even a single print from the negative without ruin, if not ruin, to it, so delicate was the film. With the modern negatives, however, the film is so hard that there is little fear of its suffering from mechanical injury; it is only moisture only that is likely to bring about trouble. Not the cost of the varnish which, we suspect, deters anyone from using it, but the imaginary trouble in

applying it. We say imaginary because it is that rather than real, as we shall presently show. Before doing so, however, it will be well to say a little about the different varnishes that may be used for the purpose, and their characteristics.

The varnishes suitable for photographic purposes are of two classes—those which have alcohol as a solvent of the base, and those that have other solvents and other bases. In the "Almanac," pp. 960-62, are various formulae for negative varnishes, all of which are good, and are not difficult of preparation; but, we imagine, the majority of our readers who require a varnish in small quantities will prefer to purchase it rather than incur the trouble of making it for themselves, seeing that it is sold by all dealers, and at so low a price also, that a little of it goes a long way. Those of the alcoholic type have, mostly, shellac or sandarac—or a mixture of the two—as their base. These two resins are very different in character. The former gives a hard and somewhat tough film, while the latter gives a more friable one which can be rubbed up with the finger, yielding an excellent surface for retouching upon. But the former will withstand rough usage better. Both are very resistant of moisture. All spirit varnishes require the plate to be warmed when they are applied, otherwise they will "chill," that is, they will dry with a matt or dull surface instead of a bright one, and will also be less hard and resistant than if they were applied to a warmed plate. One of the cheapest varnishes is the "white hard" of the oilshops, the base of which is sandarac, diluted with about twice its bulk of methylated spirit, and its surface is easily abraded for retouching upon. Another equally cheap varnish is the "brown hard," the base of which is shellac, similarly diluted. Its surface is too hard to be rubbed up, so that a medium must be used if retouching upon it has to be done. Both these varnishes, while being cheap, are very resistant of moisture. The white hard is pale in colour, but the other is much darker, but this is of little moment, as in its diluted form the slight tint in the attenuated film only retards the printing to a very slight extent. Each of the above, like other spirit varnishes, as just said, requires the negative to be warmed for its application.

We shall now deal with varnishes that may be applied without the negatives having to be made warm. The first is dammar varnish, which was the one almost universally employed for the old collodion glass positives. We are not quite sure that it is still an article of commerce, but it is easily made by simply dissolving an ounce and a half or two ounces of good dammar resin in a pint of benzole. Like sandarac, dammar is a friable resin, but is a good resistant of moisture and its solution dries hard in a few minutes. Also its surface is easily abraded for retouching upon. Japanner's gold size diluted with one to one and a half times its bulk of benzole, also forms a good protection to negatives. The benzole evaporates quickly, but the film does not get really hard for some little time, gold size being essentially an oil varnish.

Celluloid—old celluloid films after the gelatine has been removed—dissolved in amyl-acetate forms an excellent varnish for gelatine negatives. It is very hard and thoroughly moisture proof, so that there is little fear with it of damp paper doing mischief to the picture. However, the cleaning off of the gelatine is troublesome, and this, with the cost of the amyl-acetate, when purchased in small quantities, is an item. It is, therefore, better to purchase the varnish ready made. At the shops where a feature is made of varnishes, polishes, lacquers, and the like, cold lacquers are now sold. These are practically celluloid varnishes. They may be had of various colours, and



colourless. The latter is an excellent negative varnish, that is, for gelatine negatives. It is, of course, of no use for collodion ones, as it would dissolve the collodion film. Its price is quite moderate, being only a couple of shillings or so the pint, and that quantity will serve for some grosses of small plates; no more suitable varnish for the purpose is to be desired. It becomes dry and hard in about half-an-hour, or even less if the temperature be warm.

In regard to the application of the different varnishes above alluded to, one thing that is imperative with all of them is that the gelatine film *must* be perfectly dry at the time the varnish is applied. With the spirit varnishes the plate should be very slightly warmed, just sufficiently so to take the chill off the glass. The varnish is then gently flowed over the negative, and the surplus drained back into the bottle. The plate should then be slowly made warm, indeed, quite hot, and in a few minutes, after it

is cold, it is ready for the printing frame. If the plate is made hot in the first instance, the varnish will not flow freely, and will be apt to run off at the edges, for it should be borne in mind that spirit varnish does not take quite so kindly to a gelatine film as it does to one of collodion. The gold size and celluloid varnishes may, with care avoiding streaks, be applied with a flat camel-hair brush, but it is much less trouble to flow them over, seeing that the brush has to be cleaned afterwards, to say nothing of the waste of material. Dammar varnish must be flowed over the plate cold, but it flows more freely over a gelatine surface than do the spirit varnishes, and owing to the volatility of the solvent it dries in a very few minutes.

These few notes, it is hoped, will remind some how little trouble is involved in insuring negatives against the effect, perhaps ruin, of contact with moisture or with damp paper in the printing.

## THE ART OF PORTRAITURE.

THERE is no branch of art that makes so wide an appeal as that of portraiture. The fact is very obvious, for it takes little consideration to understand that no other branch can possibly have such strong social claims upon the community. Moreover, these claims, extraneous to art itself as they are, are more likely to grow stronger than weaker in the future; of that every sign of the times holds a promise. Folks will always be interested in presentments of themselves, their friends, and their heroes. They always were.

### The Study of Art.

There is more than the mere difference of method that separates the artistic photographer from the portrait painter. In spite of various attempts at a confusion of terms—attempts undertaken by a few admirers of the former—the fact remains unshaken. Should there be a man here or there who claims to be both, he probably does not do so in a professional sense. The difference lies here: The portrait painter is a man who has studied art—its principles, its practice, its history, and its traditions. He has also studied enough of optics and chemistry to serve his purpose. The photographer, on the other hand, has studied—or, at least, we will be charitable enough to assume that he has—optics and chemistry, and sufficient of the principles of art to serve, as he hopes, his purpose. But this is not a fair exchange, even granting an equality of success in study on either side. The photographer is in the worse position, because to him artistic merit is incomparably more indispensable than is scientific knowledge in these days when the perfection of apparatus and material is not his responsibility, but that of the manufacturer.

### The Study of Masterpieces.

Does it not behove the photographer, then, amateur or professional, to come at that more elusive part of his equipment by any means in his power? The portrait painters of to-day have a quite reverential admiration and regard for their forbears in the art—the old masters of painting. To the most mature and catholic of them that regard is what Shintoism is to the Japanese. Photographers, however, have a way of thinking that they know better. Upon compunction a modern master may occasionally win a raising of the cap from them, especially if he be thrown in their way as an exhibition judge, or if he volunteer a tribute of praise to camera work; but the old masters are safe for sneers. It is a lamentable state of things; not to say suicidal. Presuming that old work is difficult of appreciation to the uninitiated, its lessons can, however, be learnt through the medium of the modern master who has

assimilated them, and it is here that a back door may be found admitting to artistic merit for all who have not had opportunities for systematic training through the more ordinary and elaborate portals. But does the photographer—a few exceptions apart—avail himself of this chance? Does he, as a rule, approach a painted portrait in that mental attitude which would elicit its lessons? It is to be feared that he does not. And yet they have always been painters willing to speak of the conviction and preferences, the expediences and principles, that experience, failure, and success have formed. From Leonardo downwards this has been so. The very last to take those into his confidence who will, is one whose name is familiar to all as a leading light in modern portrait-painting. Camera portraitists are recommended to give him a hearing, and to make an intimate acquaintance with the great works to which he points.

The Hon. John Collier has issued a handsome quarto\* that teems with valuable suggestions, besides many aphorisms and axioms that the photographer would do well to lay to heart. The volume is adorned with forty-one illustrations in colour and half-tone, of which the printing leaves little to be desired. It will astonish many, especially the votaries of a diffused focus and "sketchy" backgrounds, to learn that the author confesses himself a realist, and raises the cry, "Back to Holbein!" more pronounced antithesis to smudge and fuzz than Holbein it would be impossible to find. The Hon. John holds "that the first object of the artist should be to give faithful likenesses of his sitters, and these likenesses should be characteristic—that is, the sitters should be wearing the sort of clothes that they wear in real life, and should be in the sort of attitude that they are wont to assume. If there be any accessories, they should, at the least, be not incongruous. The background should represent a fairly likely place for them to be in, if it represent a place at all."

### The Fitness of Clothes to Surroundings.

Whilst realising that the question of costume is one of the greatest trials, he thinks that the temptation to clothe sitters in fancy and picturesque garb should, as a rule, be firmly resisted. The clothes of men to-day present the greater difficulty; but shooting clothes are often inoffensive, and some uniforms not impossibly gaudy. Furs are quite pictorial; but it always gives the author "a shock to see a gentleman sitting down complacently in his drawing-room in a heavy fur coat."

\* "The Art of Portrait Painting," by The Hon. John Collier. London: Cassell & Co. 10s. 6d. net.

he would certainly have taken off as soon as he came  
s. If he be so attired he had better be nowhere in parti-  
or else out-of-doors."

re is one point upon which the painter is evidently at a  
r disadvantage than the photographer, and this is the  
of indoor portraiture as opposed to studio work. It is made  
clear that the painting of portraits in an ordinary room  
with such difficulties for the artist as to make the prac-  
ill but hopeless. "Theoretically," says the author, "I  
like my sitters to be placed in an ordinary room, if pos-  
one of their own rooms, so that they should be portrayed  
ir friends see them." Against this, however, there are  
objections. To begin with, the light that falls from a  
higher than the ordinary dwelling-house window is more  
ing to the sitter, defining the features pleasantly without  
ting them. Further, it fatigues the sitter less than the  
which strikes more horizontally into his eyes. Then, as  
or painter finds it necessary to walk backwards from his  
the ordinary room does not possess distance or convenience  
h to enable him to judge his work properly. Again, if the  
stands he gets a quite impossible view of anyone sitting  
when all the perspective becomes absurdly steep. All these  
ions, however, melt before the photographer. His opera-  
not protracted enough for the eyes of the sitter to become  
the perspective troubles may be overcome by lowering  
mera, and as for the inferiority of the effect from a low  
of light—well, photographers can use a raised artificial

#### Backgrounds.

very pertinent observations are made upon the subject  
kgrounds. Since the author has to abandon perforce the  
backgrounds that a room might be expected to furnish,  
naturally very chary of mere inventions, but he has no  
ions to leaving out. In full-lengths there must be a floor,  
the floor seems to demand walls, and the walls look very  
without some furniture, so that we are almost driven into  
ucting at least a plausible room." Repeating "almost"  
n instances certain pictures, for example, the "Admiral"  
asqueez in the National Gallery, wherein a tangible floor  
off into space without seeming absurd.

hat most convenient article, the curtain, as a background,  
iso of the "unfortunately popular" tapestry, he urges a  
ninate use, since their very convenience has rendered them  
eyed.

at when all is said and done, perhaps the best background  
one that represents nothing in particular, only it must  
t the right tone, and I, for one, have the greatest difficulty  
enting this right tone." (Now the photographer has only  
his roll down, and there it is! No worry!)

to accessories, they must be natural. The sitter's own  
or one in which he feels and looks at home, is essential.  
n should not hold a book if notoriously he reads nothing  
he daily paper, and so on.

following, apropos of groups, are surely wise words:—  
harmony of line and mass and colour, which are the essen-  
of our art, unfortunately cannot be defined. Most people  
some feeling for them, and artists ought to, and generally  
assess this feeling in a specially high degree. It can un-  
edly be improved by practice, and by the study of fine  
ples; as to what are these fine examples there is a  
oncensus of opinion."

regret to state that Mr. J. Marsh, of Henley, formerly of  
Market Street, Oxford, died last week at Henley. He was  
eighty-ninth year. For a long period of years Mr. Marsh  
een a well-known and successful river photographer, and espe-  
of the regatta crews. Of late years the business has been  
d on by his sons.

The examples that appear in the book are fine enough in all  
conscience—"The Civic Guard" of Van der Helst, with twenty-  
five figures: the "Syndics," of Rembrandt, with six; and "The  
Company of St. George" of Hals, with eleven.

#### Trousers and Artificial Lighting

Upon the subject of artificial lighting Mr. Collier is parti-  
cularly hopeful, giving it as his opinion that the modern man  
is as well known to his friends by artificial light as by daylight,  
and that there is no reason why the daylight aspect of him  
should always be represented. Greater freedom in this direction  
is therefore advised for the courting of greater advantages.  
Of the use of cast shadows also he is an advocate, following  
thereby the tradition of Rembrandt, whom he thinks, neverthe-  
less, carried the dodge too far. For the suppression of a pair  
of trousers, "the most hopelessly unpictorial article of clothing  
that has even been invented," the cast shadow is the simplest  
means, but it must be one actually produced, and must not  
appear an arbitrary arrangement of light and shade. It must  
be given with "more or less of an edge, and with some definite  
form. But however the effect is produced it should look  
natural."

The author treats also the question of scale, deprecating heads  
larger or but little smaller than life. Whilst admitting that  
the larger the size the more vigorous and striking the portrait,  
he adds, "I dare say we should all be more impressive if we were  
a good deal bigger. But being the size we are, I think our  
portraits ought to represent us as of that size, and of no other."  
It is to be hoped, indeed, that those colossal masks that we  
occasionally see squeezing through a mount will pass away.  
They shock one like those expansive visages that bent over one's  
pillow in the days of nervous childhood. The undersized heads  
have the reverse effect; they are contemptible—mere mannikins  
—unless they are small enough to put the human standard out  
of mind.

As will have been seen from the quoted extracts, the author  
writes with firm conviction and honest forthrightness. Of  
"high falutin'" there is none, yet it would have been easy to  
drop into, with such topics as he finds. A wholesale discrimina-  
tion characterises all his opinions, and it is refreshing to hear,  
from one who has known the darlings of the critics, such sober  
and unbiased estimates as he makes of the art of Whistler, for  
example. Whistler without hysterics is something new in print.

A word should be said as to the three-colour reproductions of  
the pictures, since this venture is one of the first that takes the  
matter seriously enough to come forward with colour prints as  
"documents" for reference. On the whole, then, they show  
that steady improvement is still going on in this method,  
Moroni's "Tailor" being the best, perhaps, because it  
offered fewest difficulties. In some, however, the usual draw-  
backs appear; the "twang" of colour over all, and the hot out-  
lines that do duty for narrow shadows in flesh.

The author himself is not quite free from our carping. He  
frequently drops into the common error of using the word  
"technique" when the less generic one of "execution" would  
better give his meaning.

To conclude with his own last paragraph, so full of valuable  
admonition: "But if we are always trying to be clever instead of  
endeavouring to represent more and more truthfully what we  
see, we shall most assuredly degenerate into mannerism, which is  
the grave of art."

F. C. TILNEY.

THE Paris Photographic Salon will open a week later than the date,  
June 9, originally announced. The delay has been caused by the clear-  
ing from the rooms of the exhibition which is at present collected in  
the Palace de Glace, Champs Elysees. The Photo-Club de Paris  
has very generously given the outgoing exhibitors a few days' grace  
in which to remove their belongings.



## THE PHOTOGRAPHY OF COLOURED OBJECTS.

[A paper by A. von Hübl in "Photographische Korrespondenz."]

ALTHOUGH we can now sensitise our plates for any desired region of the spectrum, certain phenomena still appear in practice which point to an insufficient colour-sensitiveness or one that is not satisfactory for the particular purpose. In landscape photography, for instance, slopes covered with trees—in spite of ortho. plates and yellow screens—are rendered much too dark and wanting in detail, and in three-colour photography also complaints as to insufficient green sensitiveness of the plates is the order of the day.

This and similar phenomena cannot, however, be ascribed as a rule to insufficient or suitable sensitising, but to certain peculiarities of body colours which will now be explained.

As is well known, a coloured object always reflects a mixture of different coloured rays, belonging to a certain region of the spectrum, which, when they simultaneously strike our retinas produce a single colour sensation.

Fig. 1 shows a normal spectrum. The colours are in this in opposition to the prismatic spectrum of equal saturation, and, as will be seen, red and blue take up the most room, whilst yellow and blue-green are confined to quite a narrow zone.

From an object, which to us is yellow, all the rays are reflected which lies in those regions of the spectrum from red to green. The colours lying between red and yellow combine with those lying between yellow and green, in our eyes to form yellow. Therefore the colour appears intense and brilliant, which would not be the case if the object only actually reflected the small quantity of yellow which is present in white light.

### When Photographing Yellow.

The formation of the compound colour, "yellow," from the above-mentioned components is easily shown by a colour top. For this purpose a sheet of cardboard is painted as shown in Fig. 2—so that the size of the coloured sectors corresponds to the extension in the spectrum—and then set rapidly whirling. This screen will then appear of an even yellow colour, for the coloured sectors combine, and we see precisely the same as if all the colours simultaneously acted on the retina. The colour of a yellow object is therefore principally caused by the red and green rays reflected by it.

A red object of the colour of vermillion reflects as shown in Figs. 1 and 3 a much narrower zone of the spectrum. The mixture of rays can only include red, orange, and yellow, for with the addition of the neighbouring colour, "yellow-green," a yellowish orange would result.

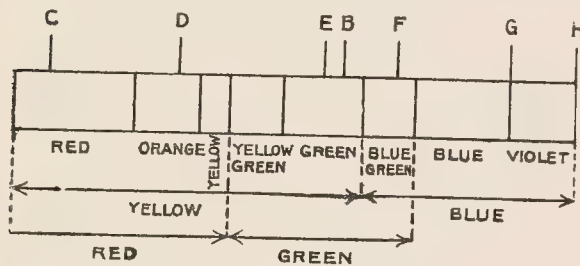


Fig. 1.

The mixture of rays emanating from a yellow object only differs therefore from the form a vermillion object by the presence of the green rays. From this fact the following conclusions may be deduced:—

(a) In order to reproduce by photography a yellow object light, it is necessary to sensitise the plate for the yellow rays of the spectrum, it will be sufficient also if it is sensitive for any colour between red and green.

(b) In order to obtain vermillion and yellow equally bright, the plate must be sensitive for yellow, orange, or red.

(c) Yellow will be reproduced bright and red dark if a green sensitive plate is used; inversely, however, it is not possible to

photograph yellow and vermillion so that the former appears bright and the latter dark. This requirement is often advanced in the colour work; that it cannot be fulfilled may be compared to the problem of photographing black lighter than grey.

A green object reflects with the green, also the yellow green, blue green rays, and an analogous colour mixture gives us the colour top screen shown in Fig. 4. The spectral zones, Fig. 1, which come into play, are also short, and a lengthening of the same is possible, for the adjacent colours, blue and yellow, are not complementary, and combine to form white, and their presence weakens obviously lower the saturation of the colours.

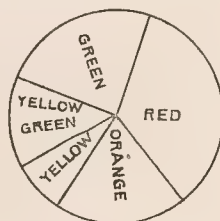


Fig. 2.

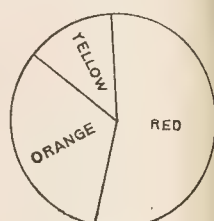


Fig. 3.

The rays reflected by a blue object consist chiefly of spectrum blue strengthened by the blue, green, and violet rays; reddish blue reflects small quantities of the red rays, and by gradual increase of the latter the colour changes from blue to violet and purple and red.

Perfect colour brilliancy is wanting in most of the saturated colours for they are saddened by the admixture of more or less black.

Yellow is the only exception in this respect, whilst the pure vermillion, emerald green, and ultramarine, always show a certain tinge of black. But such pure colours are rarely met with in nature or in pictures.

This fact can be easily proved by placing the coloured object on white paper and looking at it through a glass of the same color. The colour will then completely disappear, and the object shows more or less of a grey appearance, which is produced by the proportion of black in it. If this grey is compared with a scale of greys of known value the ratio of black in the colour may be numerically determined.

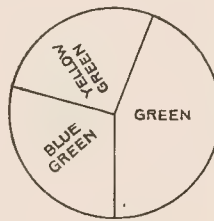


Fig. 4.

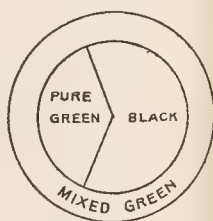


Fig. 5.

What a considerable proportion of black there is in certain colours which are considered as tolerably pure, may be learnt from the following experiment. A colour template coated with a mixture of ultramarine and chrome yellow, and a smaller one painted with as far as possible, a pure green, such as an aniline dye, combined with opaque black, should be arranged as shown in Fig. 5.

When the two screens are rotated together to produce the same impression, the sectors of pure green and black must be about 1:2.

From this experiment one must conclude that the mixture of ultramarine and chrome yellow consists of one part of green and two parts of black, and as the pure green used for comparison also contained some black the proportion is still greater. Most painters

show a somewhat similar high proportion of black and almost no colours of nature also.

Under such condition it is indeed natural that the green in a plate, for instance, can never under any conditions be photographed bright and white. If a plate is strongly sensitised for green, yellow, and blue green, and a narrow green filter be used, such a pigment can never be brighter than a grey with an equal amount of black in it, thus a grey which consists of two parts of black and one of white.

It is explicable why the ortho plate frequently does not give the expected advantage, why in three-colour work the red printing is frequently said to be defective as regards density in the blue.

The cause of this obvious fault does not lie in the sensitising of the filter; it should obviously rather be looked for in the ortho plate, the blackness of the colour.

#### The Colour Chart as a Test Object.

These peculiarities of colours must also be kept in mind when the properties of a photographic plate are to be determined by photographing a coloured chart.

The customary method at present of testing colour-sensitive plates

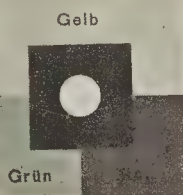
is by means of a colour chart. Further, the colours must be of the same purity and equal saturation.

A colour chart issued with this paper ("Korrespondenz") is composed of a central white circle—round this a blue square marked "blau," at the top is a yellow "gelb" which, when mixed by sectors of 180 degs., gives with the blue a neutral grey, and at the bottom are two squares, green, "grün," and red "rot." The red, green, and blue colours are symmetrically placed in the colour circle given in von Hübl's book on three-colour work, and when combined by rotating sectors produce also a neutral grey.

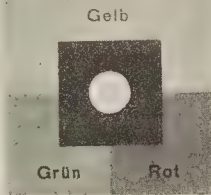
The yellow and red must be slightly darkened with black in order to fulfil these requirements, so that a fairly equal purity of all colours, that is an equal proportion of black, was obtained. Round these coloured squares is placed a grey ground which has the same proportion of black as the colours, so that in photographing this chart in no case can any colour appear lighter than this grey. The density obtained in the yellow and blue sections shows the ratio of the total colour-sensitiveness to the blue sensitiveness of the plate. These two pigments here play the same rôle as the yellow and blue filters as used by Eder in his colour sensitometry.



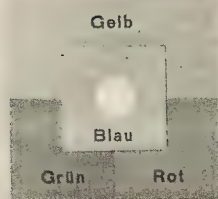
Ordinary Plate Exp. 1.



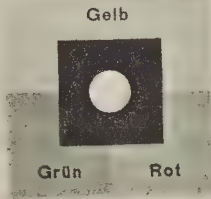
Ortho Plate with Yellow Screen  
Exp. 30.



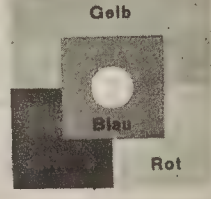
Pinaverdol with Yellow Screen  
Exp. 4.



Pinacyanol without Screen Exp. 1.



Pinacyanol with Yellow Screen  
Exp. 4.



Diyanine Collodion without Screen  
Exp. 5.

means of the spectrograph is indeed theoretically free from error. It gives, however, only very uncertain conclusions as to the behaviour in actual practice. For this reason a colour chart has again been recently recommended by Dr. Aarland as a test object.

It may be advanced against the colour chart that it can only prove the behaviour of the plate to a mixture of coloured lights, but this is exactly what the practical worker wants. It is of little interest to know whether the plate is sensitive to wave length 590 or 610; he wants to know how the plate will behave to various coloured objects, whether it can also be called colour-sensitive without a yellow screen. What intensity of filter is necessary in order to reproduce reds and yellow in a given luminosity ratio, whether it will reproduce reds, light, and so on.

Such and similar questions can be answered with much greater certainty with a chart than a spectroscope.

The colour chart must, however, be chosen in a systematic manner. It must contain certain pigments, as the conception of red, green, and blue, and so on, is undetermined, and it depends upon the sub-

jective conception. In order to learn better the peculiarities of sensitising, especially with plates of low colour-sensitiveness, a yellow screen is used which possesses a saturation equal to the yellow field of the chart.

The accompanying results were obtained with different plates. The ordinary plate gives the blue about the same luminosity as the grey border, all other colours almost black. The very slight action of the green and yellow, but which is plainly distinguishable in the negative, is explained by the fact that these colours reflect the adjacent blue green rays, and the plate is somewhat sensitive to these rays. The red also appears to have some action because this pigment reflects a very small quantity of the violet rays. A collodion plate shows a slightly different appearance, for its sensitiveness does not extend into the blue green but reaches further into the violet. The red square is therefore only faintly but distinctly exposed, whilst green and yellow are clear glass.

A commercial ortho. plate shows without a filter almost no colour-sensitiveness, but with a yellow filter it gives the yellow and green dense and the red very thin. If the exposure for an ordinary plate is assumed to be 1, the ortho plate with the yellow screen requires an



exposure of 30. The exposures above the prints are also given in the same way.

A plate bathed with pinaverdol, as described on p. 148, "B.J.P.," February 23, 1906, shows a much higher colour-sensitiveness, as with a yellow screen it only requires four times the exposure. Pinaverdol is an excellent green sensitiser; its action extends further towards the yellow than to erythrosine, as will be seen by the reproduction of the red square.

Pinacyanol reproduces red and green of almost equal luminosity; yellow brighter for this pigment reflects the red and green rays also. With a yellow screen the exposure must be increased four times, and then the three squares are lighter. Their relative luminosities, however, remain unchanged, and the blue obviously appears as black.

Pinacyanol sensitises to an equal degree for red and green, and by the addition of a small quantity of a yellow dye to the bath the blue may be so damped that these three pigments will appear of equal luminosity. Such a plate will always reproduce yellows brighter than red and green, as can be easily understood from what has already been said. In orthochromatic work, as in the taking of painting and landscapes, it requires only a very bright yellow filter

to reproduce all colours in their relative luminosities, and it is a suitable plate for three-colour work. It has been frequently stated that this plate cannot be used with the green screen. I cannot agree with this statement, for not only this chart, but a series of tests in blue, green, and yellow green pigments, have proved that pinacyanol gives the same results as the best green sensitiser.

The last chart reproduction shows a characteristic pure red sensibility, and on the other hand the high colour sensitiveness of a colour emulsion. Without any colour screen, dicyanine collodion emulsion reproduces vermilion and yellow almost like white, and requires therefore about the same exposure as a good sensitised gelatin with a yellow filter. The slight deposit in the green square shows that the plate is almost entirely wanting in green sensitiveness.

The colour chart is also useful for adapting colour filters for the colour work. A green filter, for instance, which is used for the colour system, "crimson, blue, green, and yellow," must be so chosen that the red and blue squares are of equal density and that of white, like the grey of the chart.

From these examples it ought to be seen that a systematically composed colour chart is of eminently practical value for all photographic work, in which colour plays a part.

## THE PHOTOGRAPHIC CONVENTION.

Last week we reminded our readers of the approaching Convention of the United Kingdom. The time draws near for the opening of the week at Southampton, which will witness the coming of age of the Convention, and will mark, so we believe, the assumption on its part of duties and responsibilities which in the recent past it has not regarded quite as seriously as it might have done. In every way the Southampton Convention promises to be what such a gathering should be, i.e., representative of photography in its industrial, scientific, pictorial, and recreative aspects. We have on a former occasion drawn attention to the programme of demonstrations, papers and excursions which await the visitor at Southampton, but as the memory of man is apt to let these things escape him, and as the arrangements are now at the stage of completion, we may be allowed to summarise the chief items in the Convention's programme for the benefit of those who may not have finally decided upon becoming one of the Conventioners. Perhaps no greater testimony to the success of previous conventions can be adduced than the fact that the Convention habit is one not easily shaken off, so that year by year figures which were first seen at the early meetings have turned up regularly, and will continue to turn up whilst the Convention continues to draw together a large body of men and women all interested in whatever makes for the advancement of photography.

### Papers and Lectures.

"The Differentiation of *Bacillus*, *Coli Communis*, and *Bacillus* Typhoons, by Means of the Photographic Plate." By Dr. Walter C. Stevenson.

"Is the Photographic Film Ionised on Exposure?" By Mr. Herry Thrift, B.A.

"Useful Negatives from Poor Ones." By Mr. C. H. Bothamley, F.I.C.

"The Ordnance Survey Department." By Colonel S. C. N. Grant, R.E.

"Old English Manners and Customs." By Sir Benjamin Stone.

"Clouds." By Mr. A. W. Clayden.

"Combination Printing." By Mr. A. Horsley Hinton.

"The Application of Cinematography to Natural Science." By Mr. F. Martin Duncan.

"Colour-Photography Up to Date." By Mr. E. J. Wall, F.R.P.S.

"Cinematography in Colours." By Captain Lascelles Davidson and W. Friese Greene.

### Visits and Excursions.

Cowes, Carisbrooke, and Osborne House.

The New Forest, Bolderwood, etc., etc.

Winchester, and St. Cross.

Netley and Romsey Abbeys.

The Ordnance Survey Department.

An American Liner on the Morning of Departure.

Mention should also be made of the unusual yachting facilities at Southampton, and of the fact that the President's "At Home," on the Wednesday afternoon, will take the form of a yachting party. Mr. Humphrey's leisure for many years has been spent abroad yachting, and, without anticipating the announcement of his plans for the entertainment of the Conventioners, on July 11, it may be said that the occasion will mark the zenith of enjoyment in what promises to be a most enjoyable week. The Earl of Crawford also hopes to have his yacht, "Valhalla," at Southampton during Convention Week, and to take part in the meetings.

### Demonstrations and Exhibits.

The Platinotype Co.—A large show of platinotypes, including a sepia platinotype paper with glazed surface; developing demonstrations, artificial light portraiture in a spacious annexe.

Kodak Ltd.—A large show of "Kodakery" Prints and enlargements, developing machines, demonstrations, etc.

The Autotype Co.—Carbon work in all its branches; developing demonstrations, including three-colour carbon.

Messrs. J. J. Griffin and Sons.—Specialties—pictures on velvet, demonstrations, etc.

Mattos Paper.—A fine show of pictures on the various kinds of Mattos paper, demonstration of toning, etc.

Wellington and Ward.—Screens, showing results on their papers and plates. Demonstration of toning bromide prints.

A. and L. Lumière.—Three-colour work.

J. H. Dallmeyer, Ltd.—Large show-case of lenses and apparatus. Photolinol, Ltd.—Show of results on bromide linen; "Anglo-sepia" platinum paper enlargements. In the balcony, studio demonstrations of portraiture by the Cooper-Hewitt electric light.

The Aerograph Co.—Finishing by means of the Aerograph, Mr. C. L. Burdick, who it is hoped will show the utility of apparatus for producing stencil postcard colouring.

Carl Hentschel, Ltd.—Will have two large screens of three-colour block work, etc.

Fuerst Bros.—Will demonstrate pinatype at the Conversazione.

The exhibition will be open free to the public on Tuesday, Wednesday, Thursday and Friday, from 2 till 5. The evening meetings, lectures, papers, receptions, conversazione excursion, yachting party, visit to the Ordnance Survey Department, etc., are restricted to members of Convention only.

To this list of attractions must be added the exhibitions of studio photographs, of work by the Southampton Camera Club, of scientific and photo-micro photographs, and other prints dealing with

photography in its scientific applications. The whole of the local arrangements are in the hands of a committee of which Mr. W. R. H. Hill is Chairman, and Mr. S. G. Kimber, Secretary. Reports speak hopefully of a large and enthusiastic meeting, and it is expected that many who have never hitherto taken part in Convention

gatherings will this year select the Southampton meeting as an auspicious occasion of meeting and making many friends. The general honorary secretary, Mr. F. A. Bridge, of East Lodge, Dalston Lane, London, N.E., will answer any enquiries from those anxious to become members.

## FOREIGN NOTES AND NEWS.

### The Action of the Ultraviolet Rays.

JOE points out in the current number of the "Photographisches schenblatt," that the ultraviolet rays play a considerable part in forming the image. The greatest photographic action lies between 345 and  $\lambda$  395. It is less on slow plates and more strong on rapid ones. With the latter the action is rather less than the blue and more than the green rays. Practically half the photographic action of white light is to be ascribed to the ultraviolet, and it acts more strongly on ortho. plates than on ordinary.

Acridine yellow, wool yellow, and canary yellow, which may be added to emulsions to diminish the action thereon of blue rays, will be found to lower very little, as they are actually strong sensitizers for the ultraviolet.

As already pointed out, the ultraviolet acts more on colour-sensitive plates than on ordinary, and thus it is quite possible to obtain results in practice which are not consonant with spectrographic tests. Thus, for instance, an alizarine red lake may not only reflect red and violet, but also the whole of the ultraviolet, and it would therefore give a fairly dense image even on a yellow-green sensitive plate, for the action of the ultraviolet at  $\lambda$  375 is almost as great as that of the orange rays.

Stenger has shown that an erythrosine bath plate shows as much density, 2.57 in the yellow as in the blue at  $\lambda$  450, but when photographing a chart, the blue pigments will always be rendered lighter, cause to the action of the blue is added a further density of 1.68 to the ultraviolet.

To absorb the ultraviolet, a yellow screen must be used, but care must be exercised in the choice of the yellow, and it is better to use 1 per cent. solution of quinine sulphate in a liquid cell of 1 cm. thickness (or a gelatine coated plate soaked in a saturated solution of aesculine.—Eds., B.J.P.).

### The Nature of the Developed Image.

LÜPPO-CRAMER publishes in this month's "Korrespondenz" some experiments he has made on this subject, a continuation of previous work in which he showed that nitric and chromic acids, and persulphates dissolved the image but left a yellowish brown substance behind. He now finds that:—

1. A 2 per cent. neutral or faintly acid solution of permanganate of potash dissolves the silver, leaving behind, after the removal of the manganese oxide with bisulphite, a brown image. If the permanganate solution is strongly acidulated with sulphuric acid no visible image is left, and yet a vigorous negative can again be obtained with physical development.
2. A 5 per cent. solution of ferricyanide of potassium, converts the image into white ferrocyanide of silver. If this be fixed in hypo, a faint yellow image remains. If, however, ferricyanide and hypo are used together, the image is completely dissolved and cannot be again physically developed.
3. When bleached with cupric chloride, and then fixed, there is no visible image left, but the negative can again be physically developed.
4. Bleached with bichromate and hydrochloric acid, there remains a faintly visible image which can be physically intensified.
5. Bleached with bromine water, the whole film becomes an intense yellow, but can be decolourised with bisulphite. If the white image is fixed in non-actinic light it cannot be again developed. If fixed in daylight there remains a visible image.
6. If a solution of iodine in potassium iodide be used, there is no developable image left even when it is fixed in daylight.
7. Ferricyanide of potassium with cyanide destroys any developable image.

If the image after treatment with chromic acid is immersed in

hypo a developable image remains, but if it is immersed in an acid hypo solution for an hour or two every trace of an image disappears. From this it is obvious that the simultaneous presence of an acid and a solvent of the image is required. A test with a 10 per cent. solution of ammonium sulphocyanide acidulated with sulphuric, nitric, hydrochloric, or citric acid, also showed that the whole of the image dissolved.

The author comes to the conclusion that the finished negative consists of two components:—(1) That part which is soluble in chromic and nitric acids, etc., and which probably consists of pure silver; and (2) the second portion which is left behind in the above treatment. This latter, the author thinks, may be a kind of solid solution of silver in silver bromide, or subhaloid.

### The Gradation of Orthochromatic Plates.

DR. STENGER, in a series of papers which have lately been appearing in the "Zeitschrift für Reproduktionstechnik," has dealt with the colour rendering by orthochromatic plates, and obtained the density curves for practically every ten wave lengths from 500 to 690 with increasing exposures. The articles do not lend themselves to useful abstraction, but at the close the author summarises his results as follows:—Behind the three filters for trichromatic work approximately parallel curves of density are obtained on colour-sensitive and ordinary plates, and with regularly increasing exposures regular increase of the density is obtained. A colour-sensitive plate does not show any extraordinary difference in its behaviour to light of different wave lengths. If the filter is adjusted to the plates so that the different maxima of sensitiveness are used, the result is a considerable shortening of exposure. If, on the other hand, the filter is not carefully adjusted, then the only result is that a longer exposure must be given, but the colour rendering does not suffer.

If similar gradations are required, then the same kind of plates must be used for all three exposures. Apparently, there is no constant which will enable one to say what will be the gradation curve of a sensitised rapid plate from a knowledge of the curve of the unstained plate. With transparency emulsions, staining the plate produces greater hardness as a rule. Comparative experiments with fast and slow plates have proved that the latter are more suitable for orthochromatising by bathing than the former, and better colour rendering is obtained. A further advantage of the use of slow plates is that they are much less liable to fog. The author's experiments have proved that the well-known fact that the maximum optical absorption of a dye is not coincident with the maximum of sensitiveness, but that the latter lies, as a rule, about twenty wave lengths nearer the red.

### Marginal Fog.

Dr. Homolka, continuing his researches on this subject (B.J., December 22, 1905, p. 1,008), has tried the action of different bromides. To every litre of emulsion 0.01 gramme molecules, corresponding to 0.8 g. of bromide, was added; for potassium bromide the quantities were: lithium bromide 0.87, ammonium bromide 0.98, sodium bromide 1.03, potassium bromide 1.19, rubidium bromide 1.65, and caesium bromide 2.13 grammes. Lithium bromide gave the least extension of marginal fog. Hence it is advised to add to the perfectly washed emulsion 0.87 grammes of lithium bromide per litre.

### The True Cause of the Formation of the Latent Image.

Whilst it is generally known that a latent image may be obtained on a sensitive film by various means, probably few are aware that the actual agent in every case is ozone. We must confess that this was new to us till we read a reprint of an address delivered by Benj. W.



Sands before the Photographers' Association of Missouri in 1905. He first convinced himself that ozone was the active agent, and then spent ten years in study and experimenting to determine the truth or falsity of his discovery. So far as we can see, the only proof he has is that he obtained a silhouette by the ozone generated from phosphorous. This is confirmed by the fact, according to the author, that "all the developers used to render the latent image visible, of which pyrogallol, eikonogen, ferrous sulfate, and potassium cyanide, are representative, are powerful absorbers of oxygen." A further proof is that iodide of starch paper, when exposed to light under a negative gives an image, thus "proving that white light creates ozone in proportion to its intensity." One must not, of course, advance the statement that the image is due merely to the liberation of iodide from the potassium iodide and its combination with starch. The author gives a list of no less than thirteen different ways in which a latent image may be produced, of which we give a few—lightning, X rays, light stored upon sugar, glow-worm rays, breath figures, N rays, and, of course, radium—and then says, "these numerous examples of the production of the latent image, both by direct and indirect radiation, serve the double purpose of showing the many ways by which the latent image can be produced, and of proving that all the various causes of production are but the different phases of one, and only one form of energy. Because, first—the latent photographic image is produced by ozone. Second ozone is always the product of oxygen plus magnetism. Third, any objective phenomena which can be photographed, proves the existence of a magnetic radiance therefrom, either direct or reflected. There is one method that the author does not mention, and we suggest that as a latent image can be produced by pressure the pressure causes magnetism which, plus oxygen, gives ozone; hence the latent image. Q. E. D.! On the subject of ozone the author seems a little hazy for he still ascribes the blue colour of the sky to ozone. Lord Rayleigh's researches notwithstanding. Again he says: "On account of the specific magnetism of oxygen varying inversely as the temperature, it is obvious that as the temperature decreases the quantity of ozone increases. For this reason the formation of ozone by light gives us the greatest amount in winter, and we find that when the atmospheric ozone is at its maximum, so also is the photographic action of light." Apparently we shall have to revise all our exposure tables.

#### A New Era in Photography in Colours.

The above extract from Mr. Benj. W. Sands's paper, we think, makes for thought and new lines of experiments by our photochemists, and we present yet another abstract which will set all those

who are interested in colour and colour photography experimenting on new lines. He informs us that what we have to search for is colour sensitizers whose combination with ozone corrects the great oxidising power of the blue end, or increases that of the red, because ozone is formed under all the colours of the spectrum, but most of the ultra-violet. "Photographs in their natural colours have been the aim of all photographic chemists, but up to the present time one has been successful in producing permanent prints except by the multiple-film process. Lippmann's process, by the 'interference' of light waves added much to our knowledge of thin films and the subject generally. But to-day marks a new era in this subject. From this time we will not have to experiment the dark to finally stumble on some chemical responding to all the colours of the spectrum. We can select such chemicals as are oxidized to the proper colours by ozone, or the reverse process, deoxidized, as I firmly believe that in the very near future we shall have photographs with all the colours of nature correctly rendered, and the process will be even more simple than ordinary photography."

#### A New Paper.

MM. Lumière, in the current issue of their "Revue Trimestrielle" give notice of the preparation of a new printing-out paper, which they call "Takis," samples of which will, no doubt, reach us in due course; but the reason for our noting it is that it involves, so far as we are aware, a new principle in the manufacture of printing paper. The paper is a P.O.P. containing excess of silver nitrate, as well as a developing agent, and it is only necessary to expose the same under a negative for a short time and then immerse in water, where physical development takes place. The novel point is the incorporation of a reducing agent with the emulsion, and the authors state: "The addition of the developer to an emulsion produces in very short time the reduction of the soluble silver salt. We have overcome this trouble by the addition of sulphurous acid, either to the emulsion or to the developing agent which we add to it. Here is a typical example of how we prepare our paper with gallic acid: Make 20 per cent. solution of gallic acid and add 10 per cent. of aqueous sulphurous acid. If, in the dark, 50 per cent. of this solution is added to a gelatine chloride emulsion, there is no difficulty in making a coating the emulsion." Mere immersion of the paper in water after isolation, develops the image, and the advantages of a printing-out and a development paper are combined. There is said to be a good range of gradation and great variety of tones, as the paper may be merely fixed, or toned with gold, either in separate or combined baths, or with platinum.

## DIFFRACTION GRATING REPLICAS.

In a previous paper<sup>1</sup> the writer described the process in use by him for the manufacture of replicas of Rowland's plane diffraction gratings. The present note is a description of a modification of that process, which offers a simplified method of producing good casts.

#### A Simplified Process of Making Replicas.

The original grating is flowed with the amyloacetate collodion and dried in the manner previously described; it is then placed in distilled water until loosened by contraction, and wiped dry. The stripping is performed as usual, and the edges of the cast are trimmed with sharp scissors close up to the ruled surface. This trimming should be done while the replica is held by the forceps, as it is strongly electrified by the stripping, so that minute particles of dust are attracted to the surface of the cast, and adhere thereto, being removable only with difficulty. A perfectly clean and polished glass plate is then flooded with filtered distilled water; and, while the plate still holds a little pool of liquid, the film is gently lowered into contact, carefully centered, and the plate is tilted up. A very gentle even pressure by the velvet rubber frees the cast from surplus water, and the edges are immediately cemented.<sup>2</sup>

The mounting may be either face up or down, as may be desired. After the edges have been cemented down, the mounted replica may be dried by heat, beginning gently and increasing gradually until a temperature of about 75 deg. C. is reached. In this way the film of water between the glass and the replica is driven off, the film being slightly porous.

If the replica has been mounted face down, it may readily be cemented under a covering glass, following the idea advanced by Ives. Care must be taken, however, that no particles of dust or other foreign substance have found a lodgement either between the glass and the replica, or in the film itself during the drying, as this will inevitably cause trouble by puncturing the replica and allowing access to the cementing balsam, which, gradually working through the most minute hole, and filling up the grooves, destroys the grating.

Since the publication of the previous paper the author has been informed that the deterioration of the Ives grating alluded to there is due to this cause, and another grating since obtained shows no sign of deterioration. A correction is also due with reference to

coating, which in my (his) opinion is quite unnecessary." He does not indicate whether or not any other medium is used in this connection.

This idea of mounting by the water method first occurred to the present writer about one year ago, and some slight amount of experimental work was performed thereon at that time. However in the beginning of September, 1905, the work was again taken up and carried through to completion in October: a written statement of the process was made and attested on November 2. In the event of further information confirming the similarity of this water method with that pursued by Mr. Thorp I cheerfully accord to him the priority of use of this process.

<sup>1</sup> "Astrophysical Journal," 22, 123, 1905. (Reprinted in "B. J. P." Nov. 24, 1905.)

<sup>2</sup> Since the writing of this present note there has come to hand "Nature," of November 23, 1905 (73, 79) containing a brief article by Mr. Thorp, somewhat in the nature of a reply to my former paper. In this article Mr. Thorp states that he strips and mounts "in a similar manner to Mr. Wallace, but leaving out the gelatine

patent, as it now appears that no patent was applied for. The previous statement was based upon information the writer had reason to regard as authoritative.

### Some Advantages of Water Mounting.

Water mounting by what may be termed the water method, in distinction to the former gelatine method, one eliminates at once every slight difference in refractive index between the replica and mountant; true, the difference still exists between the replica and the glass itself, but this may be readily overlooked. Experience shows that, although theoretically open to objection, yet practically, so far as definition is concerned, it is an entirely "negligible quantity." In any event, the similarity in refractive index between film and mountant (or cement), when adjusted for light of certain wave-length, will not be similarly identical throughout the spectrum. In this connection it may be noted that if a replica be mounted face down upon the gelatine-coated glass, and dried, approximation to a refractive index of the replica is so close that in ordinary daylight the grating effect disappears, and diffraction colours are entirely absent. If examination be made, however, in a spectroscope, with a slit and a concentrated beam of light, then very faint first-order spectra are discernible.

Further experimental work was undertaken with the object of determining whether the shrinkage effect was complete with the first part of the process (the stripping) or was continued during the course of drying. The result of these experiments confirm the latter view.

### Shrinkage Measurements.

Measurements were made upon replicas taken from a four-inch and six-inch grating, respectively, which were stripped and mounted under varying conditions, viz.: (1) preliminary bath in water, "sprung" off, and peeled dry; (2) floated off entirely under water; and (3) with prolonged soaking in water. The measurements were made (a) while wet, (b) partially dry, (c) thoroughly dry; (d) dried by heat; and (e) at normal temperature; (f) water mounting and (g) gelatine mounting; also (h) water mounting, cemented edges, (i) water mounting, uncemented edges. Mean results show that there is a measurable contraction during the drying of 0.016 mm. in 55.0 mm. The particular benefit, therefore, arising from the use of a preliminary coating with gelatine lies in the fact that once the replica is mounted thereon it dries without further shrinkage, the gelatine itself drying on glass without contraction in area. This latter point was determined separately by a series of measurements, for which the writer takes pleasure in acknowledging his

indebtedness to Miss F. A. Graves. These measurements upon wet and dry gelatine films were made with the object of determining any positive shrinkage between the two states. The results obtained show that there is no measurable difference observable, the actual mean being

wet = 7.050 mm.

dry = 7.028 mm.,

the difference of 0.002 mm. obtained being less than the probable error in setting.

### Effects of Temperature and Pressure.

In a series of experiments made upon the influence of temperature upon the collodion film during the time of "casting," it was found that an increase over 21 deg. C. would cause the replica to dry with a more or less matt or reticulated surface. This reticulation increases with the temperature. Lower temperatures varying down to 6 deg. C. appear to exercise no influence upon the film.

Contrary to expectation a pressure of 200 lbs., continued for ten days, appears to have no direct effect upon the replica. It was supposed that such a continued pressure would result in either a flattening of the ruling, or at least in a changed shape of groove. Careful examination in a spectrophotometer, however, does not show any difference between the half which was subjected to pressure and that which was not, each half being covered by opaque paper, respectively, when tested.

Through the courtesy of Mr. T. Thorp, of England, the writer has been presented with a grating replica from a 14,438 ruling, and in a letter accompanying the same is informed that the present method of preparing and mounting the casts has been much improved from that in use by him formerly, the air-bubbles (referred to in my former paper) being now entirely eliminated. The replica certainly bears out the statement, being very free from such imperfections and presenting a very clean and brilliant appearance. Mr. Thorp further states that he does not use a preliminary coating with oil before flowing the grating, but makes use of a method "very little different from" that described by the writer in his previous paper.<sup>5</sup>

ROBERT JAMES WALLACE.

<sup>5</sup> Information upon this point was taken from an account of patent specification, (No. 11,466 1899, T. Thorp) dealing with an improvement on Professor R. W. Wood's diffraction process of colour photography, in which occurs the following statement: "A method, non-photographic, of reproducing gratings by smearing the original with a thin oil, such as watchmakers use, and pouring a celluloid solution upon it, allowing it to dry and pulling it off, is also claimed." ("Photography," August 2, 1900, p. 514).

## PHYSICAL CHARACTERISTICS OF RELIEF ENGRAVINGS, ESPECIALLY RELATING TO HALF-TONES.

(A Paper by N. S. Amstutz in the "Inland Printer.")

"The second number" is properly retrospective to a considerable degree. It is always a satisfaction to look back and, even from an advanced position, note the various steps that have led to such position. To be self-sufficient and wholly satisfied with the immediate present is not evidence of a proper breadth of development or indicative of a national growth in the technic of any subject.

The master of the engraving field, before the advent of photo-engraving, was the xylographer, or as we know his art, the wood engraver. He had held the illustrative field for years unchallenged. He also called to his aid photography, in the latter days of his greatness, to directly copy his commercial subjects on to the wood block. The expert technic of the engraver translated the tone values of the subject into printing points or lines by grooving the surface of the block with a V-shaped tool in variable directions at variable lines per inch and to variable depths. On the variable depths, to a considerable degree, he was dependent for his medium of interpretation in which to translate the interrelated effects of light and shade.

In looking backward from present-day practice, wherein the formation of depressions on a printing surface is guided optically through

the interposition of a screen and sensitive plate in the camera and the resultant negative and acid resist print on metal, one is reminded of the marvellous skill of an expert xylographer. It is a matter for congratulation that the popular magazines are furnishing their readers with art prints from wood engravings. By this means the younger generation can know of the beautiful effects produced by this now little understood craft.

The result when an engraver only perfunctorily grooved a block was not always as happy as when an artistic instinct was combined with mechanical technic to control the relation of groove to ridge and of dot to white and black. Xylographic reproductions—artist-produced—are analogous to artistic reproduction by means of dry-point etching, each depending on individual skill.

Because of the fact that there was no camera or other intervention between the artist mind and the finished result, one finds overwhelming characteristics of breadth of treatment, vigour of conception, and brilliant or sombre interpretation that will for all time differentiate the actual personal production of a master mind from mere duplication by extraneous means.

Enough for this digression. Present-day methods of commercial and scientific illustration do fill a large want in a most satisfactory and efficient manner. The demands of modern conditions are such

\* The previous paper from the "Inland Printer" was reprinted in the B.J.P. for April 27.



as to require the multiplication of hands; this is attained by the camera and its accessories.

The closely related methods of lithography, photogravure, and colliotype in all its various guises, occupy a field distinctly their own, so they can not now be referred to, except in passing.

### Automatic Engraving.

In wood engraving the eye and intellect of the operator controlled the graver by a greater or less elevation, or more or less pressure thereon, to form grooves of varying depth and width, and, as stated, at variable distances apart and in various directions. The "control" was the skill of the operator. Among some of the first attempts in the direction of automatic control may be mentioned a mechanical method of 1881, patent filed October 25, 1880, which used a suitable sliding base, under the control of a hand-operated feed screw. On this base was secured a carbon relief, and adjacent thereto a material on which the engraving was to be made. Above the base was a support for a tracer and graver slide. The tracer rode up and down over the carbon photo as the slide was moved backward or forward, its movement was transmitted to the graver, which was V-shaped, through a pivoted frame mounted on the slide. This frame was spring-pressed so as to hold the tracer and graver in working relation. At the end of each rearward and forward movement the base was moved the distance of one line so that at the next stroke of the slide a new portion of the photo relief will be passed over and another line engraved. The up-and-down movement of the graver made it cut deeper or shallower in the metal sheet, in parallel lines, thus engraving the photo. The photo-relief did the "thinking" as to where a deep or shallow groove was to be engraved.

### The Ives Process.

Another method, of 1881, patented by F. E. Ives, filed August 9, 1880, also utilised photography, in that a photo-relief was made and a plaster cast taken therefrom. On this plaster cast an ink impression was made from a block of elastic material. The face of this block was serrated by V grooves. It was inked and placed on the plaster cast and subjected to a uniform pressure. Where the surface of the plaster cast was slightly raised, the pressure was greater than in the depressions, and consequently the V ridges, being elastic, were flattened more or less, thereby producing a variable breadth of impression. When the elastic block was removed, the white surface of the plaster was covered with parallel black lines of varying widths. This was then photographed as though a line drawing, and subsequently etched. If the face of the elastic surface was serrated by intersecting grooves, the impression was one of varying-sized dots, instead of parallel lines.

A third method, of 1891, was electrical; it also utilised a photo-relief. A tracer was pivoted to a traversing carriage and caused to ride over the photo-relief, which was secured on an adjacent drum. This tracer controlled resistances in an electric circuit, which through the control modified the movements of a magnet that actuated a V-shaped graver, suitably pivoted on another traversing carriage adjacent a second drum, on which was placed a wax film. The two drums rotated synchronously and the graver formed V grooves in the wax of varying widths and depths. The wax film was prepared for printing by making an electrotype therefrom. By the use of stronger currents, engraving on metal sheets became possible.

The difference between this method and the first one named is that one was electrical and the other mechanical. This mechanical process encountered serious difficulties in that the tracer riding over the photo-relief received all the engraving stress on its minute tracing point. This played havoc with the essential element of the process. The engraving stress reacted on the tracer and caused it to groove the photo-relief, destroying its translation.

A fourth device, of 1883, also electrical, utilised an ordinary negative, by causing it to control, in conjunction with a source of light, a selenium cell. This varied its resistance proportionally to the intensity of the shading of the negative and thereby controlled a graving tool working on another surface.

In all of these methods, it will be noted, photography takes the place of the former wood engraver's skill, while, however, utilising the same fundamental principles of a V-shaped translating device, in one form or another.

### Present-day Half-Tone.

A fifth method (the present half-tone process), came into vogue thanks to the scientific researches of Mr. F. E. Ives, in which, photographing through a screen, the subtle variations of light and shade of the object were translated into definitely related opaque and transparent portions of the negative, having variable areas of opaque and reciprocal transparent portions—an optical V. This negative, which photography, automatically and in a selective manner, depicted a "key," controls the action of a "chemical graver" on a metal surface so as to produce depressions of greater or less depth and larger or smaller area, is also analogous to the manual skill of the xylographer. What the mind was to the hand graver, the "screen" negative is to the chemical "graving" medium.

It will be quite apparent that all of the methods leading up to the existing half-tone process were of necessity based on the interpretative value of a V-shaped medium, mechanical, electrical or optical.

In the sixth method, of 1896 and 1903, a variable-surfaced photo-relief (or carbon print) made from an ordinary positive, without screen intervention, is placed upon a drum, and over this a pyralin, celluloid or other elastically resilient sheet is secured. A V-shaped cutter is firmly held on a traversing carriage adapted to move adjacent to the drum. When the cutter is adjusted to the proper depth, the drum is set into rotation, and the graver, directed by the gelatin relief under the pyralin, automatically cuts deeper and wider, shallower and narrower grooves with ridges standing between, varying in width inversely to the grooves. These ridges, similar to those of wood engravings, form the printing surface, which may be used direct or be electrotyped in the usual manner.

To S. H. Horgan belongs the honour of making the first half-tone reproduction for a daily newspaper, which was printed in the "Daily Graphic," of New York, March 4, 1880.

Meisenbach, of Berlin, Germany, did much research work in developing the law relating to the distance the screen should be placed from the sensitive plate. To early workers "Meisenbach's clichés" were synonymous with present-day half-tones.

### Rule of Thumb Half-Tone.

The half-tone method, using accurate Levy screens, has developed most skillful workers who produce marvellous results, and though the process is based on the most interesting scientific laws, unfortunately the average processman is concerned to a maximum degree with the purely practical aspect of the art and does not devote as much time to the theoretical and scientific phases of the method he utilises daily as he might do, greatly to his advantage.

It does not seem to be so much a lack of desire to know, as the strenuousness of application that precludes the entry of very little but the commercial into the treatment of subjects as they pass through his hands. Yet one must say, to be just, that the commercial requirements are very exacting as to results, and to this extent deserve credit for holding up the quality of the output.

On the other hand, it is possible for the process-worker to get away from a too-close adherence to an impersonal method to one that is replete with ever-recurring interest, because one may know definitely the laws of effects of the unit areas utilised, and from those judge intelligently as to the results that should come from any given effort.

The method in vogue, of judging results principally by the finished product, is all right so far as the end is concerned, but it is very unscientific. How could a mechanic produce results commensurate with any one's conceptions by weighing so much material, of certain definite proportions, etc., made up of various groups of similar-shaped pieces and machine the lot without knowing exactly the definite detail steps and dimensions of all the consecutive elements of his construction?

The process-worker, thanks to an inherent artistic ability, can and does proceed to splendid results without knowing definitely for himself the correlation of the various mathematical elements that have to do with his screen, distance, related to focal length of lens, shaped diaphragms, etc., that have to do with the optical part of his profession; or the equally important ones, of the relation of size of dot to unit area, the rate of side action to the resultant printing surface, the rapidity of acid action, the relation of depth to the contiguity of adjacent edges of the printing points—printing quality—and the percentage of broadening after the engraving reaches the press under the best printing conditions. These are all vitally

important to the processman. In the March number of the "Inland Printer" (B.J.P., April 27) were shown analyses of half-tones and tints made therefrom. These are all important, in order that one may judge intelligently as to the best procedure in "staging" his work.

However varied the phases of anything may be, a familiarity with fundamentals makes one a master of any situation that may arise. Such a familiarity broadens one's mental capabilities and develops resourcefulness.

The specimens shown have been described in detail, and it is thought will be of interest to the everyday worker, as well as persons devoted to the theoretical phases of the subject only. It has been the aim to present the various physical characteristics of half-tones in as popular a vein as possible so as to divorce the treatment from the purely theoretical, and to this end the deductions made and details given in the March issue were made from the engraver's proofs and the engravings themselves of the specimens shown.

N. S. AMSTUTZ.

### INDUSTRIAL ALCOHOL.

THE following is the portion of the Revenue Bill of Mr. Asquith now before the House of Commons which deals with the question of the industrial use of alcohol. The Bill carried out certain of the suggestions of the Royal Commission which last year published its report on the question, a summary of which report appeared in our columns for April 21, 1905, page 209:—

1. Provisions as to Spirits used in Art, Manufacture, etc.—(1) Where any spirits are used by an authorised methylator for making industrial methylated spirits, or are received by any person for use in any art or manufacture under Section 8 of the Finance Act, 1902, the like allowance shall be paid in respect of those spirits as is payable on the exportation of plain British spirits, and the Commissioners may by regulations prescribe the time and manner of the payment of the allowance and the proof to be given that the spirits have been or are to be used as aforesaid.

(2) No allowance shall be payable under this section on methylic alcohol, but foreign methylic alcohol may be received and used under Section 8 of the Finance Act, 1902, without payment of the difference of duty mentioned in that section.

(3) One-nineteenth shall, as respects methylated spirits other than mineralised methylated spirits, be substituted for one-ninth as the minimum proportion of the substance or combination of substances to be mixed with spirits under Sub-section 3 of Section 123 of the Spirits Act, 1880.

(4) Notwithstanding anything in Sub-section 2 of Section 8 of the Finance Act, 1902, an applicant under that section shall not be required to pay any expenses incurred in placing an officer in charge of his premises, except such expenses as, in the opinion of the Commissioners, are incurred for special attendances of the officer, made to meet the convenience of the applicant.

(5) Such quantity as the Commissioners may authorise by regulations in each case shall be substituted for fifty gallons in paragraph c of Section 126 of the Spirits Act, 1880, as the maximum quantity of methylated spirits that may be received or be in the possession of a retailer at any one time; and for one gallon in paragraphs e and f of that section as the maximum quantity of methylated spirit which a retailer may receive from another retailer at a time, and as the maximum quantity which a retailer may sell to or for the use of any one person at a time respectively.

2. Supplemental Amendments of the Spirits Act.—(1) Section 122 of the Spirits Act, 1880 (which forbids the supply of methylated spirits except to the persons mentioned in the section), shall be construed as if, as regards the supply of industrial methylated spirits, a retailer of methylated spirits was not a person excepted under that section.

(2) A retailer of methylated spirits shall not receive or have in his possession any methylated spirits except such as may be authorised by regulations, and if any such retailer contravenes this provision he shall, for each offence, incur a fine of fifty pounds, and the spirits in respect of which the offence is committed shall be forfeited.

(3) Every vessel in which an authorised methylator stores, keeps, or supplies industrial methylated spirits, or mineralised methylated spirits, must be labelled in such a manner as to show that the

methylated spirits are industrial or mineralised as the case may be, and if an authorised methylator fails to comply with this provision he shall, for each offence, incur a fine of fifty pounds, and the spirits with respect to which the offence is committed shall be forfeited.

(4) In addition to the account required to be kept by the proper officer under Sub-section 1 of Section 125 of the Spirits Act, 1880, an authorised methylator shall keep distinct accounts in the prescribed forms of any industrial methylated spirits and of any mineralised methylated spirits prepared or received by him and of the sale, use, and delivery thereof, and that section shall apply with reference to each of those accounts and the spirits to which the account relates as it applies with reference to the stock account therein mentioned and to methylated spirits generally.

(5) Section 130 of the Spirits Act, 1880, shall apply as if it were an offence under that section without the consent in writing of the Commissioners, or otherwise than in accordance with regulations, to purify or attempt to purify methylated spirits or methylic alcohol, or after methylated spirits of methylic alcohol have once been used, to recover or attempt to recover the spirit or alcohol by distillation or condensation, or in any other manner.

(6) Sub-section 2 of Section 130 of the Spirits Act, 1880, shall apply as respects any article specified in an order of the Commissioners as it applies with respect to sulphuric ether or chloroform.

### PHOTOGRAPHY AT THE BRITISH MUSEUM.

THE following letter from the Publishers' Association of Great Britain and Ireland appeared in the "Times" last week. We refer to the grounds of complaint under "Ex Cathedra."

"For many years the public have had facilities for photographing from the national collection at the British Museum without charge, and this privilege (if it may not even be regarded as a right) has been largely used by publishers, who find in the print room and library valuable material for the illustration of books.

"Certain reasonable restrictions have always been enforced, but the Trustees have suddenly (from May 1) imposed a charge of 2s. for each negative, or a time charge of 1s. per hour.

"Though in some cases this change may appear inconsiderable, there are others, involving a large number of photographs, in which the cost of publication will be materially increased; and in any case it appears to the council of our association that a body who contribute so much as the publishers of the United Kingdom to the library of the British Museum should not be subjected to this additional impost.

"It may not be generally known that the British Museum has a special advantage over the other four libraries which are by statute entitled to free copies of every publication, in that the Trustees may and do claim a copy of every book, printed on the best paper, and in the most complete form in which it is issued; the result being that, whenever a special edition printed on large or hand-made paper, or with extra illustrations, is issued, the publisher has to contribute gratuitously to the National Library a copy of a book which may be worth to him ten, fifteen, or even fifty guineas, instead of the less costly edition, which would in most cases answer the purpose of readers.

"It may also be noted that the process of copying valuable MSS. or portions of scarce books by photography has great advantages over older methods of copying, inasmuch as it saves wear and tear of the subject copied, and shortens the time during which the MSS. are monopolised. On these grounds we cannot but think that publishers, who form the majority of those interested in this matter, are entitled to complain of this tax upon their use of public property, and as direct representation to the authority has been without effect, we can only hope that you will give us your assistance in laying our case before the public."

A "CLUB" for professional photographers has been founded in New York. It is to be known as "The Photographers' Club of New York," and its objects are "the furtherance of business discussions, the interchange of ideas for mutual benefit, and social intercourse between the members." Mr. W. B. Stage has been elected president. The subscription will be one dollar per annum, and meetings at regular intervals are to be held at the studios of members.



## Photo-Mechanical Notes.

### Awards at the Brussels Process Exhibition.

At the international exhibition of photogravure held at Brussels at the beginning of this year the following awards were made to British exhibitors: Diplomas of Honour: The Art Photogravure Company, for photogravure; Carl Hentschel, Ltd., for half-tones in three and four colours; L.C.C. School of Photo-Engraving, Bolt Court; "The Process Photogram." Gold Medals: The Marshall Engraving Company, for half-tones in black and colour; Meisenbach Company, Ltd., for half-tone and photography; T. T. Waddington, for photogravure.

### Death of Mr. Ernest Fuchs.

The process world will be pained to hear of the sudden death on May 27 of Mr. Ernest Charles Fuchs, the proprietor and director of the Art Reproduction Company, Plough Court, Fetter Lane, E.C. Mr. Fuchs was in the habit of walking out early in the beautiful neighbourhood of Beckenham, in which he resided. He left home one morning as usual, and was last seen alive by a constable and game-keeper on the estate of a friend and neighbour of his. Twelve hours later his body was found by the side of a shallow lake in the grounds. At the inquest death was discovered to have been caused by the bursting of a blood-vessel in the brain, arising from tubercular meningitis of very long standing. Mr. Fuchs, who was only forty-three years of age, was a native of Breslau, where his eighty-three-year old father still survives him, but was a naturalised Englishman. His decease is very greatly deplored by many friends and by the staff of the Art Photogravure Company, who, on hearing the sad news, at once voted part of the funds accumulated for the firm's annual outing to provide a subscription to the German Hospital, in the name of Mr. Fuchs.

### Austrian Process Work at Earl's Court Exhibition.

So much excellent reproduction work emanating from the Austrian Empire, it is to be regretted that more process firms are not exhibitors at the Earl's Court Exhibition, which has lately opened. There are, however, the productions of a number of firms and institutions which will repay a visit to the grounds of the exhibition even if the countless other inducements in the shape of good music, novel sideshows, and crowds of good-looking people fail to persuade the merely technical person to journey to the spacious buildings of South Kensington. The Imperial Establishment of Graphic Arts in Vienna, of the photographic and photo-mechanical sections of which Dr. Eder is the principal, exhibits photographs by various processes, collotypes and examples of almost all the photo-mechanical methods. An exceptionally fine show is made by the well-known firm of Angerer and Goeschl, of Vienna, which city is represented also by the firm of Löwy. Prague sends post-cards in "process" by the firm of W. Schulze, and photo-engravings in monochrome and three-colour by the well-known house of Husnik and Hausler, represented in this country by Mr. F. C. Clarkson, of Colchester.

### PHOTO-MECHANICAL PATENTS.

Improvements in heliogravure printing have been patented by Edward Mertens, 46, Lincoln's Inn Fields, London. (No. 10,112.)

An improvement in photo-mechanical printing has also been patented by John William Ippers, 65, Chancery Lane, London. (No. 11,971.)

### FORTHCOMING EXHIBITIONS.

November 16 to 21: Southsea C.C.—Hon. Sec., F. S. Hoyte, "Lismore," Stafford Road, Southsea.

November 27 to 30: Hove C.C.—Hon. Sec., W. H. Bone, 32, Sackville Road, Hove.

December 11 to 15: Southampton C.C.—Hon. Sec., S. G. Kimber, "Oakdene," Highfield, Southampton.

October 17 to 20: Rotherham Photographic Society.—Sec., H. C. Hemmingway, Tooker Road, Rotherham.

1907.

February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge.

## Patent News.

*Process patents—applications and specifications—are treated as "Photo Mechanical Notes."*

The following applications for patents were made between May 1 and 26:—

**LIGHT SCREENS.**—No. 11,789. Improvements for light-screens in cameras. Hermann Müller, 48, Avenue de Beauté, St. Maurice, Seine, France.

**DISHES.**—No. 11,813. Improvements in photographic dishes. Thomas Mintario Bailey Moore and George Moodie, 3, North Side, Clapham Common, London, S.W.

**TRIMMING PRINTS.**—No. 11,846. Improved device for facilitating the cutting or trimming of photographic prints. Frederick Colin Viscount Maitland, 11, Southampton Buildings, London, E.C.

**FILM-PACKS.**—No. 11,884. Improved daylight-loading photographic film packs. John Edward Thornton, Altrincham, Cheshire.

**CINEMATOGRAPHS.**—No. 11,940. Cinematographic apparatus. Stephen Drummond Chalmers and Clara Chalmers, 8, Quality Court, London, E.C.

**COLOUR PHOTOGRAPHY.**—No. 11,986. Improvements in dark-slides for colour photography. Albert Muller, 18, Southampton Buildings, London, E.C.

**FILM-PACKS.**—No. 12,003. Improvements in the design, construction, and manufacture of film-packs for daylight loading and their contents. John Edward Thornton, Altrincham, Cheshire.

**DARK-SLIDES.**—No. 12,003. Improvements in photographic dark-slides, change boxes, and cameras and films for use therein. John Edward Thornton, Altrincham, Cheshire.

**VIEW FINDERS.**—No. 12,069. Improvements in view finders for photographic cameras. Adolph Richard Lange, 55, Chancery Lane, London, E.C.

**CINEMATOGRAPHS.**—No. 12,072. Improvements in cinematographs. Casimir de Proszynski, 7, Southampton Buildings, London.

**DARK-SLIDES.**—No. 12,126. Improvements in dark-slides for photographic purposes. William Watson, 45, Chestnut Walk, Walthamstow, Essex.

**SCREENS FOR COLOUR PHOTOGRAPHY.**—No. 12,235. Adjustable compensating screen for use in photography and in colour photography. Charles Adrien Brasseur, 18, Southampton Buildings, London, E.C.

**CAMERAS.**—No. 12,254. Photographic cameras. Joseph Constance Jones, 55, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**COLOUR PHOTOGRAPHY.**—No. 20,662, 1905. The invention relates to a direct one-plate method of colour-photography, in which a banded filter is formed on a glass plate by a photographic process, a coating of sensitive emulsion being afterwards applied. To the surface of a glass plate is applied a film of, say, bichromated gelatine. A pattern is then applied, preferably in the form of a glass plate bearing on its face opaque bands, which are double the width of the bands to be produced upon the screen, and which are spaced apart a distance equal to the desired width of the proposed bands. An exposure to light is now made through the pattern plate, thereby rendering insoluble those portions of the sensitised film which are not covered by the opaque bands, the covered portions, however, not being acted upon by the light. The portions of its film which remain soluble are now washed away, leaving the face of the plate covered with bands of material used of the desired width and spaced apart double their width. The plate is now given a dye-bath—usually of green at this stage. The colour absorbed by the material forming the bands is now mordanted, and the plate is thoroughly washed to remove all traces of colour from its uncovered portions, and is then given a specially-prepared bath for the purpose of toughening and hardening the material carrying the dye and rendering it non-porous. For this purpose a bath is used containing about one pound of

tannic acid in a gallon of water. After carefully cleaning the plate there is now applied to the same surface a second film of the sensitised material. The opaque ruled screen is again applied, care being taken that its opaque portions entirely cover the coloured bands already formed, and as they are twice the width of these bands they will also cover one-half of the intervening plain portions of the surface. If desired, one of the edges of the opaque band may be brought exactly to coincide with one of the edges of each of the coloured bands, but this exactitude is not essential, providing no portion of the coloured bands is left uncovered. The operations already described of exposing to the light, washing, dyeing, mordanting, and toughening are now repeated, a dye of red colour being employed at this stage. The plate is now found to bear two sets of coloured bands, respectively green and red in colour, such bands together covering two-thirds of its face. These bands will appear in juxtaposed pairs or will all be spaced apart according as the pattern screen has or has not been applied to bring its opaque bands into register at one edge with one of the edges of the coloured bands first formed. The plate is now coated a third time with the sensitised material and given an exposure in such manner that the light reaches only those portions of the new film which lie between the coloured bands already formed. This exposure may be made through the reverse side of the glass, the coloured bands cutting off the light so that it does not reach the portions of the sensitised film which they carry, since the exposure will be of such short duration that the film will not be affected by the light passing through the coloured bands sufficiently to render any part of it insoluble. As an extra precaution, however, the very obvious expedient of employing a filter of the colour remaining to be added is available, and is, in fact, resorted to—i.e., the red and green bands being already on the plate, a blue filter will be used, which will eliminate from the light the red and green rays, leaving only the blue rays, and these, of course, will be effectually cut off by the red and green bands. Inasmuch, therefore, as only the red and green rays could possibly act upon the parts of the film lying on top of the red and green bands, and inasmuch as the filter cuts off these rays entirely, there can be no action on this part of the film. If the coloured bands already formed are arranged in juxtaposed pairs the opaque ruled pattern screen may be employed in making this third exposure, being so applied to the sensitised plate as to entirely cover the coloured bands which it bears. After this exposure the operations already described of washing out the portions of the film remaining soluble, dyeing, the blue dye being now used if in the two previous operations there have been employed, respectively, green and red, mordanting and toughening are repeated, and the screen is now ready for service. Such a screen is to be used in the taking of a picture in the usual manner, either by interposing it between the sensitised plate and the lens of a camera, or the sensitised material being applied directly to its colour-coated face and the exposure made through its back. John Hutchinson Powrie, 618, The Plaza, Chicago, Ill.

**POSITIVES DIRECT.**—No. 22,735, 1905. The invention consists of a sensitised photographic surface, consisting of a transparent support bearing a coating, which is, or can be, made relatively opaque when viewed by reflected light, which is also relatively transparent to transmitted light, and which is of a colour suitable to the finished picture. Barium sulphate suspended in gelatine or collodion is suitable for ordinary black and white prints. The transparent material coated with it has a further coat of sensitive emulsion: exposure in the camera being made through the transparent support and relatively transparent coating. The image, as produced in the camera, is a positive as regards the position of the object photographed, and the lights and shades of the image can be given a positive quality when viewed by reflected light by any of the methods usually practised. Thus, developed portions of the image may be removed with acids which will not affect the unaltered portions, and the latter can then be exposed to actinic light, and redeveloped after such second exposure; but it is preferred to remove the developed portions of the image, after the first exposure, by subjecting them to the action of an acid; for

instance, sulphuric or nitric acid, with or without an oxidising agent, such as permanganate of potash, and omitting the second exposure to light and the subsequent development, to change the unaltered portions of the film to a different colour or shade by a direct and almost instantaneous method. By thus omitting the second exposure, it is possible to dispense with the use of some uniform or artificial light, which would be inconvenient in many cases—for instance, in automatic photographic machines. To change the colour of the unreduced silver salt from white to black or brown, a bath of sulphide of soda, of potassium, or of ammonium is used. Barium sulphate is preferably used for the coating, because it can be incorporated in several ways with the medium which carries it, and because it is a practically inert substance. Instead, however, of mixing barium sulphate with the gelatine or collodion, one may use chloride of barium, for instance, which will not detract from the transparency of the film, the barium sulphate pigment being subsequently precipitated by the action of the sulphate generally present in the developing solutions employed, or being precipitated by special treatment with a sulphate. George Nicholas Piper, 1,210, Schofield Building, Cleveland, Ohio, U.S.A.

**CAMERAS.**—No. 23,387. The claims are (1) for a method of adjustment by which the movement of the shutter, forming part of the camera, is retarded by an adjustable bellows, thus varying the degree of exposure; and (2) for a special arrangement of mirror in a reflex camera fitted with the above type of shutter. Charles Howell and George Lloyd Moore, of the Midland Camera Company, Limited, Slaney Street, Birmingham.

**CONCAVE BACKGROUNDS.**—No. 8,248, 1906. The invention consists in the method of constructing a concave background, wherein the outer support for the concave surface is made as a single sheet, stretched or held to a suitable shape, so that in operation the outer sheet cannot come in contact with the inner one. Mariano Fortwing, 19, Boulevard Berthier, Paris.

**RECORDING APPARATUS.**—No. 20,579, 1905. The claim concerns photographic recording apparatus, with galvanometer, consisting of coils, oscillating system, and magnet, and is for arranging some of the parts of the galvanometer, and in particular the magnet, stationary (while the shifting of the middle position of the ray of light necessary for the production of the continuous curve lines is effected) by the turning motion of the other parts of the galvanometer. Siemens and Halske Aktiengesellschaft, 3, Askamscher Platz, Berlin.

**ELECTRICAL PRINTING MACHINES.**—No. 235, 1906. The claim relates to apparatus for successively exposing to the rays of electric lamps portions of a photographic film, and specifies the combination of a main driving electromotor and an auxiliary controlling electromotor, with a switch adapted, to be alternately operated by the motors in such a manner that electric current is alternately supplied to the circuit of the driving motor and to the circuit of the auxiliary motor and lamps. Otto Lienekampf, 9, Johannisallee, Leipzig-Reudnitz, Germany.

**JAPANESE Tariff Reform.**—In the revised tariff which Japan has recently adopted to meet war expenses the duties have been altered in a number of cases. The following are the amounts on 100 kin of the following photographic manufactures:—

	Yen.	Sen.
Albumen and sensitised paper .....	65	90
Bromide and platinum paper .....	112	0
All other kinds of photographic papers .....	89	40
Photographic dry plates .....	18	20
Photographic instruments .....	50	per cent.
Photographic films .....	40	per cent.
Lenses and other optical glasses .....	30	per cent.

**"Mixed Soda."**—At the Gosport Police-court on May 25 a firm of wholesale grocers was summoned for selling a mixture of Glauber's salt and carbonate of soda as "washing soda" or "soda." Evidence was given by analysts as to the composition of the mixture, but the defence was that a placard was displayed in the shop to the effect: "All soda, being composed of carbonate of soda and sulphate of soda, is sold at this establishment as mixed soda. A fine of £20 was inflicted, and defendants were ordered to pay ten guineas towards the costs of the prosecution.



## New Books.

"The Proceedings of the Optical Convention, 1905." London: Williams and Norgate. 10s. net.

As a year has elapsed since the opening of this convention, these proceedings are somewhat belated. Nevertheless, they are very welcome, for they form a most valuable and comprehensive volume that no one interested in optics can afford to be without. We may indeed fairly describe it as the most valuable contribution to optical literature that has been published for some considerable time. The book contains thirty lectures with reports of the consequent discussions, and is very fully illustrated. The following may be selected as likely to be of the greatest interest to photographers:—The inaugural address by the President, R. T. Glazebrook, D.Sc., F.R.S., is a most useful though brief history of optics, and is followed by a biographical chart of some optical workers, drawn up by Fred. J. Cheshire, F.R.M.S. Then there is an excellent paper by Mr. Conrad Beck on the "Equivalent Planes of Optical Instruments," which gives much interesting information not to be found in text-books. This is followed by a discussion on Aberrations, introduced by Dr. C. V. Drysdale and Mr. S. D. Chalmers, M.A. Later on we find the "Early History of Telephotography," by Gen. Waterhouse, and a paper on "Stereoscopic Vision," by Mr. C. W. S. Crawley. Mr. J. H. Blakesley, M.A., has a paper on "Lens Measurements," and Mr. A. J. Bull on "Trichromatic Photography."

Spectroscopes and spectroscopy receive much attention, as there are four important lectures on these matters. Mr. F. Twyman describes the Michelson Echelon Diffraction Grating and the Lummer Parallel Plate Spectroscope. Mr. Blakesley deals with constant deviation spectroscopes; Mr. Newall, F.R.S., with the spectroscope in astronomy, and Professor Schuster, F.R.S., gives a most valuable paper on the "Optics of the Spectroscope."

There are also two very useful papers on photometry. One on "Photometric Measurements," by Mr. A. C. Jolley, and one on the "Absorption Spectrophotometer," by Mr. J. R. Milne, B.Sc., F.R.S.E.

Among the papers of general interest we may especially note one on the "Polishing of Glass Surfaces," by Lord Rayleigh, O.M., and one on the "Nicol Prism and Its Modern Varieties," by Professor Sylvanus P. Thompson, F.R.S. We had the pleasure of hearing both these lectures, which were brilliant examples of what lectures should be.

The discussions that follow the majority of the lectures are a most valuable feature of the book. Some of the subjects were of a controversial nature, and it is not in all cases possible to agree with every statement of the author. The discussions serve to warn readers of the doubtful points, and preserve the book from the dogmatic character of the orthodox text-book. In fact, there is nothing of the text-book about this publication, which gives simply the ideas of practical scientists actively engaged in both the study and practice of optics. The exponents of pedantic theories and the compilers who simply republish other people's ideas have played no part in the production of this valuable book. We have only one criticism to make. At none of the lectures that we attended did we hear the smallest reference to Abbe's theory of pupils. There were many references to the Gauss theory, but we heard none to the Abbe theory, and have not found any on glancing through the book. This most important part of the theory of lenses seems to be neglected in a most unwarrantable fashion in this country.

"London from the Top of a Bus." Pictured in forty-seven photographs. By Henry Irving. London: Hodder and Stoughton. 1s. Living London of to-day is what Mr. Irving has set out to offer in this illustrated guide to the important thoroughfares of Central London, and the photographs speak for themselves. All of them, so we learn from the preface, have actually been made from the roof of an omnibus as the latter was making its usual journey, and there is no fault to find with most of them on account of the elevated standpoint which has been adopted. Indeed, it may be maintained that the Londoner sees the streets of the City and the West End more frequently from the top of the bus than from the pavement level. In some instances the height of the camera has defaced the foreground; but as a whole the snapshots are a remarkably successful series. It will be noticed that exposures made with the lens pointing in the direction of motion of the bus have given better

results than those in which the photographer has looked back to get his picture. To those visiting London with a camera the book is the most interesting and useful guide they can have in making the tour of the town. The total cost of the bus fares is 11d.

STILL another elementary manual on photography makes its appearance in a third number of the "Focus" series, "Photography Made Easy," by Qui Vive, issued by Marshall, Brookes, and Chalkley, price 6d. From the condensation of information in such a handbook much of the teaching is bound to impart a partial knowledge of many matters, but the new volume conveys a useful first impression of how to commence photography, and may be recommended for placing in the hands of beginners, particularly of those purchasing the cheaper kind of apparatus.

The official Guide to Hotels and Boarding Houses on the South-Western Railway Company's system has now reached the comfortable dimensions of 270 pages, and contains, in addition to the alphabetical tables of accommodation on the South Coast, the West of England, and the Channel Islands, many illustrated notes—in fact, one-third of the volume—on the attractions of the various resorts, a directory of golf links, and a great many particulars of the places mentioned, in the form of advertisements and otherwise. The volume, which includes a large map of the South-West of England and of the French Coast, may be obtained free from the booking offices of the company, or from the Traffic Manager, Waterloo Station, London, S.E.

A new edition of the popular manual, "Photography in a Nutshell," by Lieut.-General Hawkes, has been issued by Messrs. Iliffe. Its appearance brings the total number of copies of "The Nutshell" to 78,000.

MESSRS. BUTCHER have published a re-edition of their "Photography for Novices," parts of which have been revised and rewritten.

## New Materials.

"S. D." (simple development) Paper. Made by Marion and Co., Ltd., 22 and 23, Soho Square, London, W.

A further step towards the absolute simplification of photography is made in the introduction of this new printing paper, which contains its own developer minus the alkali necessary for its action. Simultaneously with its appearance on the market Messrs. Marion are bringing out a self-development plate which, like the paper, requires only immersion in a 10 per cent. solution of carbonate of soda to promote the action of the developing agents contained in the film. The plate we shall notice in a later issue. Meanwhile, we may say of the paper that it belongs to the "gaslight" order, requiring a fairly long exposure to gas or lamp light or a short exposure to weak daylight for the production of a developable image. An inch of magnesium ribbon burnt 12 in. distant from the negative is what the makers recommend as a fair average. There is little else to be said. The exposed paper is immersed in a solution made by dissolving 2 oz. of good washing soda in a pint of water, the print appears in some twenty seconds, is rinsed rapidly and transferred to an acid fixing bath such as is customarily used for gaslight printing papers, and after the usual washing it is finished. We have found the paper answer quite satisfactorily to this course of procedure, giving us prints which possessed all the pluck characteristic of the gaslight emulsion. Indeed, if we may say so, the contrast afforded by the paper is rather more than is usually obtained on gaslight papers, probably with intent on the part of the makers, since the users of such a simplified process may be expected to belong to the class which produces negatives deficient in good printing quality. There should be no cause for complaint that "S. D." does not give them the pluck which they observe in prints from negatives of greater contrasts.

From the rapidity with which a self-developing paper has followed on the heels of a commercial plate of the same description, it would seem as though we were in for an era of automatism in development papers and plates, just as the self-toning method has risen to relieve the printer in P.O.P. of the necessity of compounding toning baths. At present the enhanced price of these labour-saving materials may deter many from employing them, and it will be interesting to see whether the future will bring any substantial

ctions in this respect. Messrs. Marion, however, are to be gratulated on being first in the field with a self-developing paper, their product should attract a good deal of interest both from those who use and sell photographic materials. The prices of the "D." paper are based on ninepence for one dozen pieces of quarter-plate size.

Rotograph" Satin (bromide emulsion). Made by the Rotary Photographic Company, Ltd., 12, New Union Street, Moorfields, London, E.C.

In this new introduction the Rotary Company have to offer a sensitive material which is manipulated in exactly the same way as matte paper, but which affords prints with the characteristic texture and sheen of satin. We anticipated some trouble in the gelatin film leaving its support, but though we took no precautions as regards temperature, etc., we obtained not a single sign of frilling or loosening of the gelatine coating. The prepared satin is fairly flat, and is handled in the developing solution and in the fixing bath precisely as a paper print. We can well believe that for many of the decorative purposes of photography it will be found most useful, and will supplant the home sensitising of silk or satin which is occasionally practised. The effective results obtainable when these materials are the support of the sensitive salts have been demonstrated in the case of platinotype and other processes, but it should be a satisfaction to many to find the Rotary Company giving their attention to the manufacture of a bromide fabric. The texture of the finished print is one which will recommend it to photographers who aim at the so-called "broad" effect, and it loses nothing by a slight sheen which distinguishes the prints from those made on an ordinary sensitised cloth. The prices of the satin are fixed exactly double those of the Rotograph bromide papers, viz., 1s. per packet of twelve quarter-plate pieces, and other sizes in proportion.

Beryl-Caramel. Made by Lichtenstein and Co., Silvertown, London, E.

Messrs. Lichtenstein, the original makers of caramel in this country, have now introduced a patented modification of that material specially with a view to the improvement of its properties as a backing for other purposes. Of caramel as a backing it is very unnecessary to indulge in commendations. Of those who appreciate the advantages of backing—a class which includes the vast technical photographers—probably the large majority employ caramel as the backing substance, and their practice is based on the fact that no other material possesses so many of the properties which go to make a perfectly efficient backing. "Crystal caramel," hitherto supplied by Messrs. Lichtenstein permitted the manufacture of a backing mixture excellent in every way—drying quickly to a hard, non-brittle film of the proper optical qualities, and being soluble to a clear solution in water. The new preparation is generally similar, but is more highly absorptive, and is possessed of more rapid drying properties. Those who desire may modify the character of a backing by addition of a little spirit or glycerine. It is doubtful if they will improve on the beryl-caramel as purchased. The latter consists of a dark brown, thick fluid, sold so in the solid form, which, when applied with a brush to the backs of plates, dries in a few minutes at the ordinary temperature, or more quickly in a current of slightly warmed air. A simple plan of the makers to obtain rapid drying is to place a plate of aluminium between the backed surfaces of the dry plates, using an ordinary metal drying-rack for the purpose. The space between the warm metal and the coated glass is traversed by an upward current of air, which reduces the time of drying of the plates to about five minutes.

An alternative plan of applying the backing if quick drying is desired is to pour on the middle of a 5 by 4 plate as much of the beryl-caramel as will go on a shilling piece, to pour some proof spirit round it and mix and spread with a flat camel-hair brush. This is allowed to dry flat for a while, and afterwards finished vertically.

Another aid in the use of the backing consists in passing the palm of the hand over the coating before packing away. The slight surface of grease imparted by the hand will help to prevent any risk of the paper sticking to it.

A form of beryl-caramel is made specially for colour-sensitive plates, and gives a coating resembling Indian ink in its blackness.

In our experience the backing has shown no tendency to crack or flake off under working conditions. Films of the caramel exposed to light do exhibit signs of fritter, but the action of the light on the strongly absorptive compound is probably the cause of this difference in the light and dark.

The complete solubility of the coating in water should be one of its most appreciated qualities. It is not necessary to remove the caramel before development, though it is convenient and easy to do so. But in the developer it has no evil effects, dissolving freely as development proceeds.

We need not apologise for the length to which our notes on the new compound have run, for the use of a proper backing should be recognised even more widely than it is as a most valuable aid to good photography. Commercial backed plates, by relieving photographers of the trouble of backing, have assisted in this respect, but the scanty coating of backing often to be found on them is not sufficient to show the full benefits of backing, and falls short of practical requirements in severe cases. We understand that the new backing is now applied to several commercial plates—to their advantage, we should suppose, if the coating is a reasonably liberal one. For particulars of the prices at which the beryl-caramel is supplied in collapsible tubes and in tins of 14 lb., 28 lb., and 112 lb., the makers should be addressed.

"Tono," a ready-made combined bath, has been submitted to us by its makers, the Tono Company, 12, Ardwick Street, Burnley. The stock solution supplied, when diluted according to the directions, with twice its bulk of water, forms, we find, a toning and fixing bath which gives excellent brown and purple-brown tones in a few minutes. In this respect it quite bears out the claims of the makers, by whom also stress is laid on the permanence of the results. The latter is a point on which, for obvious reasons, we cannot pronounce any judgment, though the bath appears to us to resemble others of the combined type from which perfectly satisfactory results can be obtained so long as it is not overworked. In this connection we are glad to see that the Tono Company give precise instruction as to the number of prints which should be toned in it, the 1s. 6d. size being directed for the toning of 100 postcards. The preparation, we believe, will be found a reliable and efficient one.

In reference to our review of the "Tricol" plate, the Gem Dry Plate Company writes pointing out that the plate is more especially made for three-colour work. The firm proceeds:—"We certainly recommend a screen, although the plate will give a marked improvement without one, and we supply the necessary filter to give a perfect result with a minimum exposure. The ratio of yellow to blue sensitiveness is, of course, of little interest in considering this plate, as it is its red and green sensitiveness which are so very high, and which enable exposures to be given in the ratio of 1:1:2 for the blue, green and red filters respectively."

A SERIES of four postcard border-negatives reaches us from the Birmingham Photographic Company, Stechford, near Birmingham. The quaint, decorative designs form an agreeable surrounding to quarter-plate and smaller photographs. The price of the set is 4d.

ADDRESS WANTED.—Mr. W. Tylar, of Birmingham, asks us to notify the receipt of an order from a customer of his, Mr. John Wood, who writes from Teneriffe, but omits an address.

THE collection of photographic portraits by R. Dührkoop, brought together by the THE BRITISH JOURNAL OF PHOTOGRAPHY, and exhibited at Wellington Street for six weeks will be shown in a number of provincial centres during the next twelve months either in the regular exhibitions of societies or as separate shows arranged by local photographic associations. The societies who are thus taking upon themselves the duties of introducing Herr Dührkoop's work to the public are as follow:—Leeds Photographic Society, Southampton Camera Club, Southsea Photographic Society, Hove Camera Club, the photographic societies of Ulster, Coventry, Rotherham, Sheffield, Norwich and District, and Leicester, and the Photographic Society of Ireland.

A SCHOOL of "one-man" photography has been established in New York at 32, Union Square, by Mr. Milton Waide, who has long identified himself with this aspect of professional photography.



## Commercial & Legal Intelligence.

**A CANVASSING Theft.**—Last week, at the Bristol Police Court, Ernest Hill, stated to be an itinerant photographer, living at 28, Sevier Street, Ashley Vale, was charged with stealing two rings belonging to servants employed in Duchess Road, Clifton, whom he had photographed. The complainants said that after defendant had gone they missed their rings. Defendant alleged that he had taken tea with the girls, and they were party to the placing of their rings on his fingers. Suddenly the door bell rang and he was hurried out because the master was coming. Complainants denied these statements, except that relating to the appearance of the master. Prisoner was sentenced to a month's imprisonment for each offence.

At the London Bankruptcy Court, on May 25, H. W. Puetz, late of 6, Savage Gardens, E.C., merchant in chemicals, trading under the style of Hy. Wm. Puetz, appeared before Mr. Registrar Brougham for public examination upon accounts showing unsecured liabilities £1,099 1s. 10d., and assets £50 15s. In examination by Mr. Walter Boyle, assistant receiver, the debtor stated that he came to England from Berlin in 1896 and started as agent for a firm at the above address. He afterwards discontinued the agency, and in 1899 started importing photographic chemicals and plates. In October, 1905, the business was stopped owing to the largest and petitioning creditor having declined to supply him with goods, and proceedings being taken against him on his acceptances for goods supplied. His failure was also due to loss on debentures in a limited company in which he had put certain moneys. The examination was concluded.

**EASTMAN Kodak Company, of New Jersey.**—The usual quarterly dividends of  $\frac{1}{4}$  per cent. (being at the rate of 6 per cent. per annum) upon the outstanding preferred stock, and of  $\frac{2}{4}$  per cent. (being at the rate of 10 per cent. per annum) upon the outstanding common stock, have been declared by the Eastman Kodak Company, of New Jersey, payable on July 2, 1906, to stockholders of record at the close of business on May 31, 1906.

**THE "Tixit" Trade Mark.**—On Thursday, May 31, the case of Henry v. Berry and Roberts, Limited, came before Mr. Justice Bucknill in chambers. The action was brought by Mr. William Ethelbert Henry, trading as the Vanguard Manufacturing Company, Maidenhead, against the defendant company (who are wholesale agents carrying on business in St. Bride Street, E.C.) for an injunction restraining the defendants from infringing the plaintiff's trade mark "Tixit" and for damages. After hearing Mr. Lowenthal, instructed by Mr. T. W. Stuchbery, solicitor, Maidenhead, for the plaintiff, his lordship granted an injunction restraining the defendant company, their agents, and servants, and every one of them from selling or exposing for sale any jar, bottle, or other receptacle containing adhesive paste and marked with the plaintiff's trade mark "Tixit," or from otherwise infringing or wrongfully using the plaintiff's trade mark, to be made perpetual. Defendants to deliver up to the plaintiff for destruction all goods in their possession bearing the plaintiff's trade mark, and to pay the taxed costs of the action. The application to be treated as the trial of the action, and judgment to be signed accordingly. The defendants were further ordered to pay damages to be assessed by the Court, unless otherwise agreed.

### NEW COMPANIES.

**FUNLAND, Limited.**—Registered May 23. Capital £100, in £1 shares. Objects: to carry on the business of exhibitors of stereoscopic views by means of automatic machines and otherwise, showmen, photographers, art publishers, etc. No initial public issue. Registered without articles of association. Registered office, 170, Edgware Road, W.

**ESME COLLINGS (Home), Limited.**—Registered May 24. Capital £500, in £1 shares. Objects: to acquire the business carried on at 120, Western Road, Hove, as Esme Collings, and to carry on the business of photographers, dealers in photographs and photographic accessories, etc. No initial public issue. Registered office, 41, Poland Street, Oxford Street, W.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE STATE OF WINCHESTER CATHEDRAL.

To the Editors.

Gentlemen,—I am glad to be corrected by so incontrovertible photographic authority as Mr. S. G. Kimber, who doubtless knows Winchester Cathedral exceedingly well. My only object in writing the B.J. was to save members of the association from possible disappointment at finding on their arrival many of its most interesting features not available for the camera.

If I have "laboured" my statement so as to avoid disappointment in one single instance my letter will have achieved its object.—I am, gentlemen, etc.,

Winchester, June 2, 1906.

W. T. GREEN.

To the Editors.

Gentlemen,—I read with interest the correspondence of the past two weeks, but do not understand why Mr. S. G. Kimber should endeavour to represent "the best portions from a photographic point of view," as being available for photography. Apparently, opinions differ as to "the best portions." It is true the Great Screen, a magnificent work of art, is still free from the ravages of time from which other portions of the cathedral have suffered, but the most picturesque parts, including the exquisite chantries and chapels, are closed to the public. Mr. Kimber is perhaps accurate in his statement that only one-sixth of the building is contained in these parts. But he does not state that the remainder is taken up almost exclusively by the great nave and choir.

Your correspondent, Mr. W. T. Green, might have gone much further in his statements, as the beautiful north transept is at the present time used as a place to store chairs in, thus baffling the photographer in any attempt to secure a good picture of this rich Norman architecture. Practically there is only the nave, choir and screen available to the photographer unless he cares to turn his attention to the numerous monuments which adorn the side of the aisles.

The exterior offers even less scope for the camera. The north and south fronts are the only portions not disfigured by the builders. It is not necessary to point out to photographers the best time of day to photograph the north side of a building, and the south side of the cathedral can only be photographed in parts owing to the dense foliage of the immense lime trees which are so close to the building, as to render it impossible to get a general view of this side.

From the number of postcard views Mr. Kimber supplies to the local shop-keepers, one must conclude he has a very intimate knowledge of the cathedral, but he cannot have paid it a very recent visit, or he would be assured Mr. Green's statements are by no means overdrawn.

As the latter's account is drawn chiefly from the illustrated appeal for funds published by the Dean and Chapter, I fail to see why he should be accused of writing "a laboured account," which might have the effect of keeping intended visitors away.

On the contrary, Mr. Green has done much towards bringing the cathedral into prominent notice, and his photographic knowledge of the edifice is much more extensive than that of any other photographer. Both writers, however, seemed to have missed the fact that in addition to its splendid Cathedral Church, Winchester abounds in buildings of quaint and architectural interest, which the most enthusiastic photographer would find it difficult to include in a day's work. I am only too anxious that the members of the Convention should pay this beautiful city a visit, but I must point out here, as I have previously done in correspondence with the President of the Convention, that visitors who come with the sole purpose of securing a series of views of the cathedral, will be unfortunately disappointed.

—Yours truly,

33, Southgate Street, Winchester.

June 2, 1906.

ALBERT GANDY.

## METRIC MEASURES.

To the Editors.

Gentlemen,—With reference to your note on my letter of May 23, I am obliged if you would permit me to point out that by the 18 Germinal An. III., the doubles and halves of all measures prescribed, which, of course, includes those of the Decametre. Things prevented the law being generally enforced till the 4th of July, 1837, which was obligatory from January 1, 1840. June 16 and July 17, 1839, the manner in which all recognised measures and measures were to be made was regulated by Ordinances regulate the manner in which chains of a decametre and double tre were to be made among other measures. This was not true, as you represent, an afterthought, but just as old as the rest system. As to the chain of twenty-five metres I have no information, but will make enquiry.

peristence in the use of old names for new units may occur likely enough, but since the sale of unstamped weights, etc., is illegal, and those which may be stamped are laid down by law, it is difficult to conceive that it can be of any serious importance, as it may suit some persons to represent it as such.—I am, gentlemen, your faithfully,  
J. F. TENNANT.  
Clifton Gardens, Maida Hill, W.  
June 1, 1906.

correspondent will probably find no official warranty for the chain, which was no doubt only introduced for convenience, as the 100ft. and 50ft. chains have been. The personal conception of the user is more potent in these matters than any Act of Parliament. Twenty-five metre chains are stocked and listed by the Survey of the Instruments, which is pretty good proof that they are in use. The confusion to which we referred is not due to the use of names for new units, but to the retention of old units. The foreign weights and measures "now in use," published in the 9th edition of the Encyclopædia Britannica, shows that a surprising number of the old units still survive in metric countries such as Portugal and Belgium. Another cause of trouble is the inability of the metric system to certain trades, and it does not seem that any satisfactory method of applying it to the measure of yarns has yet been evolved. It does not follow that a system admirably adapted to scientific work should be equally fitted to commerce and trades, and in our note we only suggested what appeared to be the most probable basis for the objections to the metric system which were reported to have been made by representatives of metric countries. It should be remembered that commercial interests are of the first importance in considering the use of weights and measures, and that they must have the final word in the matter in these democratic days. As the adoption of the metric system is not at present a matter of practical importance, it is not worth while pressing the subject further.—Eds., June 1, 1906.

## THE COLOUR OF URANIUM TONED IMAGES.

To the Editors.

Gentlemen,—Mr. Welborne Piper's letter on p. 417 of the 25th June deals in its last paragraph with this subject, and he says that it attributes the brown colour to deficiency of ferricyanide. This is wrong in theory, for Atterberg pointed out the formation of two tones, and this is also confirmed by L. P. Clerc (B.J., April 20, 1900, p. 10), who states that the red ferrocyanide of uranium has the formula  $K_2 UO_2 Fe(CN)_6 \cdot 2 H_2O$ , and to make this, eight molecules of potassium ferricyanide  $K_3 Fe(CN)_6$ , and fifteen molecules of uranic acetate, that is, 5,264 parts of the first with 6,390 of the second, are required.

A brown ferrocyanide has the formula  $K_2 UO_2 \cdot 2 [Fe(CN)_6]$  and eight molecules of potassium ferricyanide, and eighteen molecules of uranic acetate are required, or 5,264 parts of the first with 7,668 parts of the latter.

Mr. Piper advises, however, exaggerating the proportions of the uranic salt required, and that of the ferricyanide if the red is required, and gives the following table:—

Tone.	Sol. A.	Sol. B.
Deep brown.....	50 cc. ....	100 cc.
Reddish-brown .....	50 cc. ....	70 cc.
Violet red .....	50 cc. ....	55 cc.

Solution A being a 1 per cent. solution of ferricyanide, and B a 1 per cent. solution of uranic acetate, both containing 10 per cent. of glacial acetic acid.

Not having any uranic acetate I took equivalent molecules of the nitrate, using the theoretical proportions laid down by Clerc, not using the excess as he advises. I enclose herewith a couple of lantern-slides treated with these solutions. A is that toned with the formula to give red tones, that is, with less uranic. B was treated with the solution containing the greater proportion of uranic. Each slide was allowed to remain in the solution for sixty minutes to ensure as far as possible completeness of action, then washed in water acidulated with glacial acetic acid, with six changes after ten minutes' soaking in each case: the idea in this being to eliminate any possible doubt as to the colour of the deposit by any staining of the gelatine.

There is no question in my mind that A is distinctly redder, and B a clear brown.

There is, however, one point which I did notice: when a second slide was immersed in the solution containing excess of uranic the tone was a brilliant red. Now might not this be due to the greater proportion of the uranic being deposited on the first slide, and is it not a possible explanation of some of the discordant results which Mr. Welborne Piper has obtained? This last slide I have labelled C.

With regard to the particular intensifier to which Mr. Welborne Piper alludes, that gave him a clear red stain, this was, if he and I allude to the same solution, the subject of a patent, and contained a mixture of uranic nitrate, ferricyanide, ammonium sulphocyanide, and an acid. I enclose also a slide D toned in such a solution. This was made by adding some sulphocyanide to part of the solution containing excess of ferricyanide in which slide A was toned; the result is a perfectly clear red stain.

Personally I doubt whether, in the face of the bad reputation which uranic toned images have, the subject is worth pursuing further; though on the other hand in the paper by Clerc, already alluded to, he states that some uranic-toned prints had hung in his laboratory for years, exposed to light and all the fumes of a laboratory, without showing deterioration.

In the face of your editorial comment to my previous notes, it is hardly worth while replying to Mr. Baker's pseudo-scientific letter.—Yours faithfully,  
E. J. WALL.

Sidcup, June 4.

[We should call the first transparency a bright brownish-red; the second a very good brown. The stain-like character of the deposit of the slide toned in the solution containing sulphocyanide is very marked, and there is a curious whitening of the very deepest shadows which would suggest that the process had not reached a conclusion in these portions.—Eds., B.J.P.]

## THE BLEACH-OUT PROCESS OF COLOUR-PHOTOGRAPHY.

To the Editors.

Gentlemen,—As my name has recently been frequently associated in the British Press with that of Mr. Jan Sczezeapanik, will you please allow me to make public the fact that I am now in no way associated with Sczezeapanik's bleach-out system of photography. After giving that system (which consists in coating the coloured emulsions in isolated layers) a thorough trial, I was forced to come to the conclusion that the system, in addition to the technical difficulties and greater expense involved, gave much less satisfactory results than those obtainable with a single layer of mixed colours.

All the recent examples of the bleach-out process which I have exhibited were produced by an improved one-film process worked out and protected by several patent applications by Dr. W. Merckens and myself, and which we wish to be referred to as the Smith-Merckens bleach-out process. The method is being rapidly improved, and we are sending to the International Exhibition at Milan, and to the "Allgemeine" Photographic Exhibition in Berlin, some fifty framed copies made mostly from delicately colour-toned originals, which show that even fine shades of colouring can be well rendered by our new process.

Our English agent is Mr. Oliver Dawson, No. 254a, High Holborn.—Yours faithfully,  
J. H. SMITH, Ph.D., F.I.C., Assoc. R.C.S.E.  
Zurich, Switzerland.

June 1, 1906.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

June.	Name of Society.	Subject.
9 .....	Hull Photographic Society	Outing to Brock o' Dale Woods.
9 .....	Aberdeen Photo Art Club	Outing to Putniedden (Woodlands).
9 .....	Halifax Camera Club	Outing to Southdown.
9 .....	Bristol Photographic Club	Outing to Almondsbury.
9 .....	Chelsea and District Photo. Soc.	Outing to Waltham Abbey.
9 .....	Hackney Photographic Society	Outing to Theydon Bois.
9 .....	Redhill and District Cam. Club	Outing to River Thames.
12 .....	Bristol Photographic Club	Club Meeting at Headquarters.
12 .....	Royal Photographic Soc.	Ordinary Meeting. "The Picturesque in Landscape." Horace Mammery.
12 .....	Hackney Photographic Society	Paper by S. W. Morrison.
13 .....	North Middlesex Photo. Soc.	"The Selection of a Printing Process."
13 .....	Leeds Camera Club	Mr. H. W. Bennett.
13 .....	South Essex Camera Club	Excursion to Meanwood and Adel.
14 .....	Blackburn Camera Club	"Retouching and Working up Prints."
14 .....	Hackney Photographic Society	Mrs. Welford.
14 .....		Outing to Whalley Abbey.
14 .....		Outing to Oxted.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
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### PHOTOGRAPHS REGISTERED:—

- G. E. Pickup, 1, Ivy Grove, Rawtenstall. Photograph of St. Mary's Boys Brigade, Rawtenstall.
- J. Weir, 9, Elliot Street, Hillhead, Glasgow. Photograph entitled "The Sandwichman."
- John Barr, Jun., Market Place, Hornsea, E. Yorks. Photograph of Miss Rose Carr sitting on a trolley drawn by a horse.
- H. Wheeler, Ltd., 20 and 21, St. Mary Street, Weymouth. Photograph of Queen Alexandra, Suite and Officers on board Royal yacht, May 21st, 1906. Photograph of Queen Alexandra standing with dogs in arms on board Royal yacht, May 21st, 1906.
- J. Bishop, Burford House, Aberdare. Photograph of the Aberdare Volunteers at Chapel Parade.
- E. G. Warren, 42, Lind Road, Sutton. Photograph of the Angel Bridge, Sutton.
- Lander and Smith, The Cooper Art Studios, Medical Hall, Canterbury, Kent. Photograph of Henniker Heaton, Esq., M.P.
- R. Wilkinson, The Studio, Hornsea, Yorkshire. Photograph of Miss R. Carr, with pony and foal.

**PHOTOGRAPHING MACHINERY.**—I have to take photographs of machine fittings (composed of brass and iron) for catalogue purposes. My workshop is only lit by a row of skylights; the walls are all white-washed brick. Will you kindly tell me how to proceed to obtain good prints without shutting out any light from the shop? The general size of the mechanism is about 3ft. square. I use a half-plate outfit. What colour background would be suitable?—A. B.

As the machines are so small you will no doubt be able to get them placed at any part of the shop where the light is most suitable. Failing that, if there is only direct top light over the machinery this may be softened by placing a light wooden frame covered with tissue paper some distance above machines. The shadows may be softened by putting sheets of white paper, or cardboard, so as to reflect the light upward. Usually with photographs of machinery, for catalogues, the backgrounds are blocked out in the negatives so that they print white. If you coat the machinery with the flattening colour, formula for which is

given on page 987 of the Almanac, it will simplify the greatly.

**TONING ALBUMEN PAPER.**—My recent enquiry replied to in journal of May 4, referred to the developer (or toning) mentioned in the "B.J. Almanac," 1906, p. 970. I therefore be glad if you would in your next issue favour me "a suitable bath to give cold (bluer) tones for albumen paper." SAMOHT.

Your query was answered in our issue of May 18. The following is a good bath for cold tones, but if you require bluish tone you had better use gelatine P.O.P., toning in a pho-cyanide bath:—Soda carbonate, 4 grs.; water, 8 to 10 gold chloride, 1 gr.; or

Boiling water, 8 ozs.; gold chloride, 1 gr.; chalk or whiting, 30 grs.; saturated solution of chloride of lime, 2 minims.

**COLOURING PHOTOGRAPHS.**—Would you kindly let me know what your opinion is, the best book on photographic colouring for specially miniature painting; the price, and where it may be had? Madder Brown.

No very recent work on the subject has been published. Son's book on the "The Art of Retouching Negatives and Colouring Photographs" is a useful work. Its price is two shillings. The book may be had through any of the dealers. "The Principles and Practice of Harmonious Colouring" is also a good book. Price, one shilling. It is published by Newman, 24, Soho Square, but we are not quite sure it is still in print.

**THE P.P.A.**—(1) To become a member of the Professional Photographers' Association must one earn their living entirely by photography? (2) What is the subscriptions, etc., to become a member? (3) Where can membership forms be obtained? Can the letters, M.P.P.A., be used on business cards, etc., in place of the full wording?—J. A.

You can obtain answers to all your questions by writing to the honorary secretary, 51, Baker Street, London, W., for the rules of the association.

**W. E. (Paisworth).**—We cannot say. Possibly if you apply to the Secretary of the Zoological Society, 3, Hanover Square, W., will be able to give you the information.

The exhibition of the photographs by A. Dührkoop, opened at Eberle Street Rooms of the Liverpool Amateur Photographic Association last Monday, and will remain available for free inspection by the public until June 16. It is to be hoped that our readers in the Liverpool district will take this opportunity of seeing a remarkably fine collection of work. The exhibition is open daily from 6, Saturdays 10 to 4. We may add that a series of one-day shows has been planned by the Liverpool Association as follows:

	Open.	Close.
Dr. C. Thurstan Holland, F.R.P.S.	June 20	July 2
C. F. Stuart	July 7	July 2
Joseph Appleby	July 23	Aug.
Dr. John W. Ellis, F.E.S., John Smith, J. H. Canevali, F. K. Glazebrook...	Aug. 11	Aug. 2
C. F. Inston, F.R.P.S.	Sept. 1	Sept. 1

The relief fund for the photographers in San Francisco amounts to 4,047 dollars.

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## The British Journal of Photography

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## SUMMARY.

supplement of one of the flower studies by Mr. Henry Stevens is sent with this issue. A notice of the present exhibition of Stevens's photographs appears on page 475.

neglected cause of deterioration of developers is the mixture of nitrite and carbonate in one solution. Many published formulæ omit the salts to be dissolved together, whence comes, in many cases, the staining qualities of the developers. (P. 462.)

Mr. A. Lockett shows that personal errors in using the Watkins system of factor development are likely to be slight, provided the "dark-room" is liberally lighted. (P. 464.)

the photographic section of the Congress of Applied Chemistry, in Rome, Herr Valenta brought forward a bromide emulsion for printing out; Professor W. N. Hartley spoke on the application of photography to chemistry; Herr Hans Schmidt read a paper on three-colour photography, and Dr. Voitech contributed a note on the effect of light on asphalt. (P. 465.)

methods of enlarging by arc light are mentioned on page 463.

a convenient device in hanging backgrounds is illustrated on page 471.

a business-bringing circular of an American photographer of New York is given on page 471.

a patent specification of the Dischner method of producing portraits in the studio with natural backgrounds has been published. Accessories for roll-films and a printing frame for paper in length are mentioned in other patents of the week. (P. 472.)

the question of sensitometric methods and processes of uranium printing are discussed by correspondents. (P. 477.)

a lively discussion of the genuineness of spirit photography is now being conducted in the *Daily Express*. (P. 471.)

## EX CATHEDRA.

### A Dis- tinction Without a Difference.

In the words of a well-known humorous song, " 'Tis hard to know where nature ends and art begins." Particularly hard it must be to those of our friends whose names we often recognise in the prize lists of "The Studio" competitions, after a pseudonym has veiled the authorship of the print when it first graced the magazine. Amongst the conditions attaching to this perennial tourney of photographs, our artistic contemporary makes the following suggestions gratuitously: "The technical merits of the photograph will not be so much considered as its correctness in relations of tone—in maintaining a proper balance of light and shade; in avoiding exaggerated contrasts, and in rightly expressing subtleties of tone gradations." It appears to us that if "The Studio" had insisted upon perfect technical photography, instead of putting a premium upon the temperamental vagaries of the so-called "artistic" worker, these four desiderata could have been secured at one sweep. If they are not technical matters (scorned of "The Studio"), what in the name of photography are they? To ask for them and decline technical merit is tantamount to asking for a swing, and refusing the principles of the pendulum. Regarding the question of truth of tone and subtleties of gradation, it is constantly manifested to us that those works of the camera which appeal most in the eloquence of beauty are precisely those wherein correctness of exposure has been wedded to correctness and simplicity of subsequent processes. Gum prints and others admitting of "alterations and repairs" may turn out to be beautiful things in some respects; but in the matter of tone values and delicate gradations, we find them usually wanting.

### Picture Postcards.

We have more than once commented on the fact that country photographers do not turn the picture postcard business to the account they might do if they were a little more enterprising. In many cases they take a series of pictures of the places and surrounding neighbourhood, publish them, and let their activities end here. The pictures become out of date, and the sale falls off, because people do not care to keep on sending the same pictures to their friends. Even if the same views were occasionally retaken from a slightly different point of sight, or under different conditions of lighting, or with the trees in a different state of foliage, they would appear as new pictures, although taken and published by the same photographer. Views taken for one of the large publishing houses for publication command a ready sale simply because they are new and the last taken, and not because they are any better than those issued by the local man. Indeed, the local man, being always on the spot, has a far better



opportunity of taking the pictures under the most favourable conditions as to lighting than the one who only visits the neighbourhood for a day or so and has to take the views just as he can, be the lighting what it may. If many local photographers would continually be issuing fresh pictures, taken under different aspects from the older ones, they would find it to their advantage, as it is always the latest taken that sells best, and the cost of taking the negatives, to one residing in the locality, is but a trivial matter.

\* \* \*

### Post-mortem Photography.

Coroners in this country have often to comment on the way that photographs are taken of deceased persons, and the little use they frequently are as a means of identification. Attention has also been drawn of late to the better way in which this work is done abroad, where the corpse is arranged so as to show the body as much as possible as it appeared in life. A reproduction in the "People" of this week of a photograph of the miscreant Morales, taken after death, shows how our system of post-mortem photography may often be improved upon. The photograph represents the corpse in a standing position, the body held up by two men, and well lighted, so as to show a good likeness and a recognisable portrait of the man. The two men supporting the body are also well portrayed. Of course, we cannot say if this is an authentic photograph or not, though we have no reason to doubt its genuineness. Still, it is easy to see how a spurious one might be produced. Be this as it may, the photograph serves to show how in many instances our system of photographing corpses as a means of identification may be remodelled. Had this photograph been taken with the corpse lying flat on a slab, as is the general way here, the result would have been widely different as a means of recognition.

\* \* \*

### Individuality in Mounting.

We have recently seen quite a number of professional portraits mounted on toned papers in the multiple method, the effect in most cases being good. There is no doubt that where the class of business done warrants any attempt at individuality of treatment, this style of mounting pays for itself. We say "pays for itself" advisedly, for until one comes to select the tints of papers and to decide the width of margin to be shown of each tint, they can have little idea of the amount of time needed for the securing of a good effect. If, however, the full dozen prints are mounted alike, the time per print does not work out excessively high, and to persons of cultivated taste the effect is undoubtedly superior to that produced by many of the stock commercial boards. Those of our readers who were able to see the recent exhibition of Herr Dührkoop's work at the B.J. offices would notice the admirable way in which the fine qualities of the prints were enhanced by suitable mounting. Mere eccentricity should be guarded against, and the worker should have a reason for anything he has done, and be able to state it if any question arises. Decentralisation of the print is sometimes effective, but unless the balance is improved it is better not to so mount the picture. Moderation, the adoption of quiet, refined effects, will be found to answer best in the long run, while occasionally something more forcible may be shown.

\* \* \*

### Hanging of Backgrounds.

The disposing of backgrounds so that they are always available when wanted, never in the way when not of use, and preserved from damage at all times, is one of the difficult problems of studio management. Mr. A. W. Judd, of

Chattanooga, describes in an American journal his method of dealing with the problem, and the illustration on another page shows the arrangement of his studio. Mr. Judd says: "For over forty years I have been taxing my patience with the feet and castors of the backgrounds. They are so unsightly, noisy; I require so much room and time to arrange them. I took some wire about one-eighth inch with curved ends, and hung from the ceiling in screw eyes. Into these hooks I put ordinary curtain poles with the background tacked to them, another pole being tacked to the bottom. Wires were attached to the (smaller) heads of the grounds so as to attach them to any pole. In this way I changed my backgrounds with ease and rapidity, without noise and disturbing the rugs and furniture, and I have saved ten feet of floor space." Reference to the block will show a pole with forked arrangement, which is for lifting the background from the wall and placing it in the hooked wires depending from the ceiling. This method seems an excellent one where the studio is large enough to admit of carrying an eight-foot square background about without its being rolled up, though it is possibly open to the objection that the backgrounds are hung all round the studio, and there tends to be too great a display of the appliances in what it is always well to keep as nearly like an ordinary room as possible.

\* \* \*

### A Needed Revision of Development Formulae.

Some recent experiments having shown most clearly that development stain in a large number of cases is due solely to the use of a stale alkali solution containing sulphite of soda, we turned to the "British Journal of Photography" to see whether this combined accelerator solution is in common use. As a result we noted no less than twenty-five formulae in which such a mixture is prescribed. Four of these are ortol, and two metol, formulae, and we are unable at present to say whether the effect is detrimental or not in the case of these two developers. Of the rest four are hydroquinone, and fifteen are pyro formulae, which are the two developers we have more particularly experimented with. As these formulae are recommended by twelve of the best-known plate makers, it appears that the evil effects resulting from the mixture of soda sulphite with the alkali are by no means generally realised. For some reason or other, pyro stain seems now to be looked upon as an inevitable result of using pyro, though the falsity of this assumption must be evident to those familiar with the old-fashioned pyro-ammonia developer, which gave as clean negatives as anyone could wish for. As a matter of fact, stain can be just as easily prevented with pyro-soda if the sulphite is left out of the alkaline solution and put into the pyro bottle instead. A sufficiency of sulphite will always prevent stain, but sulphite that has been kept in solution with an alkali is quite useless. The same thing applies to the hydroquinone developer. A developer that has been made up for some time often turns a dark brown very soon after the two solutions are mixed, and it then stains the plate badly. This is commonly attributed to the deterioration of the stock hydroquinone solution, whereas it is really due to that of the alkali solution. With a fresh alkali solution the developer will work as well as ever, for the hydroquinone stock solution does not easily go wrong. As a stale alkali solution also serves, provided it contains no sulphite, it is evident that the sulphite, and not the alkali, is to blame. What happens to the sulphite when it is kept in combination with an alkali is by no means clear, but the fact is evident that it becomes useless as a preventative of stain, while the evidence points to some change that is actually provocative of that effect.

effects have been observed with sulphite solutions in their normal alkaline state without the addition of alkali, and these effects cannot be accounted for by assuming the gradual oxidation of the sulphite sulphate, or the gradual conversion of the sulphite carbonate. The sulphate is inert, while it is hardly possible for sufficient carbonate to be formed to produce the effects observed. The only things certainly evident about sodium sulphite is one of the numerous things we know little about, and that it has no business in an alkaline solution used for development.

\* \* \*

**National Physical Laboratory.** In the House of Commons last week, in Committee of Supply, the sum of £10,000 was voted to the National Physical Laboratory for the extension of its premises and the completion of its work which has been contemplated for some time past. In proposing the vote, Mr. Haldane said the old Explosives Committee had ceased to exist, as it had been merged into the Chemical Research Committee. The higher scientific work which the Laboratory undertakes should be carried on only with the proper apparatus, and a grant would be of great assistance for this purpose. In comparison with the sums assigned in other years for the important scientific work such as is done on by the National Physical Laboratory, ten thousand pounds is not by any means a large sum. Mr. Haldane admitted that we were behind Germany and the United States in thus assisting the progress of industries based on scientific principles, and he evidently thought the task of impressing even upon Parliament the importance of such work was not at all an easy one. The Government, perhaps, will never properly realise the aid which a scientific and expert body can render to the chemical and mechanical trades, or why Germany finds it advantageous to vote to institutions such as the National Physical Laboratory grants which are the quadruple of those allotted in this country. The student of industrial chemistry will, nevertheless, recollect how certain industries exist in the first place to Government aid, and instances of the ways in which many branches of a trade have been brought into existence by the aid of research work of scientific experimental investigation be quoted in number. At present the relations of the National Physical Laboratory to the optical and chemical trades are not as intimate or as valuable as might be were more money at the disposal of the Government. But the great work which Dr. Glazebrook and his staff have done for engineering and electrical trades, and the hope that the day will come when practical photographic optics and chemical photographic manufacture will be able to benefit from the entrance of the Laboratory more actively into these fields.

#### SOME POINTS IN ENLARGING.

In an article which we recently published on the use of arc lamps it was pointed out that the professional worker nowadays needed to be independent of light as far as possible, and that it was especially necessary for many "one man" workers to be able to make their enlargements, speculative or otherwise, after daylight work was over. To the use of artificial light in enlarging there have been two objections. Where theoretically perfect optical conditions have been approximately approached, that is, a small point of intense light such as an acetylene flame or a well-constructed lamp, there has always been a danger of every blemish

in glass or film, even to the slightest finger mark or faintest smear of retouching medium, showing very prominently on the enlarged print. This precludes the possibility of using many, or, indeed, we might say any, of the masking devices, such as matt varnish, colour lightly dabbed on the glass side of the negative, and so on, devices which, as is well known, are often needed on portrait negatives, and may be used when making daylight contact prints with satisfactory results. The only method of masking which is practicable is the partial shading of the bromide paper during exposure, and to this we refer below.

The other objection really arises out of this, in the attempt to overcome it. By diffusing the light by means of one or more sheets of finely-ground glass placed between the illuminant and the condenser, the danger of these markings being present is much lessened, or practically eliminated, but the exposure is so increased as to be tediously long for the amateur and unprofitably long for the professional worker. By employing a more powerful illuminant, such as either an open, or preferably an enclosed arc lamp, it is possible to interpose a couple of sheets of ground glass, and obtain from average negatives enlargements to four or five diameters, using a lens of moderate quality, which might require stopping to  $f/16$  or  $f/22$ , to give sufficiently good marginal definition. If a modern flat-field lens of great intensity is employed, say an  $f/6$  anastigmat, then a sheet of selected opal glass may be substituted for the ground glass, and there will be still less chance of even elaborate masking with matt varnish and pencil retouching on this varnish making itself apparent on the enlargement. There is also much less necessity for accurate adjustment of the distance of the illuminant from the condenser, and as a consequence the focussing is more rapidly done and the risk of uneven illumination of the bromide paper greatly reduced.

The method of shading parts of the picture during exposure, referred to above, may be employed with either a moderate illuminant or with the more powerful one slowed down by means of the opal glass. It is simply a means of holding a suitably shaped piece of card or opaque paper in such a position as will shade the otherwise too dark part during a portion of the exposure. The difficulty of doing this ordinarily arises from an inability to hold the card sufficiently still, and at just such a distance that the size of its shadow is correct, and if two or three patches require to be shaded the difficulty is increased, unless there are two workers. By fitting between the easel and the projection lens a sheet of thin patent plate glass in a wooden frame about the size of the biggest enlargement usually made, it becomes possible to hold the masking papers exactly in position. The frame should be firmly fixed, enough to allow the paper to be cut or torn, and then held against the glass in order to ascertain if the shape and size are correct, yet it must be easy of removal during the exposure. Each separate mask must be attached to the glass, and as one or more may require to be removed before the others, the best method will be to use two tiny touches of a strong yet slow drying adhesive, so that when the mask is removed the paste on the glass will not throw any appreciable shadow. As a rule the glass will be placed at some considerable distance from the easel, so that the edges of the shadows of the masks will be softened. For the printing up of certain parts holes may be cut in a sheet of opaque paper and when the main exposure has been given the yellow cap is replaced on the lens, the small masking patches removed, and the second mask adjusted, when whatever additional exposure the denser parts of the negative requires can be given.



## THE PERSONAL ELEMENT IN FACTORIAL DEVELOPMENT.

It has often been suggested that a fatal flaw to the general scientific accuracy of factorial development is always present in the varying estimation of the time of appearance by different persons, or even by the same person at different times. It is argued with some show of truth that, with a long Watkins factor, the multiplication of any error in gauging the exact time of appearance will greatly increase the total length of development, thus producing negatives of undue density and probably untruthful gradation. The details of some experiments carried out recently by the writer, with a view to obtaining at least a slight clue to the chances and amount of error to be expected from the intrusion of the personal element, during the development of a given number of negatives by the average individual, may not be without interest.

### Conditions of Test.

It was recognised, in the beginning, that the only way in which any useful conclusions could be drawn must be by comparing the results obtained by a number of persons, working simultaneously, yet independently, and having entrusted to them for development plates of the same batch, exposed for exactly the same time on a given subject, the developer, the temperature, and all other factors being identical. A dozen negatives were therefore exposed on a typical landscape, choosing a time when the light appeared perfectly steady and unlikely to change. As the exposures were made in rapid succession with a magazine hand camera having an ever-set shutter, any difference due to change in light intensity during the operations must have been infinitesimal. The only chance of variation, in fact, lies with the shutter, but it seems improbable that exposures following so closely on each other, and necessitating no re-adjustment or alteration of the mechanism, can differ to any serious extent. The correct exposure was ascertained by means of an actinometer.

### Method of Observation.

In order to secure simultaneous development, it was decided to limit the operations to five individuals seated round a circular table at similar distances from a cylindrical ruby lamp; each of these having to flood his plate with developer at the word of command, and immediately to start counting mentally, the time being taken from the loud ticking of a pendulum clock. This, however, was only used for its convenience in judging the time of appearance, the total time of development being reckoned in each case from the observers' watches, which had been previously compared and found to have only a negligible difference in time-keeping properties. The observers had their dishes screened from each other by sheets of cardboard, and were supposed to note down their calculations silently and independently, and to withdraw and fix their negatives at the expiration of the estimated time of development. Of the five observers, No. 1 was a photographic expert; No. 2 had a fair acquaintance with photography; while to the remaining three the whole affair was entirely novel and had to be carefully explained before starting.

### Some Results.

A comparison of the resulting negatives and notes gave some interesting results. Two of the negatives would be called of correct density by most workers; one was a trifle too thin, but not to any great extent; and the remaining two were just a shade too dense. No. 5 had failed to flow the developer over at the right moment, so that there was a doubt whether his negative had been timed in strict accordance with the instructions. The degree of uniformity in the negatives was, however, much greater

than had been expected, and far more striking than differences. The exact figures obtained were as follows, metol-hydroquinone developer with a factor of 14:—

Observer No.	1	2	3	4	5	Time of	Duration of
						Appearance.	Development
	...	...	...	...	...	18 secs.	4 min. 12 sec.
	...	...	...	...	...	21 "	4 " 54 "
	...	...	...	...	...	23 "	5 " 22 "
	...	...	...	...	...	26 "	6 " 4 "
	...	...	...	...	...	25 "	5 " 50 "

Another five plates were now distributed, but the observers were not informed that the subject and exposure had been the same as before. This time the results were:—

Observer No.	1	2	3	4	5	Time of	Duration of
						Appearance.	Development
	...	...	...	...	...	22 secs.	5 min. 8 sec.
	...	...	...	...	...	23 "	5 " 22 "
	...	...	...	...	...	22 "	5 " 8 "
	...	...	...	...	...	26 "	6 " 4 "
	...	...	...	...	...	26 "	6 " 4 "

It will be noticed that a greater uniformity had now been reached, but that observers 4 and 5 were still a few seconds behind the others in noting the time of appearance. In spite of this, the negatives were remarkably equal in density, which seems to prove that some latitude in noting the exact time of appearance is allowable; at any rate, with a comparatively multiplying factor. It was also concluded that Nos. 4 and 5 would have got the same results as the others by using a shorter factor, and, the experiment being tried with the remaining two plates, this proved to be the case. The moral is, obviously, that when any worker finds that his negatives are, as a rule, too dense or too thin when using the multiplying factor commonly recommended, he has only to raise or lower the factor as the case may be, to obtain perfectly satisfactory results.

### Importance of Ample Light for Development.

So far, these experiments had been conducted with an allowance of bright ruby light, proceeding from a single source of carefully-tested red glass, which shed quite a full illumination over the dark room, while being perfect for any but panchromatic plates. It was decided later to test the variation in results, if any, which would be obtained in developing a similar series of identical exposures by the use of a deep ruby lamp of the old-fashioned type, in the dim gloom of which so many photographers are still content to grope. Under the altered circumstances some instructive results were obtained. Not one of the five observers agreed even approximately with the others in judging the time of appearance; the resulting negatives were either too thin (in one case) or much too dense; one negative alone could by courtesy be called of fairly correct density. It might not unfairly be deduced from this that some at least of the faulty results credited to the personal element are really due to nothing more nor less than insufficient dark-room lighting. One could use to judging density by the method of inspection in every worst of lights, but a half-hearted darkness of that kind is useless for the close examination and accurate comparison required for the successful working of the factorial system.

### Effect of Error with Greater Factors.

The previous tests were made with what might be called a moderate Watkins factor. It now remained to be seen what would happen when the factor is greater—as, for example, metol (30) or rodinal (40); where there is the additional possibility that the image appears very quickly and errors are more

made in judging the time of appearance. The result of series of experiments with several long factor developers led, however, to prove that, on the whole, the very rapidity of appearance which characterises them is, with ordinary care of observation, a safeguard against error. That is to say, the time comes out so quickly and unmistakably that an average intelligent worker can hardly be more than a fraction of a second in error without gross carelessness; providing, as before suggested, he is able to see what he is doing. Certainly, any one using factorial development with a high factor developer for the first time is apt to obtain some contradictory results; but little familiarity with the method of working soon overcomes this, and the operator is able to literally pounce on the time of appearance without hesitation.

#### Conclusions.

It would not, perhaps, be wise to dogmatise too much on evidence collected from a comparison of results obtained by small a body of observers. Still, the absolute independence of the latter, and the fact that the majority of them were practically unacquainted with photography, makes it fairly probable that the points in which the tests agreed would be fairly representative of what would happen in the case of

the average observer. The following conclusions it would appear, then, may not unjustly be drawn:—

(a) What is called the personal element is of comparatively small importance in factorial development, providing average care is used; being, in fact, much less evident and less likely to cause variation in results than with the old system of judging density by inspection.

(b) A liberal allowance of light in the dark-room (of course, non-actinic) is of the highest importance while watching for the first appearance of the image.

(c) Although a medium factor, neither too long nor too short, is probably preferable, there is practically no greater fear of variable results with a large developing factor than with a small one—given reasonable care in watching for and estimating the time of appearance.

(d) Some individuals are habitually quicker or slower in noting the emergence of the high-lights than others; but, as a rule, this variation is uniform, and may be allowed for by adopting a proportionally higher or lower factor for the same developer.

(e) Within limits, a slight error in judging the time of appearance will have no serious results. A. LOCKETT.

## THE CONGRESS OF APPLIED CHEMISTRY.

CREASED interest attaches to the meeting of the Congress of Applied Chemistry, held recently in Rome, from the fact that the year London is to be the venue of the members, the meeting hitherto having been held in Continental centres. On the invitation of Professor Tilden, representing the British Government, and of a committee elected by the members of the various British societies connected with chemistry, the Congress have agreed to visit London. The sixth meeting of the Congress was held in Rome from April 26 to May 3, and was under the special patronage of the King of Italy. The proceedings of the Congress were placed in twelve sections, dealing with the various branches of applied chemistry; Section IX., being confined to photochemistry, assembling under the presidency of Colonel Micheli, the president of the Italian Photographic Society in Rome, the most important society in Italy.

The meetings of the Congress were held in the New Palace of Justice, and the inaugural ceremony was attended by their Majesties the King and Queen of Italy, and their principal officers of State. The president was Professor Paterno, the honorary president Signor Annizzaro, and the secretary Professor Vittorio Villavecchia. Amongst those present in Section IX. were Professor Abegg (Breslau), W. N. Hartley (Dublin), A. Lumière (Lyons), R. Meldola (London), Seyewetz (Lyons), Sebelien (Norway), Dr. Vojtech (Prague), K. Freistadt (Vienna), Forel (Strasbourg), Joubert (Paris), Schmidt (Berlin), Dr. Castellani (Florence), and Dr. Eder (Vienna). The first meeting was held in the afternoon of April 27, and after the election of the president, Ernst Baum, emeritus secretary of the Società fotografica Italiana, Dr. Ludwig Castellani, professor of chemistry at Florence, and Dr. Lambert Loria, of Rome, were appointed secretaries.

The proceedings of the photographic section included a number of papers by authorities in different countries.

M. A. Lumière sent a paper on a "New method of photography in colours." Dr. Prokondine-Gorsky, of St. Petersburg, spoke on "Observations on the work in three-colour photography," and treated especially on the preparation and keeping of colour-sensitive plates. He bathed the plates in a weak ammoniacal solution of ethyl-red, pinacrome, and orthochrome, and recommended long continued washing in the bathed plates in distilled water in upright grooved tanks, with slow and continuous change of the water for three hours. The plates should be rapidly dried by an electric fan, and would then keep free from fog for a year. He also mentioned that plates kept in dark slides with glued-lined hinges fogged (especially in tropics) on parts opposite the hinges, and this he ascribed to the action of the glue.

Dr. Eder, in a paper "On the chemical nature of the latent image," sketched the current theories, such as the structure, molecular dissociation, photo-electric ionisation without reduction (see Report of the P.C.U.K., B.J., July 14, 1905, p. 551), and the sub-haloid theories; in the last the chemical reduction of the silver bromide being assumed. The latent image consists, according to his scheme of reduction,  $2 \text{ Ag Br} \rightarrow \text{Ag}_2 \text{ Br} + \text{Br} \rightarrow \text{Ag}_2 + \text{Br}_2$ , in which  $\text{Ag}_2 \text{ Br}_x - \gamma$  may also be used instead of  $\text{Ag}_2 \text{ Br}$ . The behaviour of the latent image, after fixation, to nitric acid, hyposulphite, potassium cyanide, ammonia, etc., was described. These phenomena can be best explained by the assumption of the formation of silver sub-bromide. (See B.J.P. December 1, p. 950, and December 8, p. 968, 1905). Silver iodide forms sub-iodide, which is decomposed by hyposulphite into silver and silver iodide, wherein it differs from the sub-bromide, which is only split up into metallic silver by potassium cyanide and not by hyposulphite. Similar processes take place in orthochromatic processes, as the silver bromide is forced to the same photo-chemical reactions in light of long wavelength by the sensitisers—that is, it is reduced to sub-bromide, as is peculiar to the unstained  $\text{Ag}_2 \text{ Br}$  in blue and violet light.

Professor Dr. Abegg, of Breslau, said that the reaction velocity in all these cases should be taken into account, and asked whether the reduced silver bromide of the latent image could not be influenced as regards its solubility in nitric acid by the surrounding of silver particles with silver bromide. Dr. Eder remarked that the latent image on silver bromide after fixation with hypo, whereby all the silver bromide would be removed, behaved always towards reagents like silver sub-bromide; but after fixation with potassium cyanide it behaved like metallic silver.

Professor Namias, of Milan, thought that the latent image was rather of a physical nature, that it was not sub-bromide, but polymerised silver bromide. Dr. Eder said that the phenomena of development of the latent image, after fixation, could not be explained by this theory, but only by the sub-bromide.

Professor Guntz, the renowned chemist, so well known for his discovery of the sub-fluoride of silver, considered that it was extremely probable that a sub-bromide was formed by light. He had synthetically prepared the sub-fluoride of silver from the sub-chloride, and the product behaved in a similar manner as Eder had assumed in his experiments on the latent image.

Professor Dr. Doelter (Graz) exhibited his photomicrographs of molten bodies at temperatures of 1,990 deg.—2,550 deg. Fahr., which created much interest. The substances, silicates, for instance, were melted in small quartz vessels in the electric flaming arc oven, and then photographed by means of a microphotographic apparatus,



fitted with a planar lens, cooled with ice water, by the glowing light which the bodies themselves emitted. Red filters and orthochromatic plates were used, and thus good pictures of the inner changes, such as crystallisation, etc., of the molten masses obtained.

The second day's sitting was opened by Dr. Eder, when Herr Freistadt, representing the Vienna Photo-Club, brought forward a well-intentioned motion that the great difficulties which were presented to artistic photographers in photographing open places and buildings in Italy should be to some extent lessened. This was unanimously supported.

Signor G. Giorgi, of Rome, then spoke of "The photographic function," by which he meant the connection between intensity of exposure and the density of photographic negatives. The lecturer spoke without any knowledge of previous literature on the subject (Hurter and Driffell, Eder's system of sensitometry, etc.), and showed a tube photometer with opal glass plate to diffuse the light, and used as a standard light an osmium lamp. Professor Bonacini drew attention to Eder's system of sensitometry and the tube photometers therein mentioned. Dr. Eder criticised the sensitometer test shown by the lecturer, and pointed out that the field of the instrument was very unequally illuminated, and seemed unsuitable for any measurements of opacity. Giorgi's photometer had too short tubes and showed faults which the older instruments of Roscoe, Hurter, Vogel, and Eder had for a long time obviated.

Dr. L. Castellani, of Florence, read a paper on "Experiments with a new emulsion of mercurous oxalate in gelatine," which agrees *in toto* with the paper by the same writer, entitled "Collotype with mercurous oxalate," published in the B. J. P. April 28, 1905, p. 332.

Dr. Prokondine-Gorsky (St. Petersburg) read a paper on "The position of photography, the photographic industry, and instruction

in photography in Russia," in which he advocated the establishing of a school similar to that in Vienna, which he considered the best of such institutes.

Herr Hans Schmidt, of the Neue Photographische-Gesellschaft, gave an address on "Three-colour photography with pinacol plates and tricolor carbon printing." The specimens shown excited general interest. An abstract of the paper appears below.

Dr. Giovanni Santoponte, of Rome, gave an address on "The value of photographic archives and museums of documentary photography and laid stress on the fact that unanimity should be established with regard to the printing process employed for reprints, and suggested the formation of an international commission. Dr. Eder thought that it would be difficult to come to any definite conclusion to such a commission at such short notice, and suggested that the matter be left to the Italian Photographic Society, Florence, or to the president of the same, for consideration at further steps. Colonel Pizzighelli stated that he was quite willing to take up the subject, and a motion in this respect was adopted at the meeting.

Dr. Eder then proposed a vote of thanks to the Reception Committee, which was accorded with acclamation; and Colonel Pizzighelli thanked the members, particularly the foreigners, for their attendance, and the meetings of the section were concluded.

The full text of the papers will, no doubt, be published in due course in the proceedings of the Congress, but we can now give those of several. Those by Valenta and Vojtech are translated from "Photographische Korrespondenz," for that by Professor Hartley we are indebted to the author, who very kindly sends the English version of his communication. Herr Schmidt has likewise sent us his paper in German.

### BROMIDE OF SILVER EMULSION FOR THE PRINTING-OUT PROCESS.

It is a well-known fact that pure bromide of silver darkens very rapidly in light, but not very intensely, so that it will not assume any intense colour; it is also well known that the blackening of silver bromide takes place much quicker in light, when certain chemical sensitizers are mixed with it. That silver bromide printing paper, prepared in an analogous manner to plain salted paper has found no practical use should be due to the fact that after fixing the blackness of the image is not satisfactory enough.

I have carried out a series of experiments, for the purpose of studying the behaviour of the same in the print-out process. These experiments, judging from the results, should be practically of importance, as printing papers of very good qualities may be obtained with collodio-bromide of silver emulsion. These papers print very quickly, the sensitiveness is more than double that of any good collodio-chloride paper on the market; they give a very rich scale of gradation and approach in this respect to albumenised paper.

The whites of the pictures are very clean, the brilliancy is very satisfactory, and the occurrence of bronzing, which is frequently very troublesome with collodio-chloride papers, has not been met with, even with very strong over-printing.

For the preparation of suitable emulsions I used calcium strontium, or lithium bromide, or zinc bromide, which was perfectly satisfactory. The quantities of the bromides are, if vigorous printing emulsions are required, to be so calculated that about half of the total quantity of silver should be combined (one can take 18 grms. of silver per litre of emulsion with 2.2–2.5 per cent. collodion); on the other hand, I used less citric acid than for silver chloride emulsion. Yellowish creamy emulsions are obtained which can be very easily and very regularly coated on paper, and which give the above described qualities. These papers print out a purple violet, and the prints assume a yellowish brown colour in the hypo bath. They may be easily toned in the separate or combined baths, and give reddish and purple brown photographic tones; they may also be toned, after preliminary treatment with dilute salt solution, in the combined gold and platinum baths.

From the experiments, the conclusion must be arrived at that the silver bromide collodion papers will soon take their place in practical work with the other present-day printing-out papers.

E. VALENTA.

### THE APPLICATION OF PHOTOGRAPHY TO THE SOLUTION OF PROBLEMS IN CHEMISTRY.

There can be no doubt that those rays in the spectrum of an element which cannot be readily recorded on a photographic plate are of little practical importance to the chemist; while, on the contrary, those which lie beyond the region of visibility are not only more numerous, but in general they constitute the most characteristic part of the spectrum of each element. An instrument which adds enormously to our powers of investigation is the spectrograph. In its simplest form it consists of a slit, two lenses, and a prism, all of quartz, in combination with a very accurately focussing camera. It records on a photographic plate the rays emitted by a substance whether they are luminous or not, and it arranges them in the order of their refrangibilities from wave-length 4,681 to 2,025, with all intermediate lines sharply focussed. By the use of isochromatic plates the less refrangible rays in the red may be simultaneously photographed.

The many and various problems which the chemist is called upon to solve may be considered under two categories:—1, Problems of composition, or analytical problems; 2, problems of molecular structure. I propose to give an account here of the applications of the

spectrograph to chemical analysis, the practical applications of organic chemistry being dealt with in Section IV. B.

#### Problems Connected with the Composition of the Atmosphere.

The spark spectra of the elements are individually composed of a great number of lines presenting different characteristics both in length, intensity, and shape, and it may be readily understood that an element can be identified by what may be termed its portrait. Out of 2,050 lines occurring in the spectra of sixteen solid elements not four can be found to occur in any two spectra.

Some lines which appear to be common to all the different spectra belong to the gaseous elements of the atmosphere, and their total number, as originally photographed, was 195. They were proved in 1887 to be due chiefly to oxygen and nitrogen, by photographing the spark spectra of metals in gaseous compounds composed of those elements; as, for instance, in nitrous oxide. But the spark spectrum of air as photographed, mapped, and described by Hartley and Adeney, contains various lines which could not be attributed to

or to nitrogen nor to any other substance.—("Phil Trans." Society, vol. 175, p. 63, 1884.) It had been observed that the atmospheric lines were subject to variations according to circumstances which were completely under experimental control, aluminium, indium, and copper electrodes, yielded air spectra lines more sharply defined and distinct and more prominent than others.—("Journ. Chem. Soc." vol. 41, p. 84; 1882.)

Facts were again studied in 1887 and 1890, but reserved for complete examination. In the year 1894 it was announced that Rayleigh and Sir William Ramsay had separated a new gas from the atmosphere. A proof of their paper, in advance publication, was forwarded to me from the Royal Society on May 29, 1895; this contained a description of the spectrum of argon. Sir William Crookes. All the lines he had measured of refrangibility than wave-length 4,629.5 were found in Hartley and Adeney's photographed spectrum of air, published in 1884.

Of these air lines out of a total of 195, which had been proved to belong to oxygen or nitrogen (Proc. Royal Soc., vol. 57, p. 193, 1893), were identified with argon lines. This fact with the actual wave-lengths of the lines, was communicated to the Royal Society at a meeting at which the papers describing the discovery were read. A letter from the Secretary at that time (Lord Rayleigh), now President of the Royal Society, informed me that the communication had been recognised as independent evidence of the existence of argon in the atmosphere. Eighteen days later I wrote out that the conditions as to pressure of the argon, and the use of the electrodes used in photographing the spectrum of air, were nearly those under which the brightest and purest spectrum of argon had been obtained. The spectrum of argon then had undoubtedly been photographed, and many of the lines accurately measured along with those of oxygen and nitrogen, for the first time in the laboratory of the Royal College of Science, Dublin, and published ten years later. Its existence was announced by its actual discoverers.

The most complete investigation of the argon spectrum was made by Eder and Valenta, and published in Vienna in 1896. On the basis of this page are shown the wave lengths and descriptions of argon in question, compared with the corresponding measurements of Crookes, and by Eder and Valenta. Eder and Valenta's were obtained with a Rowland concave grating of 30 inches focus, and those of Hartley and Adeney with a Rutherford plane grating of 17.296 inches, and quartz lenses of 36 inches focus.

Without the aid of photography it would have been impossible to establish the fact that the spark spectrum of air contained fifty lines which did not belong to the spectra of any of its known constituents.

The fact that argon gave two different spectra was considered to be evidence to the effect that there were two substances in argon, and before it was a compound. Evidence to the contrary was that many substances have two different spectra, and that had been photographed on the same plate, simultaneously from the same spark discharge, the two different spectra of nitrogen; namely, that there were no gaseous substances known which could give the high temperature of the condensed electric spark without exhibiting the spectrum of one or other of the elements of which it is composed. It was even argued that it was probably a modified form of nitrogen, even as ozone is a modification of oxygen.

As the spectrum of argon of either the blue or the red modification was not that of any known substance, it followed that if argon was a compound it must be a compound of a new element.

It was which was described as the true distinction between a compound and an elementary substance, with special reference to argon, was recognised as the criterion of an elementary form of matter at the International Congress for Pure Chemistry which met in Paris in 1900.

The absorption properties of the constituent gases and vapours in the earth's atmosphere cause the limitation of the solar spectrum, and the late M. Cornu, of Paris, showed that this limitation diminishes regularly, when photographs are taken at increased altitudes up to 2,570 metres above the sea level. In 1881 each of the constituent substances, known at that time to be present in the air, was examined, and the absorption effect on the ultra-violet spectrum of small quantities of each of them was carefully examined. The one substance which in minute quantities was found to cause the greatest amount of absorption was ozone, and

varying quantities above a certain limit caused the spectrum to be shortened almost exactly at the same point which was described as being the maximum absorption of ozone. This position coincided with the extreme end of the solar spectrum. The conclusion arrived at was, that neither dust in the atmosphere, nor the vapour of water, nor carbonic acid, nor any other vapour or gas in the atmosphere, save and except ozone, could cut off the sun's rays at almost the same wave length, and ozone must, therefore, be considered to be the cause of the limitation of the solar spectrum.—("Jour. Chem. Soc." vol. 39, pp. 111-128. 1881.)

The absorption capacity of ozone by the ultra-violet rays, within the range of wave-lengths 1,850 and 3,000, was recently measured by Dr. Edgar Meyer with Kreusler's photometer. He detected the absorption band, and located its greatest intensity at almost exactly the same point as was shown by my photographs. He also arrived at the same maximum of absorption.

(Edgar Meyer. "Über die Absorption der Ultra-violetten Strahlung in Ozon." Berlin, Inaugural dissertation, 1903.)

An analytical problem connected with the composition of the Dublin gas supply was in the first instance solved by the spectrograph. Coal-gas and oxygen burnt together in a blow-pipe yielded flame spectra in the photographs of which some of the groups of bands characteristic of cyanogen were identified. Dr. Eder, to whom we are indebted for so many and valuable spectroscopic and photographic researches, expressed doubts as to these bands being due to cyanogen, and accordingly very delicate chemical tests were applied

LINES in the SPECTRUM of ARGON photographed by Hartley and Adeney in 1884, compared with those of Crookes and of Eder and Valenta measured in 1895-96.

Crookes, 1895.		Hartley and Adeney, 1884.		Description.	Wave-lengths.
Blue.	Red.	Hartley, 1887-1890.			
Wave-lengths.	Wave-lengths.	Wave-lengths.			
—	4629.5	4628.9	Strong .....	4628.90	{ Two lines, the 4609.74 } mean is 4606.72.
4608	—	4605.6	Weak .....	4609.74	
—	4594.5	4595.0	" .....	4606.80	
—	4586.9	4589.3	" .....	4606.05	
—	4534.5	4543.4	Faint .....	4545.26	{
4509.5	4509.5	4506.6	Weak .....	4503.15	
—	4478.3	4476.6	" fine .....	4475.15	
—	4426.5	4425.9	" nebulous .....	4426.16	
—	4399.5	4402.6	Faint .....	4401.19	{
—	4376.5	4378.0	" .....	4379.79	
—	4343.5	4343.2	Strong .....	4343.11	
4345.0	4345.0	4343.9	Weak, fine .....	4343.90	
4333.5	4333.5	4335.9	Faint .....	4335.42	{
—	—	4330.8	" .....	4331.35	
4390.5	—	4302.0	Very faint .....	4304.33 (Kayser.)	
—	2477.0	4275.3	Faint, nebulous .....	4275.34	
—	4272.0	4274.3	Very faint, sharp .....	4272.29	{
—	4266.0	4265.4	" .....	4266.44 or 4265.80	
—	4251.5	4253.4	Faint .....	4251.27	
—	4228.5	4228.9	Fairly strong, nebulous .....	4225.27	
—	4198.0	4197.9	Faint, nebulous .....	4195.40	{
—	4191.5	4189.3	Weak, sharp .....	4190.85	
—	(4150.5)	4157.9	Very faint, nebulous .....	4155.60	
4131.5	—	4132.8	Fairly strong, fine .....	4131.95	
4105.0	—	4104.3	" .....	4104.90 or 4104.10	{
—	—	4102.6	" .....	4072.18	
4072.5	—	4071.4	Strong, fine .....	4072.18	
4035.0	—	4031.4	Weak, nebulous .....	4033.99	
3967.5	—	3967.3	Faint, fine .....	3968.50	{
3943.5	—	3944.5	" .....	3944.50	
3931.3	—	3933.9	Very faint .....	3932.71	
3928.5	—	3929.0	" .....	3928.78	
3892.0	—	3892.4	" .....	3892.15	{
3851.5	—	3850.0	Faint, fine .....	3850.70	
3803.5	—	3804.0	" .....	3803.38	
3780.8	—	3782.1	" .....	3781.50	
3770.5	—	3771.5	" .....	3771.58	{
3738.5	—	3739.7	Very faint, fine .....	3738.04	
3729.3	—	3728.6	Strong, fine .....	3725.67 (Kayser.)	
3587.0	—	3589.6	Weak, fine .....	3588.94	
3580.3	—	3583.7	" .....	3582.72	{
3575.0	—	3576.2	" .....	3576.90	
3560.0	—	3560.6	" nebulous .....	3560.15	
3544.5	—	3544.2	" .....	3545.78	
3513.5	—	3514.1	Very faint, fine .....	3514.53	{
3490.0	—	3490.7	Weak, fine .....	3491.71	
3475.7	—	3478.1	Faint, fine .....	3478.40	
3453.5	—	3456.2	Very faint, fine .....	3454.30	
3383.0	—	3385.9	Fairly strong, fine .....	3390.05	{
3042.7	—	3042.5	Faint, fine .....	3046.15	
2734.5	—	2733.2	" .....	2732.67	



to the coal-gas, which proved absolutely the presence of cyanogen compounds in quantity quite sufficient to render its spectrum on a photographic plate.

### The Spectrographic Analysis of Alloys by Means of the Spark.

The quantitative spectrographic analysis of articles of ancient jewellery and coins is performed without removing any visible portion by cutting, filing, or dissolving in acids. Here are three examples of a Roman coin with the inscription Augustus Fortunatus, a Greek one of Alkibiades, and an obsolete French coin. The method of spectrographic analysis is extremely simple. A spark is passed from the coin to a piece of graphite and its spectrum photographed. The lines of the metals present are identified by comparison with the spectra of pure substances. The wave-lengths of the lines are measured, and the lines belonging to the different constituents are sorted out. The lines recorded indicate the composition of these two coins.

The Roman coin is a fine bronze, containing copper and tin with a trace of iron. The Greek one is peculiar, as, besides copper and tin, it contains lead and a larger proportion of iron. The coin itself has a peculiar golden colour. The composition of the "sou blanc" is of interest, as in some particulars it resembles the Greek coin. Neither tin, gold, nor silver was found—in fact, the coins were remarkably free from the latter metal. Its percentage composition is—lead 13.96 per cent., copper 72.35 per cent., zinc 12.70 per cent., and iron 0.85 per cent.

An alloy of this composition was made in the laboratory and rolled out; its spectrum corresponded exactly with that of the coin, in the length, strength, and number of the lines belonging to the respective metals. The quantitative composition of the alloy was then determined by the usual methods of chemical analysis, and the spectrographic analysis was proved to be correct.

The metal is peculiar, inasmuch as its composition is that of brass with one-third of the zinc being substituted by lead. It is apparently the large proportion of lead which gives the coin a golden colour, but prevents it having any metallic "ring." It may be remarked that the chief difference between the Greek and Roman coins is the quantity of lead in the former, and this diminishes the proportion of the copper.

A very troublesome piece of work was an investigation into the composition of brittle platinum, the metal being in the form of thin wire in pieces not exceeding 2 mm. in length. Such fragments could not be held in metal clips for the passage of the spark, because the spark of the platinum would be contaminated by that from the clips. The difficulty was overcome by fusing pure gold wires on to the end of the platinum with a blow-pipe flame, and with the gold wire as a conductor the spectrum of platinum was obtained free from any other metal. If the spark by accident happened to pass from the gold, the gold lines were easily recognised and eliminated from the platinum spectrum. Ten platinum pins were examined and the metal was proved to be free from any metallic impurity. From other evidence it was shown to be probable that the brittleness was caused by the presence of phosphorus. This investigation proved in a forcible manner—First, the utility for practical purposes of spectrographic analysis by means of the spark; second, the importance of determining the wave-lengths of arc and spark lines of pure elements with extreme accuracy; and third, the advantage of being able to distinguish between two spark lines of very nearly the same wave-length by the difference in their characters.

### Spectrographic Analysis of Minerals by Means of the Oxyhydrogen Flame.

By means of Deville's blow-pipe samples of various metallic elements and their compounds are easily volatilised, and may be submitted to direct spectrographic analysis. The spectra are quite different in character from those of the spark, particularly those of the metalloids and many of the metals, such as lead, tin, copper, silver, gold, antimony, and bismuth.

Iron, cobalt, and nickel give large numbers of lines, which are a characteristic feature in the spectra of meteorites. A collection of materials from iron smelting works, with a hundred and seventy iron ores and associated minerals from every part of the world were examined by Mr. Ramage (formerly of the Royal College of Science) and myself. Unsuspected and uncommon elements were found very

generally distributed through these ores in small quantities—instance, lead, silver, copper, chromium, and nickel, also the meals, rubidium, cesium, gallium, indium, and thallium. This last element is of rare occurrence in oxide ores, but frequently found in pyrites.—("Trans. Chem. Soc." 1897, and 547, and 1900, p. 61.)

Gallium was found in twenty-one out of fifty-one clay ironstones, and in all aluminous minerals, such as clays and bauxites, corundum. The siderites (ferrous carbonates) contain indium, no gallium, and the magnetites contain gallium but no indium. red hæmatites are remarkable above all other iron ores for purity.

From 375 grs. of the blast-furnace iron from the North-East Steel Works at Middlesbrough, in Yorkshire, there was extracted 0.0235 grs. of gallium sesquioxide. Undoubtedly the richest source of gallium now known is the pig-iron and steel rails made in the Cleveland district of Yorkshire. It contains one part of metallic gallium in from 30,000 of iron.

The thermo-chemistry of the Bessemer process was studied by photographing the spectra of the flames issuing from the mouth of the vessels in which molten raw iron is converted into steel. The flames exhibit peculiarities in different works according to variations in the process and the materials used. Photographs were taken every successive half-minute, the lines were seen to be increased in number, length, and strength as the "blow" progressed, and the temperature of the metal and the flames increased largely.

### The Examination of Atmospheric Dust.

In 1874 Baron A. E. Nordenskiöld described three kinds of dust collected by him. Two of these, which were found on the ice of the Arctic regions, were evidently of terrestrial origin, and could be accounted for, but the third variety was quite different, and appeared to be of cosmic origin. He arrived at the conclusion that this was meteoric dust, and that such was continually falling.

Small quantities of matter which had been precipitated from the atmosphere in snow, hail, and sleet, were submitted to spectrographic analysis by Mr. Hugh Ramage and me, and it was found that they contained the metallic constituents of meteorites. Pumice from the eruption of Krakatoa, which occurred in 1883, was also examined. Dust which fell into porcelain dishes placed on the grass, open to the sky, contained carbonaceous particles which looked like steel filings and were magnetic. Particles of soot were easily washed away, and the heavier particles were spectrographically analysed. Soot from various chimneys, and flue-dust from chemical and metallurgical works was examined. Several metallic and stony meteorites were also examined. The dust which had fallen directly from the clouds was distinguished by its regularity in composition; it appeared to contain the same proportions of iron, nickel, calcium, copper, potassium, and sodium. Volcanic dust differed from this in several particulars. Dust from sleet, snow, and hail suddenly precipitated from dark clouds again differed, and the difference was chiefly in the proportion of lead present, which in the dust from sleet was found to be much larger than in the other specimens. The conclusion arrived at was, that the dust which fell in November, 1897, was certainly meteoric, and that which fell in hail and sleet was of terrestrial origin, and most probably the product of chemical or metallurgical works. It was unlike flue-dust and not like soot in composition. The inference was that some of it was fume, such as is seen rising from the mouth of the Bessemer vessels. It was observed also that some of this dust contained a large proportion of lead.

The works near Dublin are not capable of causing dark patches in the sky at a very great elevation such as were seen before each of these storms. Whence came this fume? These darkening hazes in the sky were noticed always in an easterly or south-easterly direction. In South Wales, in the neighbourhood of Swansea, there is the largest group of metallurgical works in the United Kingdom where copper and lead are smelted and refined, and iron ores are smelted and the metal converted into steel. In the Vale of Dowlais clouds of fume arise from the Bessemer converters to a height of 300 or 400 feet in an unbroken column; the fume then rolls over and diffuses into the atmosphere, and with an easterly movement of the air, it disperses itself slowly over a large area and is borne away across St. George's Channel. Besides the South Wales district we have the manufacturing districts, known locally as the

black country," and "the potteries" of Staffordshire, also the chemical works of Lancashire, all contributing such fume, which rises over the Irish Sea when an easterly wind prevails, and travels to the interior of Ireland.

It might be supposed that the chemical works at the river side, near Dublin, may have contributed flue-dust, but that was proved to be the case, for flue-dust from the Dublin chemical works is distinguished by containing the metal indium, and none of the samples of dust from hail, rain, or sleet contained any trace of this metal.

Among other questions which have been solved by spectrographic analysis is the cause of the colour in slate. Three varieties were seen from the Bethesda quarry in North Wales, green, reddish, and blue in colour. The green colour was found in patches, and in every case where these patches occurred, the colour was undoubtedly due to copper, either as basic carbonate or silicate. The dark purple slates were found to be coloured by a manganese carbonate, and the blue slates, in addition to manganese, contain a small quantity of cobalt silicate. The direct analyses of galena and in Crossmaglen, Ireland, was made, chiefly to ascertain whether it contained any payable quantity of silver, for the information of the Department of Agriculture and Technical Instruction. Quantities of a gramme were burnt for each photograph, but the lines

of silver were so faint that the ore was reported to be of no value. A larger quantity was assayed in the usual manner, and the result led to the same conclusion. Associated with the galena was a cream-coloured, massive, crystalline mineral which, when spectrographically examined, proved to be very pure lead sulphate containing only a trace of potassium and a little copper, with a total absence of silver.

The unexpected occurrence of nickel in certain rocks, of strontia in a marine boiler incrustation, to the amount of one per cent., of lithia, and of beryllia in some of the granites and granitic rocks around Dublin have been proved by spectrographic analysis. For the examination of the absorption spectra of the rare earths, for testing methods for the separation of metals in quantitative analysis, and for determining the composition of small precipitates obtained in the analytic separation of substances, the spectrographic method is invaluable. I venture to predict that when the methods of working, and the practical details are more widely known, the spectrograph will become an indispensable instrument to the chemist, whether engaged in mineral analysis or occupied with organic research. Quartz and calcite are the only materials of use at present; the Jena ultra-violet glass when cut into a prism of 60 deg., transmits only so far as wave-length, 3,283 (Cd. 12); with calcite wave-length 2,194, and with quartz wave-length 2,025 are easily photographed.

WALTER NOEL HARTLEY, F.R.S.

### THE ACTION OF LIGHT ON ASPHALTUM.

The experiments which I will now briefly summarise, were made to explain the change in asphalt by light. If asphalt is exposed to light it becomes insoluble in certain oils of turpentine, which may be explained as a chemical or physical process, or a combination of two. From previous researches of Kayser it was assumed that the change was a physical one—namely, a polymerisation.

In order to determine what causes the insolubilisation of the asphalt by light, the following experiments were made:—Strips of glass tinted on both sides with 4 per cent. asphalt solution in benzole were exposed in various gases in a glass apparatus specially designed for the purpose, and the volume of the gases carefully measured under the usual precautions from time to time. The following gases, which were as pure as they could be prepared, were used, air, oxygen, nitrogen, carbonic acid, and hydrogen, and the following results were obtained:—

1. If asphalt is exposed in air or oxygen there is marked absorption of the gas, and the asphalt becomes insoluble.

2. If asphalt is exposed in nitrogen, carbonic acid, and hydrogen, the volume of the gas remains constant, and the asphalt is quite as soluble as if unexposed.

Parallel tests with dry and damp gases gave the same results. No difference was observed in the behaviour of the different kinds of asphalt, nor in the modifications of the same. It is interesting to note, heat acts on asphalt in an analogous manner to light, as if it be heated to 100 deg. C. it becomes insoluble. A return of the solubility by continued exposure or even solarisation was not observed. From these experiments we may conclude that most probably the process is a chemical one, for if it were polymerisation the asphalt must also become insoluble in inactive gases. A combination of a physical and chemical process is also excluded on the same ground, and one must therefore conclude that the process in the exposure of asphalt is of a purely chemical nature.

DR. VOITECH.

### THREE-COLOUR PRINTS BY THE CARBON-FILM PROCESS.\*

For a sketch of the early history and the various processes used in colour photography, the author recalled the fact that Ducos du Hauron in 1869 first used a carbon process for three-colour work, and that Vidal, of Paris, and Hoffmann, of Cologne (1893) also used it, but with only partial success, as they had to resort to double exposure. The method of coating the tissue on celluloid, however, introduced by the Neue Photographische Gesellschaft of Berlin, did away with this difficulty and considerably simplified the process.

The camera for taking the three negatives is provided with a rotating back, which carries the colour-filters immediately in front of the plates. The filters are not glass coloured in the mass, but of plate glass coated with coloured gelatine, and cemented to a covering glass with Canada balsam. It is impossible to obtain coloured glass which shall answer to the theoretical requirements, which are that not only should certain rays be absorbed, but the others must be transmitted in full intensity.

Flexible filters made of very thin sheets of gelatine may be used in the dark slides in contact with the plates, so that no special back is required. It has been proved in practice that it is not absolutely essential for these flexible filters to lie perfectly flat, so that no much stress need not be laid on this point. It is important, however, that they be kept perfectly clean and without creases, or marks will show in the negatives. The colour of these filters must be carefully chosen as that of the glass ones.

These flexible filters enable any camera and dark slides to be used without special arrangements, whilst the glass filters necessitate the use of the repeating back, which can, however, be fitted to

any camera with a ground glass. The latter arrangement has the great advantage that the changing of the plates and filters can be very quickly effected, which is of special importance in portraiture. For still life or landscapes the flexible filters are quite satisfactory, but they will not last long.

Although the exposure through the blue filter may be made on an ordinary plate, and then through the green on an orthochromatic plate, a panchromatic plate must be used for the red, and to obviate having to stock three sorts of plate it is as well to use a panchromatic plate for all three exposures, the results being also better as regards gradation.

The exposure for the three negatives can be easily calculated by anyone expert in ordinary black and white photography. If the N.P.G. plates and filters are used, the blue filter requires an increase of eight times under the same conditions without the filter, the green filter an increase of three times over the blue, and the red five times as long as the blue. These ratios are absolutely dependent on the plates and filters, and are quite independent of the colour of the object to be reproduced.

It is frequently more convenient to stop down the lens so as to obtain easily measurable times of exposure.

Although the above ratios are given, it will frequently be desirable to determine those for another kind of plate, and this may be done by taking a sheet of white paper, crumpling it up into a ball, and photographing this through the three filters till it is represented by equal density on all three plates. It is, of course, essential that all three exposures be developed together for the same time. As the plates are very sensitive to red, it is obvious that great care

\* An abstract of the paper by Hans Schmidt referred to above.



must be taken to prevent them from the red light of the dark room. It is better to fill the slides in the dark and to develop them in the dark; if this is not obtainable, one must be careful to work in the shade of the red lamp.

### Straight Development.

It may be asked how the development can be correctly controlled when it must be carried out in the dark, and cannot, therefore, be watched. The answer to this is that it is quite unnecessary in three-colour work, as errors in exposure cannot be compensated for in development. Development by time must therefore be adopted, and either a metronome or other device used and the seconds counted. With a developer of given constant composition and temperature, development will always be completed in a given time, assuming that correct exposure has been given, and this time may be easily found by a few experiments.

It is important that the developer and temperature used in the first experiments should be carefully adhered to in subsequent work, if good results are to be obtained. Above all things, it is essential, in opposition to ordinary photography, to pay great attention to the correct temperature, for two degrees less than the normal temperature—65deg. F.—will make sometimes a difference of over half the time of development. It will thus be seen what gross failures may be met with if exact methods are to be adopted. If, however, the conditions are strictly adhered to, development, "according to time," is very certain, and a great advantage in colour-photography, as one cannot be tempted to tinker about with the development of one plate in particular, a practice which would cause faults in the colour rendering.

The reason why it is not necessary to watch development in colour-photography is that one cannot see whether the negatives are correct or not, for we cannot say how much yellow, blue, or red there may be in a compound colour. If we take an autumn landscape, for instance, the red filter and green filter negatives will look approximately normal; the blue filter negative will, on the other hand, look completely under-exposed. But this is as the negative should be, for there is always a lot of yellow in the autumnal tints, and, therefore, the blue filter negative, which is printed in yellow, must be very strong.

Three-colour negatives should be thin and soft, for whilst, on the one hand, the gradations must be as delicate as possible, the three negatives must not be printed so deeply as in ordinary work, because three prints are superimposed to make the final result. If there is any white object in the subject, this must be equally dense in all three negatives, and yet not so dense that it will not print through.

With some subjects, portraits, for instance, of sitters in brown, grey, or neutral coloured clothing, very little difference can be seen in the three negatives in subjects with strong colour contrasts; on the other hand, the difference is very striking. In order to avoid mistakes later in the printing, it is advisable to have some distinguishing marks either on the filters or on the dark slides, which shall be automatically impressed on the plate during the exposure. It will thus be easy to distinguish which are the different negatives.

As regards the developers, soft working, rapid developers like rodinal and edinol should be used; in no case hydroquinone. As the time of development is very short—only about half the normal—care must be taken to cover all three plates at once with the developer, and to remove them from the developer as soon after one another as possible, as errors may even be caused here.

After development the plates should be well washed and fixed in an acid fixing bath, and only when thoroughly fixed exposed to white light. Intensification or reduction should be avoided as much as possible, so also should all retouching.

### Printing from the Negatives.

The system adopted for printing is that of the N.P.G. stripping carbon tissues, which are gelatine, with the pigmented gelatine coated on thin celluloid specially prepared with a film of rubber previously. These films must be sensitised in a bichromate bath, the strength of which must be adjusted to the character of the negatives—for instance, for vigorous negatives a 6 per cent. bath should be used, and for soft negatives a 3 per cent. The great

advantage of this process is that the celluloid is placed in contact with the film of the negative in printing, so that there is no double transfer.

As with all pigment processes, an actinometer must be used, and for this a bichromated paper must be used, and not a P.O.P. The reason for this is that the two behave quite differently, and thus the quality of the final print may be unfavourably affected. Silver papers are chiefly sensitive to violet, while chromated gelatine is principally affected by the blue rays, with the result that the pigment films may be considerably overprinted before the silver paper has reached the requisite degree.

The development of the tissues is effected with warm water, and with all other carbon tissues, only this should not be too warm and development be slow.

The great advantage of the N.P.G. process is that the three constituent prints are not, as with all other processes, prepared one after the other, but simultaneously, so that one may easily see by temporary superposition as to whether the colours are correctly rendered, and alter one or the other to suit. For instance, if we have to photograph a white marble hall—for instance, the throne-room of the Imperial Castle in Berlin, which has a gold ceiling—in places this will be reflected by the white marble, and we can specially develop these places so that the marble is rendered white.

When the three constituent prints are found to be correct, we may proceed to make the paper print. The yellow tissue and a piece of transfer paper should be immersed in warm gelatine solution, the two squeezed into contact and allowed to dry, which will take from six to eight hours. Then the celluloid can be easily stripped, because of the layer of rubber. The print must now be rubbed with benzole to remove the latter. Then the blue print and yellow should be immersed in gelatine solution, squeezed, and hung up to dry. The trouble of making the two images coincide is very little, for they are not examined by transmitted light. The red print is superimposed in the same way.

As regards the lens, from a theoretical point of view this should be an apochromat, but as a rule these only work at  $f/10$ , which is quite large enough an aperture for outdoor work, but not for that in the studio; it is preferable, therefore, to use one of the modern anastigmats. Even the simplest objectives may be used if of sufficiently long focus and small sized pictures only are made. Under these conditions, an old Petzval portrait lens may be used quite satisfactorily. It certainly is not necessary to purchase a new lens for three-colour work. Periscopic, bistigmats, and the cheaper aplanats are alone excluded.

As regards the non-coincidence of the images, obviously the subject must not move much during or between the three exposures; but if the leaves of a tree should move, it is not of much moment, as the only result will be somewhat less sharpness of detail, but not incorrect colour-rendering. If a person should move, however, there will be want of sharpness and incorrect colour-rendering. As regards the movement of the camera during the changing of the plates, too much stress has been laid upon this, for if the camera does shift during the changing of the dark slides, it can only be to the right or left, the distance between the lens and sitter will be the same, and, therefore, the middle of the pictures will coincide, and it is only necessary to cut a little off one or other of the sides.

The statement that correct colour mixtures cannot be obtained by the superposition of three separate images, and that they must be in one film is incorrect, for the coloured tissues merely act as filters, and it is immaterial whether a green is made up of one film or of a blue and yellow. As regards the printing through the celluloid, there is no want of sharpness caused by this, as it is so thin as not to make any difference.

It should also be noted that a razor-like sharpness in colour work is highly unæsthetic, and therefore generally some little softness should be aimed at; this is, however, very easy to obtain in superposing the three pigment tissues.

HANS SCHMIDT.

The Council of the Society of Arts has awarded the Albert medal for the present year to Sir Joseph W. Swan, F.R.S., "for the important part he took in the invention of the incandescent electric lamp, and for his invention of the carbon process of photographic printing."

## HANGING BACKGROUNDS.

recent issue of "Wilson's Magazine" (New York), an old American professional, Mr. A. W. Judd, of Chattanooga, Tenn., the following description of the system adopted by him for hanging of backgrounds in the studio:—"For over forty years," says Mr. Judd, "I have been taxing my patience with the fastidious of the backgrounds—they are so unsightly, noisy, and require so much time and room to arrange them. I took some wire one-eighth inch thick, with curved ends and hung from the ceiling in screw eyes. Into these hooks, I put ordinary curtain poles



the backgrounds tacked to them, another pole tacked to the wall, or the extension rolled, and buttoned curtains with hooks to adjust them to any pole or background. Wires were hooked to the headgrounds so as to hook them to any pole. In this way I changed my backgrounds with ease and rapidity, without any trouble and without disturbing the rugs or furniture. By discarding the old background frames and feet I have saved 10 ft. of the wall space, and am able to make the room look much more attractive at all times."

The illustration shows the arrangement adopted by Mr. Judd.

## A BUSINESS STIMULANT.

REFERENCE was recently made in our columns to the experience of an American photographer, Mr. Giffen, of Wheeling, in running a children's contest. As the scheme was found to have brought him a great deal of business, we may quote the substance of Mr. Giffen's announcement. The letterpress is surrounded with pictures of former prize winners, and printed on a large sheet in brown ink:—"It is the duty of every parent to get the best pictures possible of their little ones while they are in health. The neglect of this has caused deepest regrets

Prize Children's Contest.

\$50.00 IN GOLD. \$50.00

Three Prizes for the Three Best Pictures of Children

Under Ten Years of Age.

It is an opportunity that no mother, proud of her little one, can afford to lose, as we will put forth our best efforts in making every child a prize winner. Therefore each one will be a gem, whether it is a prize or not.

The following noted men of international reputation will act as judges, and our reputation being at stake in the eyes of these experts, as well as the public at large for these contests will necessarily attract universal attention, every subject will receive our most sympathetic consideration. Burr McIntosh, noted photographer and critic of New York; Sydney Allen, lecturer and writer of New York; and one capable representative of our own city.

Each picture would be of priceless value to any parent in after years—a sweet, fadeless record of the little baby's face and form, lasting longer than memory.

No better time than the delightful months of May and June could be chosen for taking children's pictures, as they then may be dressed in those loose, dainty summer garments, so essential to the artistic make-up of a child's picture.

Bring them at once, before the oppressive heat of the summer season shows its enervating effects upon these priceless little flowers of nature, and we will assure you that the resultant picture will go beyond your anticipation.

As a matter of further interest, we are pleased to say that our work, being so well known by the management of the leading periodicals, that we are often called upon by them to enter such examples of our children's pictures as we see fit for prize in their frequent children's picture contests, in which many prizes are given, amounting to thousands of dollars. We do not derive any financial benefit from these affairs, as prizes, thus awarded, are sent in full to the prize winner. Such an acknowledgment of our painstaking efforts and the compliment to the subjects are ample compensation for us.

We ask you to bear in mind that this contest closes June 30th, and that you should not put off having the sitting made, and thus be disappointed, as were many in our last year's contests.

Our prices are from \$5.00 per dozen and upward. We will allow a special reduction on all work up to the first 100 sittings.

Yours for the Best in Photography, J. E. GIFFEN,  
Studio, 42, Twelfth Street, Wheeling, W. Va.

## IS SPIRITUALISM A FRAUD?

THE challenge offered to Mr. J. N. Maskelyne through the "Daily Express" has been accepted. Readers of that journal will know that in confronting Mr. Maskelyne, Archdeacon Colley, as the champion of the spiritualistic phenomena, "challenges Mr. Maskelyne for £1,000 to do in any way, anywhere, and at any time, as a conjurer, what the St. George's Hall illusionist declares Dr. Monck did by trickery, as reported of spiritualism in a lecture entitled 'Phenomena, Bewildering, Psychological.'" The matter has led to the publication of several letters in the "Express," of which the following may fairly represent the justifiably agnostic attitude which photographers take in regard to alleged spirit photographs:—

SIR,—Spiritualism as we know it to-day was, I believe, originated by the sisters Fox, of New York, in 1849, and reached our shores three years later. From that day up to the present photographs of what are claimed to be spirit forms have been produced in shoals.

While we have several photographers who look upon some, if not all of them, as genuine, quite 99 per cent. of those who know anything at all about photography look upon them as frauds.

It has been proved repeatedly that things invisible to the naked eye can be photographed, and the sulphate of quinine test is, perhaps, the best known. One has only to take a little of this clear, water-like solution and sprinkle or paint it on the object to be photographed—say, the face or background—to obtain the most grotesque and startling effects, for, although invisible to the naked eye, it will distinctly show in the photograph.—[? Eps., B.J.P.]

This fact alone—and there are many others—convinces some that spirits, if they exist, can be photographed; hence the pictures.

One of the books on spirit photographs makes much of the experiments carried out by the late J. Traill Taylor, who was editor of one of our leading photographic journals. Mr. Taylor, in March, 1893, got something of a spirit form on his plates, and he read a very instructive and convincing paper on the subject. (See "British Journal of Photography," March 17, 1893.)

Spiritualists make much of Mr. Taylor's experiments, but they carefully abstain from saying that, before his death, he deeply regretted publishing it, for he came to the conclusion that he had been "duped."

Spiritualists have many times been asked to give a sitting to a body of picked photographic experts, but they have always made some excuse, and a sitting, up to the present, has never been granted. A committee composed of, say, E. J. Wall, T. Bolas, A. Haddon, P. R. Salmon, G. E. Brown, A. L. Henderson, R. C. Bayley, and a few others would soon settle once and for all whether there was anything or not in so-called spirit photography.

I have met many mediums in my time who would consent to a sitting before a single camera or worker, and, where possible, I have secured them; but, although I have spent many pounds and



exposed hundreds of plates, I have obtained no results. Neither do I know of any other worker who has, when he has made his own conditions, one of the conditions being not to allow the plates to leave his hands.

The last medium I employed was supposed to be one of the best. I fulfilled all his conditions as to draping the room—my own room, be it stated—but I got no spirit forms upon my plates, even though he stated that they stood still long enough to be photographed.

He said he could see them, and, in fact, spoke to them, but I could not. He, however, told me where to focus, and had they been present, their light, misty forms, as he said they were, must have shown upon the sensitive plate, for the room was hung with black and dark-red curtains, which would not show in the photograph.

There has never yet appeared a spirit photograph which is at all convincing to photographers. All the so-called mysterious markings and forms can be explained and easily produced by imperfect work or trickery.

In conclusion, let me ask spiritualists, particularly those interested in the photographic side of the question, a few questions:—

(1) How is it that spirit photographs when taken stereoscopically do not stand out in relief, like the rest of the picture? Mr. Taylor himself said ("The Veil Lifted," p. 33): "... The impressing of the spirit form was not contemporaneous with that of the sitter ... I carefully examined one in the stereoscope, and found that, while the two sitters were stereoscopic per se, the psychic figure was absolutely flat ... the psychic figure was at least a millimetre higher up in one than the other."

(2) Why is it that ordinary monocular spirit photographs have such a "cut out" look about them—"as if," to quote Mr. Taylor again, "an atrociously badly vignettted portrait, or one cut oval out of a photograph by a can-opener, or equally badly clipped out, were held up behind the sitter?"

(3) Why is it that spirit pictures of celebrities who have "passed over" are exactly like—copies, in fact, of—published portraits of them? Surely if they still favour us with sittings some photographer would be lucky enough to get a new pose of one or other of them. Spirit pictures of, say, Dickens, Scott, Wordsworth, etc., are all exactly like the well-known portraits of them. The much-talked-of spirit photograph of Dickens is exactly like one which appeared in the "Illustrated London News" at the time of his death.

(4) If mediums are so confident that spirit forms exist and can be photographed, why do they not let a qualified expert do the work? Nowadays only photographers who are spiritualists themselves get "satisfactory" results.

(5) Why has not a spirit picture of Mr. J. Traill Taylor been produced? We who knew him and all his pictures could soon tell whether the pose was new or not. He promised his most intimate friends before his death that if spirit photography were possible he would appear on the plates exposed by some of his friends—but no spirit picture of him has appeared.

A FELLOW OF THE ROYAL PHOTOGRAPHIC SOCIETY.  
London, E.C.

#### ANACHRONISMS IN ART.

THE "Dioptric Review" is, in its present issue, rendered unusually attractive on account of the reproduction of a work by Rubens, and of a smaller illustration of one of the heads in the picture circumscribed with the utmost decorative effect. The subject is that of the Magdalen washing the feet of Christ with her tears; and the head separately given, that of one of the Apostles. A note accompanying the prints affirms the "special interest of the picture" to be the "obvious anachronism of one of the Apostles wearing a pair of pince nez." To a dioptrician this may be so; but to one who is neither that nor a dry optician there are points of greater interest in the work. The note also states that "Dr. Bock in, a recently issued book, gives no less (no less!) than ninety-four examples of well-known pictures where artists have depicted people of over one thousand years (*sic*) as being in the possession of spectacles." We cannot see what delight spectacles can find in possessing people of over one thousand years, and we think they ought to relinquish ownership in favour of the churchyard!

We are inclined to believe, moreover, that Dr. Bock's research must have meant an easy time for him. Had he found ninety-million anachronisms the fact would have caused less surprise. The very picture under discussion the so-called pince-nez are, of but a grain of sand from the shore. It is "special pleading" to them such a modern name. In reality they are "folders"—a which saves them a few centuries of the crime they are charged with. If this unfortunate picture were thrown to any of specialist organ, say "The Tailor and Cutter," what growls and tearings might not ensue. Or if to the "Cabinet Maker" and "Barber's Journal" what would be left of it? Viewed from proper point of view, Peter's folders are the least anachronistic any detail in the whole composition. They were what Rubens himself saw every day, whereas these flowing robes were, to him, p conventions of the imagination, and as foreign to the ancient Hebrew as to the painter himself.

The spectacles are worn by the Apostle so that he may appear more emphatically to be overcome with indignant surprise—not be able to believe his own eyes. This is the higher realism, and the truth of impression to be a matter of more moment than the truth of fact for mere fact's sake. The writer of the note will be surprised to know, perhaps, that at the Grafton Galleries he may see a lot of modern German peasants listening to Christ preaching. Still anachronisms are adopted for expediency, and so was this one of Rubens's, which appears to be thought the outcome of ignorance.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents were made between May to June 2:—

**COLOUR PHOTOGRAPHY.**—No. 12,793. Colour screen for multiple colour photography and provided with spaces for comparison. Charles Louis Adrien Brasseur, 18, Southampton Buildings, London.

**FINISHING SHEETS.**—No. 12,806. Improvements in processes for finishing photographically printed sheets. Charles Francis Peasgood, 111, Hatton Garden, London.

**PANORAM CAMERAS.**—No. 12,813. Improvements in panoramic camera. August Muller and Johann Klein, 111, Hatton Garden, London.

**THREE-COLOUR.**—No. 12,864. Improvements in three-colour photography and the projection in natural colours upon a screen of aluminium. Henry William Hamblin Palmer, 43, St. Martin Lane, London.

**FILM-PACKS.**—No. 12,887. Improvements in adaptors or carriers for using film-packs, change boxes, film envelopes, dark slides, and the like in photographic cameras. John Edward Thornton, Altrincham, Cheshire.

#### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**DEVELOPING FILMS.**—No. 18,551. The claim is for a developing dish of which a tongue or bar (under which the film is drawn), forms an integral part; also for a scoop-shaped end to the well of the dish, to facilitate the insertion of the film. Frank Sugg, 12, Lord Street, Liverpool.

**NATURAL BACKGROUNDS.**—No. 27,088, 1905. The invention relates to the production of composite photographs, such as figure subjects, with any desired background in which a double exposure is given to the subject; in the first instance, as a silhouette against a white background, and through a positive picture background transparency, placed in proximity with the sensitive plate; and in the second instance as a light reflecting body against a black background, but without the picture transparency. It has been proposed to take a composite photograph by the wet plate process of photography in substantially the manner above described, but in carrying out such process it was necessary that the positive picture background should be prevented from coming

into contact with the sensitive plate, and special means were employed for this purpose. Hence no sharpness of the picture background was possible in the finished photograph. Further, the manner of lighting was imperfect, and in conjunction with the low sensitiveness of wet plates rendered the process impossible as a commercial one. According to the present invention, a sensitive dry plate is employed, and the picture transparency is placed in actual contact with it, so that the picture background can be clearly and sharply brought out thereon, and further by the illumination of the model or subject by artificial light, such as flash light, both accuracy and rapidity in carrying out the process is attained. The specific claims are:—

1. A process for the production of composite photographs, in which a picture background in the form of a positive transparency is placed in contact with the sensitive dry plate. 2. The process as described in the preceding claim, but in which the model or subject is illuminated by a flash or artificial light. 3. For carrying out this process according to the preceding claims, a plate carrier, consisting of a hinged frame adapted to hold the positive picture background in contact with the sensitive plate during one exposure, and to let it fall or move out of the path of the light rays falling upon the sensitive plate during the other exposure. Frederic Julius Dischner, 150, Norstrasse, Zurich, Switzerland.

PRINTING FRAMES.—No. 1,563, 1906. This invention relates to an improved construction of photographic printing frames, used in taking successive prints from a negative without removing the paper from the frame. This type of frame is employed especially for rapid printing of small photographs, arranged in a series on a long plate, and a single large sheet receives usually twelve successive prints of the entire series. Such plates are marked with a number against each photograph, which number is printed on the sheet at the end of the series of exposures, to identify the different photographs, and my invention relates more especially to means for effecting the special exposure at the proper time without requiring special attention. The main frame is provided with two slides, having ledges to receive the plate, the lower slide being, as usual, adjustable by means of a slot and thumbscrew or the like, while the upper is controlled by a spring, and moves only a distance sufficient to expose the numbers on the plate. The sliding frame receiving the sensitive paper is moved into its successive positions for printing, and at the end of a complete operation presses up the upper slide and exposes the numbers on the final print, means for adjusting the point at which this occurs being provided. An adjustable bar is also used, against which the end of the plate abuts, but in case no numbers are on the plate the bar is lowered to allow the full width of negative to be exposed. Marwood Short, 1, The Collonade, Ramsgate.

NEW FILMS.—No. 10,394, 1905. The invention consists in constructing a continuous opaque band, capable of carrying upon itself the means of holding the flexible cut photographic films or sheets of any make, so that they can be readily and correctly attached for exposure, or as easily removed for development after exposure, and which can be rolled without injuring or crinkling the films, for which purpose it is essential that a certain degree of extensibility shall be given to the band, enabling it to accommodate itself to the varying length which the band and its attachment devices occupy when rolled with the films in place. To facilitate rolling without buckling it is proposed to transversely corrugate or groove the complex non-actinic band and its attachments, but occasionally sufficient elasticity can be realised by corrugating only the band or only the attachments. It is not essential that the grooves or corrugations should be strictly parallel, a somewhat irregular "crinkling," like that of certain Japanese papers, being found to give satisfactory results. William Fraser, Cloughton Kelley, 22, Winchenden Road, Fulham, S.W.; and John Arthur Bentham, 51, Claverton Street, London.

The following complete specification is open to public inspection and acceptance under the Patents Acts, 1901:—

EMATOGRAPHIC FILMS.—No. 11,762, 1906. Compagnie General de Photographes, Cinematographes, et Appareils de Precision.

## Exhibitions.

### PHOTOGRAPHS BY HENRY STEVENS.

THE collection of photographs of flowers and domestic pets now arranged on the walls of the little gallery at the offices of the BRITISH JOURNAL OF PHOTOGRAPHY does not number fifty in all, yet it represents a career in photography which many would be proud to point to as their own. The photographs are known, of course, to those who saw them at the Royal Photographic Society about seven years ago, but to very many of those whose adoption of the camera has been since the rise of modern amateur photography, with its many aids to lighten labour, the photographic work of Mr. Stevens must come as an achievement utterly beyond their powers. And the fact is it represents something more than the ability to use tools and materials which were less perfect ten years ago than those obtainable to-day. It represents the possession and exercise of infinite patience, and a mastery of photographic processes which comparatively few amateur photographers of the present day have the time or inclination to cultivate. For these reasons the photographs should possess an interest to every amateur. They hold out a standard which challenges the beginner, and may discourage him by showing him the gulf which separates such splendid work from his own productions.

Mr. Stevens, it is true, had the good luck to approach his photography as a lover of the country and a resident on an estate in one of the most beautiful parts of Surrey. The photographs of flowers and animals reproduce the surroundings of his home near Weybridge, and though such opportunities do not come to everyone, they do not confer the ability to photograph subjects with such an approach to absolute realism which one finds in the pictures on the walls in Wellington Street. "It is wonderful photography," is usually the first exclamation of anyone who is accustomed to see photographs good, bad, and indifferent. And the beauty of the flower studies becomes all the more remarkable when it is known that Mr. Stevens has never used an orthochromatic plate. The secret of the exquisite renderings of lilies, ferns, and orchids is in the ample exposures given and the restraint practised in development. The lighting of the subjects in the first instance has been equally the work of a practised hand, otherwise it would be impossible to produce such a photograph as No. 19, where some water is shown collected on a jar of chrysanthemums so realistically that the first impression is that the print itself has been sprinkled.

No less wonderful than the flower photographs are those of the cats, rabbits, and dogs. Some of the dumb sitters are, or have been, Mr. Stevens's own pets, and had therefore become accustomed to being photographed. But others were strangers to him at the time of the sitting, and the equally faultless rendering of their characteristics suggests that training is not the open sesame to animal photography. In fact, Mr. Stevens will admit that there is only one royal road to success in photographing such subjects, and that is the determination never to give in to your sitters, and the patience to carry out the resolve, however long it may be before you get your own way. Animals come at length to understand that it is useless their holding out any longer, and though the process of preparing them for the exposure of the plate may last half a day, the moment arrives when the cap may be removed and a negative may be made which possesses a quality impossible of attainment by a number of "snap-shots" taken on the chance that all will be well when the plate is developed. This experience of Mr. Stevens may be worth repeating for the benefit of those who will examine his photographs. There is no occasion, he has found, to expose plates on the chance of the result being good. In his own work it has rarely happened that he used a plate without feeling confident that the group of sitters was happily composed, and that they were likely to remain still for the time necessary for a cap exposure to be given.

The reproduction of one of the flower studies which we present this week gives a fairly good idea of the quality of Mr. Stevens's work, but the majority of it must be seen in the original for a proper appreciation to be formed of its merit. The realism of the photographs is their chief qualification for the epithets which we have used in reference to them, and that precise quality cannot be com-

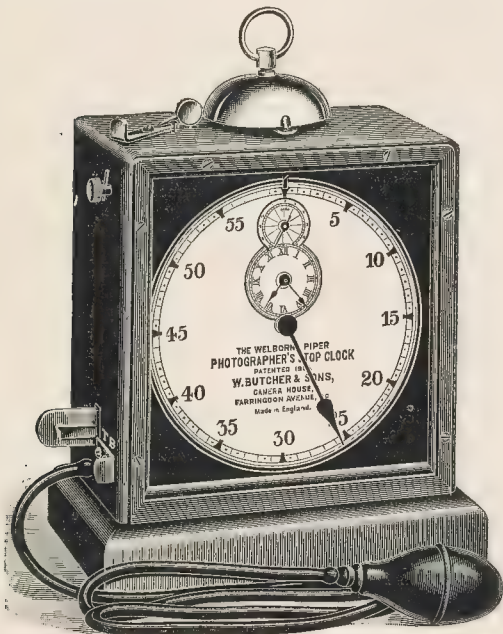


municated through the half-tone block. Some transparencies from negatives of subjects similar to those shown as prints are exhibited in the windows, and will, we hope, be noticed for the extremely favourable way in which they reproduce the gradations of the negative, and for the proof they adduce that "fake," so glorified by the modern photographer, has no part or lot in the work of Mr. Stevens.

## New Apparatus, &c.

The Welborne Piper Photographers' Stop Clock. Sold by W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C.

This instrument has been introduced not only for the so-called "time development," but for many other photographic operations the accurate control of which in regard to time will be accompanied with advantages in the matters of quality and regularity. The mechanism and adjustments of the clock are a little difficult to explain, but reference to the diagram should make clear the facilities which it offers in aiding the photographer to time his operations in the dark room.



F. Starting lever.

H. Bolt by which the setting of the clock is made either "time" or "bulb," i.e., by which the clock will either continue going after the lever F has been depressed and released, or will go only while F is kept down.

M. Pneumatic bulb for release to replace the lever F and answering in the same way to the movement of the bolt H.

G. Stop-lever, pressure on which stops the clock.

D. Gong lever, to permit of, or prevent, the minute gong from striking.

E. Automatic stop. On turning the screw downwards the seconds hand of the clock is arrested at the zero position.

There are two ways of setting the clock for use. It may be arranged to work by "time" or "bulb." The former we find the more convenient method, but care should be taken by users to familiarise themselves with both if they would understand the working of the clock and be able to avail themselves of all its movements. To set for time, the bolt H is pushed in towards the letter T on the wooden case of the clock, and the clock then stopped either with G or with the automatic stop E. Sharp pressure on the bulb, or on the lever F, will now cause the clock to start, and

it will continue to go until stopped, striking the gong at every completion of the minute—that is, at every time the seconds hand reaches the zero point. A second pressure on the bulb stops the clock only for the time the bulb is kept pressed. To stop the clock permanently the lever G must be depressed.

For the so-called "ball" setting the brass bolt H is pulled towards the letter B marked on the wooden case. The clock then starts upon the bulb or the lever H being pressed and continues running only as long as either is kept pressed. The clock thus set to "bulb" behaves just like a photographic everset shutter also set to "bulb."

The above description, perhaps, will scarcely fulfil the purpose we have in writing it, viz., to show the ease and convenience with which the clock is used. Perhaps we can do this better by pointing out the applications of the instrument in practical photography. Take first the "timing" of development by the Watkins factor method. The clock is set to "time," and the bulb of the release placed beneath the worker's foot, the 4 ft. length of tube permitting of this being done. The clock is started from zero, the moment the developer is poured on, by sharply pressing and releasing the bulb, and the clock is arrested by pressure on the bulb the moment the image appears. The number of seconds which have elapsed during the appearance of the image can thus be read off accurately to half a second, and the total time of development thus obtained with equal accuracy.

Next take the case of such work as copying, photographing with the microscope, etc., where the exposure may have to be interrupted several times in order to avoid vibration from passing vehicles. The bulbs of the shutter and the clock can be pressed simultaneously, and the intermittent exposures thus made conveniently, whilst the clock adds up the separate times and prevents the occurrence of errors which are most difficult to avoid if the exposures are made with an ordinary watch. The clock and shutter, if preferred, can be worked off one bulb by providing a T piece, but this addition is not absolutely necessary.

In such work as the above the advantages of the clock are patent, yet in other branches of photography, such as enlarging, the uses of a convenient instrument for timing not only exposures to light but the duration of washing, toning, fixing, etc., make for greater certainty and regularity in the production of photographs on a commercial scale. In addition to the movement providing gong indications of each minute—a provision which enables the clock to be used for time development in absolute darkness—the clock has the usual alarm gong, which is set and used in the ordinary way, and by which the time at which to remove prints or plates from the washing tank is forcibly emphasised to the photographer. For all the purposes for which we have had occasion to use the clock during our short possession of it we have found it answer to the maker's instructions. It is evidently well and accurately made, and we believe that its performance is afforded a reasonable guarantee in the personal examination which Mr. Welborne Piper makes of each instrument before it is handed on to the purchaser. Messrs. Butcher may congratulate themselves that the introduction is one which should be appreciated by large numbers of the more serious practitioners of photography, to whom the price of the clock, 30s., should soon be returned in the time saved and the supervision of photographic processes which it assists.

A convenient accessory for the enlarger and copyist has been introduced by the Tress Company, 205, Oxford Street, London, W., under the name of the "Combination Enlarging and Copying Frame and Bromide Paper Storage Box." This comprehensive title is almost self-descriptive, but it remains for us to say that the apparatus consists of a shallow box fitted with a self-catching light-tight lid, thus affording instant security for unpacked sheets of bromide paper. To the bottom of the box is hinged externally a glazed frame behind which the bromide paper can be pressed flat, and in which it is quickly centred by the squares into which the bottom of the box is marked out. The box thus serves the purpose of an easel when enlarging or copying. It stands by itself, and is capable of accommodating any original up to 20 x 16 in. size. It is well made in brown polished wood at the price of 15s. 6d.

The latest hand-camera pattern of the "Antinous" release is sent

as by Messrs. W. Watson, 313, High Holborn, London, W.C. special feature is the "petal" attachment, by which it can be adapted to practically all the patterns of diaphragm shutters by merely shortening (if necessary) the wire plunger. The price of release is the same as that of the other patterns—viz., 2s. 6d.

## Commercial & Legal Intelligence.

COMMERCIAL Photo Company, Limited (Staveley, Westmoreland). 5 per cent debenture, dated May 21, 1906, to secure not more than £50,000, charged on the company's undertaking and property, present and future, including uncalled capital, has been registered. Issued by—Lancaster Banking Company, Limited.

### NEW COMPANIES.

PHOTOGRAPHIC Materials, Limited (London).—Issue on May 18 of £50,000 6 per cent. first mortgage debentures, part of a series created on May 24, 1906, to secure £5,000, charged on the company's undertaking and property, present and future, including uncalled capital. Total amount previously issued of same series, £4,000.

### CATALOGUES AND TRADE NOTICES.

MESSRS. NEWMAN AND GUARDIA, 90 and 92, Shaftesbury Avenue, London, W., have issued re-editions of the booklets describing their latest cameras, the N. and G. "ordinary" and "reflex" patterns, the folding cameras, "Nydia" and "Sibyl." The brochures describe the advantages of these instruments very accurately and fully.

SOME very attractive and good work in enlargements has been shown us by the firm of Jeffery, Edwards, and McLeod, 17, Eccles-Road, West Ealing, of whose productions of both the inexpensive and more costly descriptions we have formed a high opinion. The firm has worked out some good-looking Cosway effects in wide enlargements, in which class of work also it offers some attractive lines with a fancy surround on which the figure slightly roaches. It delivers sepia-toned enlargements to two standard sizes of colour, and in working up in monochrome shows itself able to meet requirements of all kinds at prices which certainly do not impress us as exorbitant.

A NEW booklet has been issued by Messrs. Houghtons, Ltd., drawing attention to the Sanderson camera. It should be in the hands of those who do not know the great capacity of this make of camera. The booklet is also a price list, and is sent free.

A NEW list of miniature cases and frames has been prepared by the Photographic Supply Company, Grosvenor Buildings, Steelhouse Lane, Birmingham. It illustrates and prices the very full line of cases of this class which the firm carries, including rims, gold and silver frames, and every description of case.

### FORTHCOMING EXHIBITIONS.

June 20: Hastings and St. L. S.A.C.—Sec., Miss Watson, Deverell Street, De Cham Avenue, St. Leonards-on-Sea.

June 27: Armagh A.A.—Sec., A. E. Craddock, 10, College Street, Armagh.

August 6: Andover and D. H.S.—Sec., W. I. Gradidge, Jubilee House, Andover.

September 14 to October 27: The Photographic Salon.—Sec., Gerald Craigie, 5a, Pall Mall East, London, S.W.

September 20 to October 27: Royal Photographic Society.—Sec., McIntosh, 66, Russell Square, Bloomsbury, London, W.C.

October 6: Bristol Photographic Club.—Sec., J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.

October 17 to 20: Rotherham Photographic Society.—Sec., H. C. Hemmingway, Tooker Road, Rotherham.

November 16 to 21: Southsea Camera Club.—Hon. Sec., F. S. Hoyte, "Lismore," Stafford Road, Southsea.

November 20: Sefton Park Photographic Society.—Sec., A. W. Parr, 34, London Grove, Liverpool, S.

November 27 to 30: Hove Camera Club.—Hon. Sec., W. H. Bone, 32, Sackville Road, Hove.

December 11 to 15: Southampton Camera Club.—Hon. Sec., S. G. Kimber, "Oakdene," Highfield, Southampton.

1907.

February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge.

March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.

April 29 to May 14: Photographic Society of Ireland.—Sec., R. Benson, 35, Molesworth Street, Dublin.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

June.	Name of Society.	Subject.
16 .....	Bristol Photographic Club .....	Outing to Nailsea Moors.
16 .....	Blackburn Camera Club .....	Outing to Whalley Abbey.
16 .....	Birmingham Photo. Society. ..	Half-day Excursion to Streetley.
16 .....	Aberdeen Photographic Assn.	Outing to Aberdeen.
16 .....	South London Photo. Society...	Outing to Oxted for Limpsfield.
18 .....	Southampton Camera Club .....	"Individuality in Photography." C. Daw.
18 .....	South London Photo. Society ..	"How to win the Edwards' Memorial Competition." E. J. Wall, F.R.P.S.
19 .....	Birmingham Photo. Society ..	Social Evening. Exhibition of a Portfolio of Prints.
19 .....	Hackney Photographic Society	Excursion Prints Judged and Criticised.
19 .....	Manchester Amat. Photo. Soc.	Exhibition of Pictures. F.E. Roope.
20 .....	Bristol Photographic Club .....	"Negative Making for Beginners." A. G. Thistleton.
20 .....	Manchester Amat. Photo. Soc.	Outing to Tisbury Spire.
20 .....	Bristol Photographic Club .....	Technical Night at Headquarters.
20 .....	North Middlesex Photo. Soc. ...	"Home Portraiture." M. F. Black.
20 .....	Leeds Camera Club .....	"Intensification and Reduction."
21 .....	London and Prov. Photo. Assn.	Nomination of Officers.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held June 12, the President, Major-General Waterhouse, in the chair. Mr. C. P. Butler exhibited some specimens of colour-photography sent him by M. Graby, which were said to have been made at one printing from an ordinary negative coloured to imitate the colours of the original subject. Mr. Butler had no information as to the *modus operandi* of the process, which he believed was a secret one, and would be shortly placed on the market in France.

A paper on "The Picturesque in Landscape," by Mr. Horace Mummery, was then read by the author. Mr. Mummery commenced by considering the place of landscape in art from the historical standpoint, and contrasted the attitude of the Greek sculptors to the beauty of natural scenes with that of present-day artists. It was not until the middle of the seventeenth century, he said, that really great landscape works were painted. He then traced the progress of landscape art from its commencement in realism down to the modern cult of impressionism, instancing the career of Turner, which showed at various stages this same process to impressionism. Impressionism led Mr. Mummery to talk of the relation of photography to art and the place of photography in art, and it was difficult from this point to follow the author's treatment of his nominated theme. His severe criticism of the failings of photographers, particularly in imitating the style of other forms of artistic expression, proved, however, no less interesting than the subject at the head of his paper, and



provoked an animated discussion, in which the Rev. F. C. Lambert, Messrs. H. Snowden Ward, E. T. Holding, P. Bale Rider, J. C. S. Mummery, and the chairman took part.

### LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.

At the meeting held on Thursday, June 7, 1906, Mr. A. Haddon in the chair, Mr. A. W. Green (of John J. Griffin and Sons, Ltd.), lectured upon "Self-Toning Paper and the Principle Underlying Its Action." Referring more particularly to "Goldona," he said:—

"It is curious that very little has been written or said as to the principle underlying so-called self-toning papers. As far as I have been able to trace, not one of our chemists has ventured to make a statement as to the action which takes place during the simultaneous process of toning and fixing the print. The explanation may be that, the introduction of self-toning papers being comparatively recent, time has not sufficed to permit of full investigation. In any event, it cannot be gainsaid that self-toning papers are becoming very largely used, and for various reasons are likely to replace to a considerable extent ordinary P.O.P.

In giving this subject consideration permit me to sum up briefly the advantages and disadvantages of self-toning papers.

(1) There is the advantage of simplicity and of time and labour saving. Instead of having to prepare for each batch of prints a toning bath, this is done away with altogether. All that is absolutely necessary indeed, is to plunge the prints in a solution of plain hypo for a requisite period, and then wash.

(2) There is the advantage of an entire absence of double-tones—the old bugbear of P.O.P. printing.

(3) We have the advantage of reliability, the colour of the print being determined at the final stage and subject to no modification by an after process, as is the case with the separate toning and fixing of P.O.P.

With respect to the other aspect—as far as can be seen there is only one disadvantage, and that, as I hope to show you, only a questionable one: I refer to the undoubted fact that certain prints made on certain brands of self-toning papers have been found to fade. Why this is no one at present has clearly explained, but the opinion that prints on self-toning papers do occasionally fade has been gradually gaining ground for some time past.

Now this fading may be due to several causes. It may be explained by insufficient fixation. A considerable proportion of self-toning papers tone so rapidly in the hypo that the temptation to remove them before they are completely fixed is too strong to be resisted. In fact, with some papers there is no alternative, if a warm tone is desired, but to remove the print at an early stage and take the risk of fading. With a combined toning-fixing bath the prints may be removed to a plain hypo solution to complete the fixation, but this is, of course, not possible with a self-toning paper. There is no doubt in my mind that insufficient fixing explains a good 50 per cent. of faded prints on self-toning papers.

Then there is the very common error of insufficient washing after fixing. It cannot be too frequently stated that the procedure of putting a number of prints in a small dish and allowing water to trickle down on the back of the top print, must inevitably lead to faded results. The prints must be in a vessel large enough to permit free circulation of water between them; they must therefore be agitated either by the force of the water or by mechanical means.

Lastly, there is the use of an exhausted hypo bath—the danger here being two-fold. If any silver chloride is allowed to remain in the paper, change of colour must of course ensue, but in addition to this, there is the greater probability of sulphurisation, owing to the decomposed state of the bath. Hypo is very cheap, and a fresh bath should be used for each batch of prints, and sufficient hypo solution should be employed to well cover the prints. It is not wise to use too much solution, however, as a certain amount of gold appears to be dissolved out of the paper, and hence for toning purposes there should not be a large excess of solution.

Now, all these causes of fading are connected with manipulation and are not directly connected with self-toning, nor are they the result of placing prints containing gold in hypo only. The question there-

fore arises—are there any contributory causes of fading due to self-toning process *per se*? A careful study of this question compels one to answer, "It depends on the composition of the emulsion the paper used." If the paper is coated with a complicated emulsion containing a considerable quantity of substances which are readily soluble in hypo solution—particularly free acids—then there is no doubt that there will ensue complicated chemical reactions, and these will be more than likely contributory causes of fading. supposing you have an emulsion of such a simple nature that the print there is very little else which need be taken into account beyond reduced silver and unreduced silver chloride—that is to say, the silver acted on by light and the silver chloride which has been protected from light—then upon one condition, there is no apparent contributory cause to fading that can be discovered.

This condition is that there should be such a defined quantity of gold in the paper that it will exert a preponderating influence in the toning action. This, perhaps, is the most important item in connection, for not only does it affect the permanence of the print, but largely determines the quality, richness, and purity of tone of the same.

In the articles published by Messrs. Haddon and Grundy on toning prints in a mixture of hypo and gold, the following very terse statement is made:—"Prints toned in a bath giving a large deposit of gold have a much better chance of being lasting." These experimenters also found that when gold was present in fair quantities sulphur toning was, so to speak, discouraged and made tacitly impossible. They proved that prints not previously washed, lasted better when toned in hypo and gold than when simply fixed in hypo. It is these broad principles, and to meet the requirements I have suggested that the new self-toning paper, "Goldona," has been manufactured.

"Goldona" contains as few chemicals as is possible consistent with the turning out of a high-grade emulsion. It contains a minimum of acid, and in addition there is embodied in the emulsion an adequate quantity of pure gold salts. As a consequence, prints, fixed only, should be sufficiently lasting for all practical purposes, and prints, washed first, should be as permanent as any P.O.P. can be.

As to the chemical action of the self-toning process it may be assumed that the action of daylight on "Goldona" paper is twofold. It reduces the chloride of silver to subchloride, liberating chlorine, and it reduces the gold salts also to sub-chloride.

Now, what happens when the print is placed in the hypo bath? With a complicated emulsion all sorts of reactions take place which it is quite impossible to trace, but with a simple emulsion such as is used for "Goldona," there is a reasonable possibility of hitting upon the chemical progress of the toning. Firstly, then, the altered silver chloride is dissolved (with any other free or organic compounds of silver), the print changing in consequence to a yellow colour. Next, after a lapse of a few minutes, the sub-chlorides of silver attack the sub-chlorides of gold, and extracting the chlorine from silver chloride, which as soon as so converted dissolves promptly in the hypo solution. This action continues step by step until finally in from ten to thirty minutes the whole of the gold and remaining sub-chlorides are reduced to the metallic state leaving an image consisting of a combination of gold and silver in a very fine state of division. What about the dissolved silver chlorides and their decomposition products? Do these affect the toning action? It is probable that only after the gold chloride has been reduced does the sulphur toning action commence, accompanied by loss of brilliancy and reduction of the high-lights.

Certain peculiarities in the manipulation of "Goldona" substantiate this argument. The prints are found to tone equally well whether washed before toning or not, thus seeming to demonstrate that the assistance of the sulphides are not necessary. The toning action is not unduly rapid as is the case, for instance, with papers containing acids or other chemicals likely to accelerate toning, and the resulting prints have that rich and pure appearance which is not to be mistaken for any other tone except gold. Indeed, this somewhat leisurely toning action is one of the most important advantages which can be claimed for "Goldona." Warm tones can be obtained without imperilling the safety of the print by incomplete fixation. Furthermore, the toning is more even, more under control, and the results probably finer.

Printing is done in the usual manner. For warm brown and

chocolate tones, the prints need be only very slightly darker than they are required to be when finished. In fact, "Goldona" does not lose much in depth in the fixing. For the colder tones, however, where somewhat prolonged fixation is necessary, there is more reduction, and in that case the best results are obtained by over-printing.

The fixing bath, which in the case of self-toning papers might be best described as the "reducing" bath, should vary in strength according to the tone required.

For very warm tones—red sepias—not the chocolates—use

Hypo (crystal) .....	2 ozs.
Water .....	10 ozs.

In this solution the prints are plunged one after the other and kept moving for at least ten minutes. It will usually be found that fifteen minutes immersion is necessary to secure a pleasing warm tone. If you are keen after permanency throw the hypo bath away after use. If you are not very particular on this point you will find that a used hypo bath will tone rather better, because a certain amount of gold—not very much—has dissolved in the hypo solution, and this helps the toning action.

For a good rich chocolate and tones approaching purple use the stronger bath:—

Hypo .....	4 ozs.
Water .....	10 ozs.

This strength seems to be the best on the whole, and certainly complete fixation is more certain.

After reduction or fixing the prints are transferred to a proper washing apparatus, and kept well moving in running water for three-quarters of an hour to one hour.

During the discussion which followed Mr. Green's remarks, and the toning of some prints, Mr. Teape asked what difference in time the washing of the prints prior to the toning made when a certain tone was required? The reply was that the difference was one of a few minutes only.

Mr. A. L. Henderson remarked that self-toning papers to his knowledge went back fifty-one years, and asked should the hypo be natural, acid, or alkaline, because if one state of the bath was right the others would certainly be wrong. Mr. Green replied that the hypo used by him was the ordinary commercial hypo crystals, and so far as his experience went the baths being either acid or alkaline did not seem to matter much.

Messrs. Freshwater, Teape and Human passed round prints upon the paper. Mr. Teape remarked that he had tried to obtain the same tone upon a print cut in two, one-half being washed and the other not; he had however failed. The Chairman said that he had made prints in the same manner, and the tone was so near that one could not detect the difference. Mr. Teape observed that he made both alkaline by the aid of soda carbonate, and this was generally thought to be the cause of his failures.

Referring to the permanency of the print, Mr. Human asked whether in the case of the print that had been exposed to light for three months, it would not have been a better test to have covered part of the prints with some opaque material, because if the print had changed at all the change was in this case all over, and it was to his mind no test at all. Mr. Green said that the suggestion was a good one, and he would carry it out and report later.

Mr. Haddon, in proposing a vote of thanks, said that from his experiments "Goldona" had come to stay, and any paper that would stand the tests of the L. and P. members as the paper had done, would certainly stand before any society.

EDINBURGH PHOTOGRAPHIC SOCIETY.—The forty-sixth annual meeting of the Edinburgh Photographic Society was held last week in 36, Castle Street.—Mr. J. T. Cundall (president) in the chair. The annual report by the Council stated that the membership at present was 429. Last summer new dark and enlarging rooms were fitted up at a cost of £200, making the premises as up to date and convenient as any in the country. The art union promoted in connection with the Society's exhibition was slightly more successful financially than that of the previous session. A sum of £24 8s. 6d. was expended in the purchase of pictures exhibited. The work of the survey section continued to make progress. The report was accepted. Office-bearers were elected for the session. Mr. Andrew H. Baird, F.R.P.S., was appointed president.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### URANIUM-TONED IMAGES.

To the Editors.

Gentlemen,—Mr. Wall's letter on this subject and his slides are very interesting, and seem to prove that differences in the formulae do affect the colour, independently of such variations as may be due to incomplete action. It has, however, been my experience that the colour varies slightly with the character of the image, and it would be interesting to compare the results obtained by cutting a slide such as A in half, and treating the two portions separately. There should be a difference, but it might not be so great as at present. Slide C is very curious, as the image seems to be somewhat of the character of D. I should say that Mr. Wall's explanation is the correct one, as I know the toning solution is very rapidly exhausted; in fact I took advantage of this quick exhaustion in toning bromide prints, using an extremely weak solution that could not carry the process further than I wished it to go. The strength of my solution for brown tones was 1 part each of uranium nitrate and ferricyanide in 3,000 parts of water. This speedily became exhausted and practically colourless, and I then replaced it with fresh, so that the process of toning was carried on step by step, and stopped when the desired effect was reached. I adopted this slow process because I found that it was the only way to secure uniform action. A stronger solution attacked the light details and turned them red before the shadows had been sufficiently affected. The colours obtained in this manner were pure browns, not red-browns of the type of Mr. Wall's slide B, but deep sepias without a suspicion of red. Later, I found a better and surer way of arriving at similar results, which improved method, I believe, was adopted by others with success. In this method the print was first placed in a strong toning bath and toned to a deep full red. It was then washed, placed in weak ammonia until the toning had entirely disappeared, and afterwards retoned in the weak bath. The process was quicker than the other, and more satisfactory in all ways. I think that in both these methods the deep brown obtained is a mixed colour, due to the red-brown uranium deposit and the black silver.

Mr. Wall's slide D shows just the kind of red-stain I mentioned, but I think the solution must have contained other ingredients. I experimented at one time with baths containing sulphocyanide, and used them a great deal, but I never found one that would keep, even in the acid state. Perhaps I used the wrong acid. The bought solutions smelt like very strong solutions of cyanide, and while this may have been due to acid I always suspected the addition of cyanide.

With regard to the bad reputation of uranium toning, I have for many years been watching and experimenting with old prints with a view to overcoming the defects, if possible. One alteration is the gradual deepening of red toned prints. These become a brownish red in course of time, but the change is quite uniform and in no way detrimental. In fact, I like the softened effect. A defect much talked of is called fading; but I do not know what is meant, as I have never seen the slightest indication of fading in a toned print. The great trouble is a curious grey metallic sheen that appears in the deeper tones. This is often credited to damp and noxious vapour, but I found most unmistakable evidence to the effect that strong light is the prime cause. I also found a cure for the defect and a preventative. The cure is simple india rubber. A sharp-pointed piece of hard pure vulcanised rubber will remove the deposit completely, and a coat of celluloid varnish will prevent its reappearance. It is worth note that this varnish has no visible effect whatever upon the print. It does not give the slightest gloss, and if half a print is varnished it is quite impossible to tell the difference between the two halves when the varnish is dry. I consider its use most advisable with all bromide prints, toned or otherwise. I generally carry



it over the print and a little way over the mount to seal the print margins.

In proof of the efficacy of these methods, I have some prints about fifteen years old that are now in perfect condition, though hanging in a strongly lighted south room. A few years ago I was on the point of destroying them, as their condition was so bad, but the restoration was perfect, and there is not a spot on one of them at the present time. I have not tried the varnish on a new print, but it seems to me that it should be as effective as on a cleaned one. I remember that the late Mr. A. R. Dresser varnished some of his prints with either white-hard or copal varnish. He aimed at a good gloss, not at protection; but it would be interesting to know how these prints have fared.

Reverting once more to the question of colour, it appears to me that while the work of Atterberg, confirmed by L. P. Clerc, proves that colour varies with the formulae, yet the variations so obtained are too slight to be of much value. Moreover, I am disposed to doubt the permanency of the difference, as red toned prints invariably turn brown. For practical work I think it best to rely mainly on partial toning to secure good browns and complete toning with removal of silver by a solvent to secure red. The differences thus obtained are very marked and permanent, for though the red softens it never approaches the deep brown.

I find that Mr. Wall's slide D is cracked across the centre; I trust he does not place any value upon it for exhibition purposes.—Yours, etc.,

C. WELBORNE PIPER.

### THE STATE OF WINCHESTER CATHEDRAL.

To the Editors.

Gentlemen,—One of the most remarkable things in connection with the Photographic Convention has always been the number of non-members, who—doubtless actuated by the best motives—have from time to time been good enough to make suggestions in connection with its management and arrangements.

If you do not think sufficient of your valuable space has already been occupied by those who have written with regard to what is, and what is not photographable at Winchester, will you kindly allow me a few words to allay their anxiety?

We fully appreciate their good intentions, but I can assure them we are in very good hands; we know exactly what is possible, and (unless something very unexpected happens) we shall be able to offer our members quite six times as much photographic work as they can possibly get through in the time at their disposal. Your correspondents, therefore, need not worry any more on our account.

I should like to add that although a visit to a cathedral is always interesting, it is not the only, or, to many, the most attractive item in our Southampton programme.—Yours truly,

East Lodge, Dalston Lane, F. A. BRIDGE.  
London, N.E., June 9, 1906.

### PHOTOGRAPHIC VARNISHES.

To the Editors.

Gentlemen,—In the Editorial on the above subject, in your issue of June 8, the following statement is made concerning dammar varnish:—"We are not quite sure that it is still an article of commerce." It may be of service to some of your readers to know that dammar varnish is stocked by Messrs. Baird and Tatlock, of 14, Cross Street, Hatton Garden. It is listed at 3d. per ounce, or 3s. per pound.—Yours faithfully,

DOUGLAS CARNEGIE.

### FOCUSsing SCALES.

To the Editors.

Gentlemen,—I do not quite understand why the distances from the infinity mark on the index plate of a camera are usually assumed to vary proportionately to the distances of the object, as stated on p. 422. Being away from home I have no facilities for calculating, but, taking a simple case of a 10-inch focus lens, focussed on an object 5 feet distant, I think the camera extension will be 12 inches, the distance between the infinity and 5 feet marks being 2 inches. Now if the camera be opened 1 inch beyond the infinity mark, I should expect to find an object at 9ft. 2in. focus (not one

at 10 feet). Similarly, an object at 17ft. 6in., with  $\frac{1}{2}$ -in. opened and one at 34ft. 2in., with  $\frac{1}{2}$ -in. opened, as against 20 and 40 feet as usually assumed.

I use the equation  $f-p = \frac{p^2}{F-p}$  based on the principle that  $\frac{1}{p} = \frac{1}{F} + \frac{1}{f}$  where  $p$  = the principal focus, and  $F$  and  $f$  the conjugate foci.

If I am wrong in my figures I shall be glad to be corrected, and informed how the usual method is arrived at.—Yours faithfully,

J. A. C. BRANFILL.

Hillside, Worle, Weston-super-Mare.

June 5, 1906.

[The divisions on the focussing scale measured, from the infinity mark are inversely proportional to the distances of the object measured from the front principal focus of the lens. Mr. Branfill figures represent distances of the object from the front node of the lens, and if he subtracts a focal length from each one he will find that the rule is observed. Focussing scales are very often divided in accordance with the rule of inverse proportion, but it is to be feared that they are not infrequently marked wrongly, just in the way that Mr. Branfill assumed we intended to describe. The discrepancy of one focal length is not of much importance with short focus lenses or long distances, but it may lead to serious error with a long focus lens and a short distance. It is best to mark the distances from the front principal focus, and it would be very desirable if camera makers would agree to observe this system. As pointed out in our article, the distances marked by the diagrammatic method are all measured from the principal focus, not from the node. By adding a focal length they can be converted into nodal distances, but there is no particular advantage in doing this.—EDS. B.J.P.]

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

To the Editors.

Gentlemen,—Will you kindly allow me space to announce that the office of the Association is now removed to 89, Albany Street, London, N.W., where all communications to the P.P.A. should be addressed.—I am, etc.,

ALEXANDER MACKIE,  
Hon. Secretary.

### A NOTE ON THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—When Mr. Driffeld published his paper on the "Control of the Development Factor and a Note on Speed Determination," P.J., Vol. XLIII., p. 17, I adopted the method therein described for determining the growth of the development factor with the time of the development. Subsequently I also took into use the tables and formulae published by Messrs. Mees and Sheppard, in their thesis, entitled "On the Sensitometry of Photographic Plates," P.J., Vol. XLIV., p. 282, for calculating the constants which determine the value of the development factor. These are the ultimate development factor  $\gamma_{\infty}$ , and the velocity constant of development  $K$ . The values, according to Mr. Driffeld, are, of course, obtained graphically, whilst they are obtained mathematically by the system introduced by Messrs. Mees and Sheppard. The results obtained by both of these methods are tabulated side by side, and for some time I have been concerned regarding the want of union between these two systems. So far as I can see, there ought to be some definite relationship between the value of the development factor, as found by experiment, and the value of  $K$ , as determined from the same factor, or rather two factors. I assume that the value of  $K$  increases according to the rapidity with which the plate may be developed, and yet my experiments fail to confirm this assumption.

In explanation of my difficulty I quote the results of a series of ten readings. In the first table I give the actual values obtained, and in the second table the plates are placed in their order of merit under the different heads.

In obtaining these results two strips of each plate were simultaneously exposed to a standard candle in the H. and D. exposing apparatus; one strip was developed for two minutes, and the other for four minutes with H. and D. standard pyro soda developer, at a temperature of 65 degrees F., in the manner advocated by Mr.

ld; from these strips the curves were plotted and the development factors obtained in the usual manner.

3.—Under this head the figure gives the necessary time of development in minutes to obtain a portrait negative.

5.—Represents the time of development in minutes to obtain a landscape negative.

—Development factor obtained with two minutes' development.

—Development factor obtained with four minutes' development.

—Velocity constant of development, calculated by Messrs. Mees and Heppard's tables.

TABLE I., giving Actual Figures.

K.	$\gamma_1$ .	$\gamma_2$ .	$\gamma_0.8$ .	$\gamma_1.3$ .
90	1.00	1.27	1.40	4.00
12	.84	1.50	1.90	3.40
137	.73	1.28	2.35	4.20
162	.73	1.28	2.35	4.20
2125	1.02	1.70	1.60	2.80
237	1.20	1.96	1.30	2.30
337	1.82	2.00	1.25	2.00
2125	1.02	1.70	1.60	2.80
162	1.05	1.82	1.60	2.70
250	1.00	1.60	1.60	3.00

TABLE II., giving the Plates placed in their Order of Merit.

	$\gamma_1$ .	$\gamma_2$ .	$\gamma_0.8$ .	$\gamma_1.3$ .
.....	7	7	7	6
.....	1	6	1	9
.....	9	5	8	5
.....	8	5	5	10
.....	5	10	9	2
.....	10	2	10	1
.....	2	3	2	3
.....	3	1	3	4
.....	4	4	4	4

Comparing these tables it is to be understood that the results of the methods under discussion are obtained from the same development factors,  $\gamma_1$  and  $\gamma_2$ . It will be noticed that whilst graphically obtained results,  $\gamma_0.8$  and  $\gamma_1.3$ , nearly coincide with those obtained by experiment, in only one case is there dissent, and it must be admitted that at the best such results are necessarily somewhat crude, yet the resulting K obtained by calculation appears to give entirely misleading figures. For instance, K 1 comes at the top of the list under K, whilst by measurement it is found to take the third place for short development, and the fourth place for long development. The only instance in which the figures K,  $\gamma_1$ ,  $\gamma_2$ , are in agreement is with the plates 5 and 8. Examples of inconsistency might also be quoted, but those who are interested will probably discover them by an examination of the tables.

It does not wish to be misunderstood. In publishing these results of the methods under discussion I desire to direct attention to a matter which only requires further explanations, to be of great service to myself and others, who are at present struggling in the outer darkness. My friends have speculated upon the possibility of an error in the equation where  $\frac{\gamma_2}{\gamma_1}$  occurs because the same dividend is obtained where  $\gamma_2 = 4 + \gamma_1 = 2$ , or  $\gamma_2 = 2 + \gamma_1 = 1$ , or  $\gamma_2 = 1 + \gamma_1 = 0.5$ , where there would be a great difference in the speed of development of these three hypothetical plates. Whilst these figures are simple, for the purpose of illustrating a principle, it will be noted that other figures might be found to give equally misleading results. It naturally follows that if the method of obtaining K be wrong the calculations for  $\gamma_0.8$  are also wrong.—Yours truly,

ARTHUR PAYNE.

A PARTNERSHIP has been arranged between Messrs. Thomas Beddard, F.R.P.S., and A. E. Dean, photographic experts, dealers, etc., proprietors of the "Craven" photographic specialties. All communications should be addressed to the office, at 4, Duke Street, St. John's, W.C. Mr. Beddard has also in preparation a lantern lecture, entitled, "The World of the Camera," to be reminiscatory, historical, popular, scientific, amusing and entertaining. Any photographic societies desirous of securing this lecture for their autumn programmes should communicate with the above address.

## Answers to Correspondents.

\*.\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\*.\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\*.\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

\*.\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

A. Churchward, 206, Selhurst Road, South Norwood, S.E. Four Photographs of Oil Paintings by Correggio. Saints Matthew, Mark, Luke and John.

A. Shaw, 32, Briardale Road, Seacombe, Cheshire. Photograph of the Wallasey Ferry Steamer "Iris."

A. T. Sidwell, Ivy Cottage, Meriden. Photograph of Baddesley Clinton Hall, Warwickshire.

H. S.—We do not know whether there is any positive transfer paper which will reproduce drawings in the manner indicated in Question 1, but there are two methods employed which do the same thing without the intervention of any camera method, the first being the graph method, in which a blue print is taken from the negative. This is placed on a gelatine graph, and from this can be pulled ordinary proofs in litho transfer ink, and these, as required, laid down on stone and lithographed. The second is the Vandyke process, in which a negative of fish-glue is made on the zinc plate, and then the clear lines inked up and the fish-glue negative ground dissolved. From this as many lithographic prints can be taken, or transfers pulled, as required. The answer to Question 2 is given in answer to 1. The answer to No. 3 is, No—that is, if you mean by negative, a negative made in the camera. As regards 4, it may, if a sufficient novelty, be patentable, but it is doubtful whether it would have very great material advantage over the Vandyke process, which is extremely cheap and rapid, giving results which, with skilful work, are perfect.

BROMIDE DEVELOPING.—Will you kindly enlighten me, through your paper. When developing a large batch of prints, my method is to develop one at a time (using metol-hydroquinone), then transferring to an acetic acid bath (one ounce to one pint), for a few seconds, afterwards placing in a dish of water until all are developed; I then give them three changes of water, and fix. Is this washing sufficient, or would a trace of the acid be detrimental to the fixing bath? If I do not use the acid bath the prints have a yellowish look about the whites. Would the acid bath answer equally well when developing with amidol?—SMILAX.

You are unwise, we think, to use an acid bath. It should not be necessary with either of the developers you name. If you get stain it would appear that your developer is stale or not made with sufficient sulphite. In place of an acid bath we should recommend you to put a little metabisulphite of potash in the fixing bath, but we have never found this addition necessary ourselves in bromide work. Insufficient washing after the acid will very probably give rise to yellowed lights.

LENSES FOR ENLARGING (Reply to Querist).—There is little to choose between the lenses. If used with the full aperture the latter will be slightly the quicker of the two; but the longer focus one, whichever it be, will probably cover the plate the better. Why not try the lenses and see which answers your purpose the best?

WEIGHTS AND MEASURES.—I have your valuable annual for 1906—the B.J.P. ALMANAC—but I am in difficulties as to some of the formulae, upon which I am about to ask you, if you will kindly enlighten me. Those I refer to are on pages 814 and 815, which



I am wanting to make use of, but cannot proceed until I get the proportions in English weights and measures. I am entirely in the dark as to (50. ccs. 1: 1000 metal solution), etc., etc., and what would be a valuable thing to me is lost until I can get the proper proportions in English measures. Your kind assistance will greatly oblige.—C. P.

You will find the equivalents of all the metric weights on pages 1087, etc., of the *ALMANAC*.

**MIDGET PORTRAITS.**—Could you explain the method of taking twelve small photographs on one plate, one exposure, and one lens?—F. Cox.

You require a repeating multiple plate. If you write to makers such as Mr. Fallowfield, Sharp and Hitchmough, or the Tress Co., you can obtain particulars of the apparatus and its method of use.

**STUDIO LENS.**—I should take it as a great favour if you could let me know of a good portrait lens to use in a studio 18ft. long. I want it for midgets and general all-round work. I am at present using a Dallmeyer's 2B portrait lens, but find no depth of focus in it for groups, and after focussing up sharp on screen I find in most cases it is entirely out of focus in the centre of figure. I have tried R.R. lens, but find they are too slow and no good for cabinet heads.

If you are using this lens for cabinet pictures, as we presume you are, we are not surprised that you cannot get all parts in focus at the same time. The "2B" is only constructed for carte pictures, though it is sometimes, when stopped down, used for cabinets. We should advise you to get an anastigmat of similar focus, with an aperture of  $f/6$ —say a Stigmatic by the same maker, or one of the many anastigmat lenses, particulars of which you will find in the "*Almanac*."

**AEROGRAPH WORK.**—Can you give me some particulars of the method of finishing bromide enlargements by the air-brush process in connection with crayon and Indian ink? What firm is the material to be got from?—T. E. H.

The only instructions published are those issued by the makers of the air-brush, the Aerograph Co., Holborn Viaduct, E.C., from whom and from artist's dealers you can get the necessary materials.

**A POINT OF PROFESSIONAL COURTESY.**—I should like to have your opinion and views on a matter which I think should be clearly understood between all professional photographers. I was engaged to photograph a wedding group, and by some misunderstanding another photographer was engaged as well. When I arrived on the scene I, of course, was surprised to see another man there, so I waited till he had done. I then stepped forward and explained matters to the bridegroom (who engaged me), and he let me have what I wanted of them. My opponent having photographed his group in the sun I picked out a much better spot, and arranged the group, when up he steps and take some more negatives. I told him it was not a very nice thing to do under the circumstances. My object in writing to you is to get your feeling on the matter.—H. B.

Evidently your confrère (if may so call him) was not over-scrupulous. We suppose he acted in good faith in attending in the first instance, but it was hardly consistent with ideas of professional dignity for him to avail himself of your selection of lighting. Yet the case is not one in which we can be of any assistance.

**RETOUCHING KNIVES.**—In the *JOURNAL* for May 11 you gave Mr. H. Stottard's lecture on "Retouching Hints," of which he advised for reducing densities, small retouching knives, costing 6d., and medical dissecting knives, both blunt and chisel-pointed. Will you kindly let me know through the medium of your paper where these knives are to be obtained, and cost of same?—J. PATERSON.

The small retouching knives are sold by all the large dealers, such as Fallowfield. For the other (surgical) knives you must apply to a surgical instrument house, such as Allen and Hanbury, Wigmore Street, W.

**STAINED NEGATIVES.**—I have two negatives which are valuable to me, particularly because I am unable to replace them, and they have recently shown yellow stains, which I fear will prove obstinate. In one case the stain is strongest at the margin of the narrow

side of the plate, and gradually it shades away towards centre. The other has a strongly-defined and very intense yellow patch, which encroaches upon the sleeve of the sitter's dress. I think the stains are due to insufficient washing after fix, but I shall be pleased to have your opinion on the matter if you can suggest a remedy in your reply.—HYPO.

There is no satisfactory method of removing such stains and restoring the negatives to their original condition. The best would be to make transparencies by contact, and then mask them out with tissue paper or coloured matt varnish, and make a set of negatives by contact. If the yellow stains print well, then the rest of the negatives it would be as well to mask original negatives with paper in this way first.

**ENQUIRER.**—Reigate, Surrey.

**HALF-PLATE.**—How can we tell you? We do not know what it cost, or will cost you, to take the photographs. If you are in business to make money you ought to be able to make calculation for yourself.

**FRENCH VIGNETTE.**—Having recently made for myself a French vignetter, is there a patent or any restriction to prevent selling them?—F. O.

We do not know the form of the apparatus you term "French vignetter." There are many kinds of vignetter arrangements in use, but there is no patent in England any one that we know of.

The model furnished bungalow cottage which Messrs. Oetzmayer have had on exhibition at their Hampstead Road establishment during May, and which they will keep available for inspection until the end of the present month, should interest photographers in showing the effective use which can be made of the reasonably priced modern furniture. Conventional furniture such as has ornamented studios for generations past has been wholly discarded by many proprietors alive to the wisdom of making the studio refreshing and different from the familiar apartment which many sitters enter with apprehension. The secret of much successful work has doubtless been, in the first place, the decoration and furnishing of the studio in such a way that it did not in the least suggest its real object. The paraphernalia has been kept in the background, and the sitters feel as though he was entering an ordinary room. Much more might be achieved in this direction by a study of schemes of furnishing embodied in the creations of the modern large furnishing houses.

**A CAMERA Ordered Out of Court.**—An amusing encounter between a photographer and Justices Grantham and Lawrance occurred during the resumed hearing of the Bodmin election petition of Monday last. The photographer placed a camera on a tripod under the gallery. Just as he was about to remove the cap from the lens for the exposure, Mr. Justice Lawrance became aware of the operations in progress with the camera, and, while holding out his hand before his face, his lordship nudged his brother judge. Mr. Justice Grantham instantly requested the unwelcome intruder to desist. Their lordships' action may have been due in part to the conduct of a photographer at the first trial, who not only secured a photograph of the Court during a sitting, but reduced it to a picture postcard. Yielding to pressure later on, he withdrew the card from circulation.

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SPIRÆA.

By HENRY STEVENS





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## SUMMARY.

Salon of the Paris Photo-Club opened last week at the Palais place in the Champs Elysées. A review of the exhibition by Robert Demachy appears on page 486.

new form of assistant's certificate has been drawn up by the Professional Photographers' Association. (P. 482.)

dispute the correctness of a recently published opinion of the City of copyright in duplicate subjects. (P. 482.)

Pirie Macdonald, of New York, in a Convention address on photographic Ethics," urged a higher standard of professional duty. (P. 487.)

nts on keeping the studio cool and on giving it the appearance of coolness appear on page 491.

posure in Pinhole Photography.—Mr. Douglas Carnegie finds experiments that the law of inverse squares does not hold in plate work, and that the correct exposure is always greater than calculated from relative aperture ratios. (P. 484.)

lour-Photography.—The specification of Dr. J. H. Smith's one method of colour-photography, in which a geometrical three-r screen is used, has been published. Roll-film and printing- are the subjects of other recent patents. (P. 494.)

lour-Photography.—Baron von Hübl concludes from a discussion of colour mixtures that the Young-Helmholtz theory of colour vision is of no importance in three-colour photography. (P. 489.)

business Depression.—Attention is drawn to recent suggestions of reviving business. (P. 484.)

possible source of error in photometric readings has been indicated. (P. 485.)

other commercial gum-bichromate paper, shortly to appear on market, was demonstrated before the Croydon Camera Club last week. (P. 496.)

## EX CATHEDRA.

### The Convention President's "At Home."

Our readers interested in the Convention will have noted that on the Wednesday afternoon (July 11) the President was announced to give a yachting party "At Home," for which a special programme would be issued. We are now in a position to state that the "Duchess of Kent"—one of the largest steamers on the Solent—has been chartered for this occasion, and will leave the Royal Pier at 2.30. The catering has been placed in reliable hands, and Herr Carl Heubert's celebrated Viennese Band will accompany the party. This cruise on Southampton Water should prove one of the most enjoyable items in the Convention programme.

\* \* \*

### A Postcard in Half-tone.

As a commentary on the advice we have given to photographers recently that they should seize the opportunity of producing picture postcards of local interest, we may quote the experience of a reader, Mr. F. Holmes, of Mere, in Wiltshire, a professional photographer and member of the Professional Photographers' Association. During a recent heavy thunderstorm a month ago he took a negative of Mere showing a vivid flash of lightning descending from the zenith alongside the church tower. This photograph, after registration of the copyright, was reproduced in half-tone, and placed on the market, with the very satisfactory result, so Mr. Holmes tells us, that twenty thousand were sold in fifteen days, a number which is startling, even when one bears in mind the astonishingly large editions of picture postcards. As the name of the photographer appears on each of the cards, Mr. Holmes may congratulate himself on the wide publicity which he thus secures, in addition to the round sum which he may be presumed to have netted on the sale of the cards.

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### The Latest Note in Modern Furnishing.

The opening of the new house of Waring and Gillow in Oxford-street last week was an event of the day, not only from the magnificence of the premises and their contents of furniture, but from the brilliant success which attended Messrs. Waring's scheme of making the vast establishment a show-place for a week, where visitors might call and inspect, but were invited to defer their purchasing to another time. As a result of this simple idea, the great block in Oxford-street was filled from morning to night with a congested stream of humanity, chiefly feminine, and bent upon the study of things domestic. Yet the chief interest to a photographer is the scope which such an establishment as the new Waring's gives him in the furnishing of the rooms in which he receives his customers. The manner in which the halls and galleries of the firm are



arranged is in itself a model of what the photographer may aim at in his own less ambitious schemes of decoration.

### Focal Length of Studio Lenses.

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There is a tendency nowadays for the professional worker who has been largely self-taught as to his photography to pay too little attention to the matter of focal length in the selection of lenses for studio work. Quite recently we have had several inquiries on the choice of an objective, and in a number of cases the lens suggested has been quite unsuitable, owing to its shortness of focus. In one case a lens was wanted for whole plates, possibly groups, and for three-quarter length cabinets, the length of the studio being only 12ft.; in another it was only possible to get 8ft. 6in. from the sitter, yet full-length cabinets were being attempted. A lens of 6in. focus failed to give the whole of the figure, and we were asked to suggest a lens of shorter focus which would cover the plate and include the whole of the subject. The perspective in a full-length cabinet taken with a 6in. lens would be exceedingly violent, the nearer portions appearing on too large a scale, and the line of the floor running up very badly. What the effect would be with, say, a 4½in. lens may be imagined when we say that for good perspective in full-length pictures a lens of at least 10in. focal length should be employed. It may be argued that with a short studio there is no alternative but to use a short-focus lens, and this is true to a certain extent. But the limit is reached long before one gets to a 6in. lens for any cabinet-sized portrait. Any worker who hopes to hold his own among his competitors must recognise that he should wait till he gets a longer studio before opening, or he should confine his attention to work which may be done with less chances of complete failure than is the case with the type of portrait to which we have referred.

### Assistant's Certificate's.

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After being before the public for more than a year, the scheme of certification drafted by the Professional Photographers' Association has met with little or no response from the class which it was designed to benefit. It was realised and admitted that the scheme had several serious obstacles in the way of its accomplishment, but the Association apparently under-estimated the effect of these obstacles, and manifested too high a degree of solicitude for the more specialised photographic assistant. That type of assistant which forms a large proportion of the rank and file of the wage-earners in photography, namely, the man who can operate, retouch, print, and turn his hand to other branches of the business, was unprovided for. In many trades or professions this character of the scheme would have been the very one to have assured it success, from the incentive it held out for workers to obtain recognition of their skill in some particular branch. But experience has shown that the majority of the "all-round" assistants lack the requisite pride and ambition in their work which should lead them to take such a step for their self-advancement. As a result, the original scheme of certification has been withdrawn—to be brought forward again, we hope, when there are signs of conditions favourable to it—and in place of it a "registration certificate" has been drafted, the object of which is much less ambitious, but one, nevertheless, which should be of immense usefulness to both employers and employed. To state the nature of the "registration certificate" in a few words, it is an endorsement by the P.P.A. of the qualifications of the assistant, as claimed by him, by reference to his present and previous employers. The scheme thus provides the assistant with a document which states the assistant's claims as to

himself, with the names of the firms in whose establishments his work has been done. The scheme, as we have said, is not an ambitious one, but appears to possess a capacity for usefulness which should draw to it the support of both the classes whom it concerns.

### A New "Photo-Copy" Process.

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Improvements continue to be made in the so-called "blue" or "heliographic" photographic printing processes by which engineers and others are accustomed to reproduce or have reproduced their drawings and tracings. This branch of photography, though little known amongst ordinary photographers, commands a considerable custom, particularly in the North of England, where factories and engineering works require large numbers of copies of working drawings for the use of mechanics. The old ferro-prussiate process has been almost supplanted by the more rapid "black-line" and "sepia" papers, and these in turn are in process of expulsion by processes which will give a bold black carbon line, and by others, which will also permit of twenty or thirty copies being obtained for one exposure to light. The latest addition to these methods is the invention of Mr. Henry Shawcross, to whom the introduction of the black-line and sepia processes was originally due. His latest process, so we gather from a circular issued by Mr. Shawcross, is based on the ferro-prussiate, in that a single operation is necessary, but the copy is obtained in line of Indian ink, embedded in the fibre of the paper. In addition, the process allows the engineer himself or his unskilled assistant to produce a litho transfer, from which copies can be taken off true to scale. A number of such processes have been advanced of late, but none, so far as we know, which answers to the description of this one. The best known is the so-called "Vandyke," which visitors to the Convention will, perhaps, have the opportunity of seeing at the Ordnance Survey Office. Of the processes on the graph principle, that introduced by Messrs. B. J. Hall will be remembered. A short note on it appeared in our issue of March 30 last.

### Copyright in Duplicate Subjects.

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A recent answer to a correspondent of a contemporary raises a point in copyright law which is highly debatable, and shows how impossible it is to frame an Act of Parliament which shall provide for every emergency. The inquirer asks if he may photograph an arrangement of still life, part with the copyright in his representation, and photograph the subject again to acquire a new copyright in what is virtually a facsimile of the previous photograph. Our contemporary assures him that he can, basing his reply upon a literal interpretation of that clause of the Copyright Act, which states, the "right of any person to copy or use any work in which there shall be no copyright, and to represent any scene or object, notwithstanding that there may be copyright in some representation of such scene or object." This clause, it is true, will bear the interpretation which is thus put upon it, but does anybody suppose that such a practice as that which our contemporary suggests as legal—we will say nothing of the morality of the act—is likely to be sustained in a court of law. As we read it, the clause was inserted in the Act to protect artists and photographers in their selection of a particular view point for a photograph or painting, or in copying some painting or work of art which might also be copied by somebody else. It was never intended, in our judgment, for the justification of persons who may practice what is nothing less than fraud by producing several independent but identical photographs, the copyright of each of which they may offer in different quarters. There has never, to our knowledge, been a case of this kind in the

parts, but should one come up there is little doubt of way in which it would be treated. The creation of copyrights *ad infinitum*, each one as like any of the others two pins, was obviously never intended by the Act. An ample will bring home more forcibly the inconsistency twisting the Act into meaning something it does not. A photographer returns home from Lhasa with identical negatives of certain of the scenery of that little-visited place. Is it likely that he can sustain separate copyrights in photographs which are identical in practically every respect, and require the production of the negatives to prove that they are, in fact, the results of separate exposures? Such an instance, which might be cited in many different forms, is a veritable *reductio ad absurdum* of the interpretation of the Act.

**Photometry.** In a paper by J. S. Dow, read at the Physical Society on May 25, the author points out that differences in the readings are found as the distance of the eye from the photometer screen is altered. We have often suspected this to be the case, and have noticed that different persons take up very different positions when making a reading, while individuals often neglect the precaution of preserving a uniform distance. With several kinds of photometer there is no viewing tube, nor anything to induce the observer to take up any fixed point of view, so, if Mr. Dow's idea is as correct as we believe it to be, discordant readings are easily produced. Mr. Dow considers that the size of the field and the order of the illumination should also be specified if different readings are to be compared, but as the name of the photometer, together with the description of light used, is very commonly mentioned, these points are perhaps of less importance than the other. We have, however, noticed that in photometers that can be adjusted either with one eye or with monocular vision often gives a different result to the other, while we have often suspected a difference between the results obtained by using either the right or the left eye alone. As photometry is very tiring work, there is a great temptation to occasionally relieve the eye by employing the other, but we feel pretty certain that this leads to inconclusive results. Possibly the best method is to use one eye throughout at a fixed distance, to facilitate this some kind of viewing tube or eyepiece is certainly desirable. Fatigue is, perhaps, most easily avoided by taking the readings rapidly and with prompt decision. In our experience hesitation and anxious deliberation not only fatigue the eye, but actually favour inaccuracy. Mr. Dow's observations concern more particularly the comparison of coloured lights, but as colour differences also exist (sometimes to a most troublesome extent) when simple densities are being measured, we think it advisable to observe the same precautions in all cases.

#### Swing back and distortion.

One of the frequent complaints which meet the portrait photographer in his work is that "the hands are so large." There are two things which contribute to this effect—in many instances, both operating together. It is well known that where a lens of short focus is employed the objects on the edges of the plate are represented on a larger scale, or, perhaps, more correctly, are lengthened out radially. This is very noticeable in the case of groups, the faces on the edges being often broadened till the distortion is almost ludicrous. In portraits where the hands come near the faces, as in three-quarter lengths, the same effect may be seen. But a more frequent cause is the adoption of an unsuitable position, the hands being considerably nearer the camera than the face. The shorter the focal length of the lens the more important is it to pose the sitter as

much in one plane as possible. A far too common practice is to neglect this point and then to get the hands into focus by using the swing-back. Although this method gives sharpness instead of blur, the scale of the hands is materially increased, as the rays forming the image travel a greater distance before reaching the focussing screen, and consequently diverge more. The aim should be to use as long a focus lens as possible, to pose the figure so that the hands do not approach nearer to the lens than the face, and, wherever it is practicable, to keep the plate at right angles to the axis of the lens.

#### BUSINESS TOPICS.

THE papers read at the recent conference of the Professional Photographers' Society of New York, reports of which have appeared in our columns during the past few weeks, should be interesting reading to many portraitists in this country, particularly to those who are at the present time complaining that with them business is by no means good. From these papers some of the more enterprising of them may possibly see a way to improve business by adopting some one or other of the American business methods, or some adaptation of them to their own conditions. There is, we think, very little question that the American portraitists are, as a rule, better business men than a large proportion of professional photographers in this country, more especially those who may be termed the middle-class men. It is the latter, we believe, who, at the present time, are complaining most that trade is bad, and it is to them that we particularly commend what was said at the New York conference. By taking a leaf out of the book of some of their American *confrères* they may possibly see a way of giving a fillip to their own businesses instead of going on in the old "jog-trot" style of twenty or thirty years ago, when business did not require so much "fetching" as it does nowadays. There is one thing that is noteworthy with regard to the American meeting—namely, that there seems to be a greater degree of good fellowship reigning amongst professionals generally in the States than there is here. The Professional Photographers' Association of this country, however, is doing much to break down professional jealousy and reserve.

To pass to one or two of the subjects dealt with at the New York meeting, it will be seen from the reports that far more attention is paid to the elements of photographic business in America than is the case in this country. Here one is continually hearing that competition is so very keen, but we gather that it is equally as keen throughout the States. But there are two forms of competition—that of price and that of quality. The former only is usually classed as such in this country. But the latter seems to be better recognised in the States than here, and is healthy competition. There is no question that the public generally do appreciate good work, even if they have to pay a somewhat higher price for it. We know of some houses that are turning out really good ordinary everyday portraits at three for half-a-crown, while for the same kind of picture the middle-class man—as we may term him—charges something like double the price. If the latter were to improve his work artistically, as well as technically, he could successfully compete with his rival, even with his higher prices. It costs no more for material to produce a high-class picture than a mediocre one, and in all the papers read at the American conference stress was laid on the point that improving the work was the most successful means of improving the business. In the States there seems to be a great tendency to raise prices by putting a higher priced picture of correspondingly higher merit



before the public, and this, according to several speakers, had proved very successful. In some instances the prices had been doubled and even quadrupled with success. Here the trend is too often to lower them.

One thing that was specially dwelt upon at the conference—and it is one that is often overlooked here—is the necessity of a good business lady in the reception-room. We here quote what one speaker said, but the same views were expressed by several leading photographers:—"We have all found in our experience that prospective customers are not always decided as to what they want, and yet they are willing to spend a little money. Therefore, the next important thing to do is to employ the services of a good receptionist. To sell pictures is a born tact, and not one that is easily acquired. You cannot use too much care in the selection of your receptionist, for the simple reason that, if a mistake is made in the lighting or posing of your sitter under the skylight, there is a remedy in the re-sitting; but if a mistake is made in the handling of your patrons in the reception-room, and they are allowed to leave your studio dissatisfied, there is no remedy. In view of these facts, you can readily realise that it is of vital importance to have a qualified receptionist." We have frequently been in reception-rooms and noticed the lack of business tact on the part of the one in charge, such, indeed, in some instances, as would not be tolerated for a week in an ordinary shop. Touching the same matter, another point which was raised by one speaker and is deserving of consideration is the practice of encouraging the sitter to call at the studio and examine the proofs instead of posting them to her with all their blemishes unexplained, to answer for themselves in a court without counsel and before a judge who often is lacking in the judicial faculty. A lady who will suddenly make up her mind that the photographs are no good when they reach her at her house will very likely take a quite different view of them when they are offered to her at the photographer's, and though this plan is not one which can be followed up in large towns, it is capable of application in many cases. And it has the advantage that in the hands of a photographer or his reception lady, who is clever at selling, it lends itself to the booking of orders, additional to the one first contemplated by the sitter.

Every portrait turned out of a studio, with the photographer's name upon it, being an advertisement for good or evil, according to the description of photography, should be borne in mind that a single bad picture will do more harm to a business than a score of excellent ones will do good. To this the American photographers seem to attach more value than we in this country.

Another matter which seemed to have been much dwelt upon at the meeting, and which is much neglected here, is the importance of a show-case as a means of attracting custom. Here photographers are very prone to crowd their show-cases with specimens of a heterogeneous character. Passers-by who have seen them a few times are no longer attracted by them. But if fewer specimens were shown, say, half a dozen instead of two or three dozen—and if they were changed every week or two, and care taken that the costumes of the new ones were in keeping with the season, the case would be a constant source of attraction. One of the speakers at the conference mentioned that he knew a photographer in a small country town who advertised that he would put a fresh portrait in his show-case every day, and as in the small place everybody knew everybody else, people were continually visiting the case to see what portrait was in it. It was stated that a photographer in another town posts the names of those whose portraits he has taken the previous week, and announces that the picture could be seen in the show-case. These methods naturally attracted much attention, and are said to have brought much business to the studio. Whether such a scheme would answer here will very much depend upon the ideas of the people of the locality, yet there is a decided novelty in it. One thing is certain, and that is that, where specimens are shown, a few distributed in a large show-case which are constantly being renewed, are far more attractive than a much larger number crowded into the same space and seldom changed.

In the above only a few of the business points dealt with at the New York conference have been alluded to. Photographers in this country will do well, however, to read the reports of the meetings, as some of them can scarcely fail to impart some hint or other of assistance in stirring up a stagnant business, or, perhaps, further increasing a flourishing one.

## EXPOSURE IN PINHOLE PHOTOGRAPHY.

THE question of the proper exposure to give in photographing with a pinhole is a matter which would seem to admit of as great latitude of opinion as do the vexed subjects of Tariff Reform and Bimetallism. Every doctor has his rule, but in their rules the doctors disagree sadly. Indeed, the anxious enquirer after the matter of pinhole exposures finds such a bewildering choice of rules submitted to him by the different authorities that he might be pardoned for resolving to eschew precept altogether, and trust his practice to luck or to his innate exposure sense.

It seemed to me, therefore, that a definite investigation of the subject of pinhole exposures was called for, and this article summarises the preliminary results of such an investigation. The object aimed at in undertaking this work was the establishment, if possible, of some precise and unequivocal rule which would enable the proper exposures for pinhole work to be deduced from any of the ordinary tables of exposures for lens work.

Suppose the correct exposure with a lens working at  $\frac{f}{x}$  is one second, then the correct exposure for the same lens stopped

down to  $\frac{f}{nx}$  would, of course, be  $\left(\frac{nx}{x}\right)^2$  seconds. Let us call this ratio  $\left(\frac{nx}{x}\right)$  the "aperture ratio exposure" for the smaller stop. [Henceforward the term "aperture ratio exposure" will be contracted into A.R. exposure.]

Again, suppose we have a lens working at  $\frac{f}{x}$ , for which the correct exposure is one second, and we require the equivalent exposure for a pinhole working at  $\frac{f}{nx}$ . One might be excused for hastily concluding that the equivalent exposure with the pinhole would be less than the A.R. exposure  $\left(\frac{nx}{x}\right)^2$ , for in the case of the pinhole there are neither lens thicknesses present to absorb the light nor lens surfaces to reflect it. In this connexion Abney writes:—"In calculating the exposure with pinhole, the same rule must be applied as in calculating it for lenses with different apertures in the diaphragms, though owing to the absence of all intervening glass, the pinhole method has an advantage." (Treatise on Photography, p. 277.) The

periments about to be described prove, however, that the equivalent exposure with the pinhole is always greater, and not less, than the calculated A.R. exposure. The equivalent pinhole exposure =  $m \times$  A.R. exposure — where  $m$  is greater than unity. Henceforth in this article  $m$  will be called "the pinhole factor." The pinhole used in my experiments was made by boring through thin zinc foil with a number 12 needle, using a fine razor hone for removing the burr, and finally cleaning out the hole by treatment with dilute acid. The foil was glued to a waterhouse diaphragm held in a lens mount from which the lenses had been removed. The diameter of the hole was determined by first photographing through the microscope a stage micrometer reading to thousands of an inch, replacing the micrometer by the pinhole and adjusting the stage till it was accurately focussed, and then finally photographing the hole in the same plate as had already been exposed to the micrometer. The mean diameter of the hole was .014 in.

The general method of procedure was as follows:—A sheet of white paper illuminated from both sides by Welsbach lights was placed in a vertical plane at a distance of about 2½ ft. in front of a camera provided with a Goerz double anastigmat lens (Series III.). [The position of the nodes of the lens had previously been determined, as also its effective aperture when stopped down to  $f/32$ , nominal—the only lens aperture at which comparisons with pinhole performances have as yet been made. It was when measuring this aperture that I discovered the somewhat disconcerting fact that the absolute diameter of the lens opening differs appreciably according as it is closed from higher apertures down to  $f/32$ , or opened up from lower apertures to  $f/32$ .] With the lens set at  $f/32$  the paper sheet was focussed, and then, making use of a repeating back, exposures of one, two, and three minutes were given. A preliminary experiment had shown that such exposures were well within the latitude of the plates used (Imperial special rapid), i.e., that such exposures under the conditions observed gave densities lying within the rectilinear portion of the Hurter and Driffield curve.

The distance between the node of emission of the lens and the plate was now measured, and the aperture ratio under the conditions of working was calculated from this measurement, and the known effective aperture corresponding to  $f/32$  nominal.

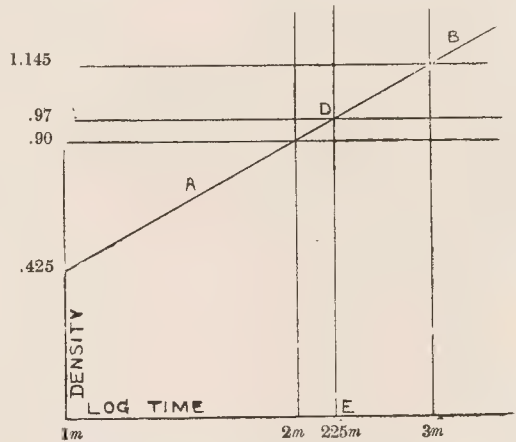
The lens was next replaced by the pinhole and a measurement made of the distance between the pinhole and the plane of the plate. This distance, divided into the diameter of the pinhole, gave the " $f$  number" at which the pinhole worked. The repeating back, still containing the same plate, was replaced in the camera, and two or more exposures of long duration (extending in one case to nearly five hours) were given. These pinhole exposures were in general so ordered that the densities resulting were intermediate between the extreme densities obtained with the lens exposures.

The plate was then developed, and the densities of the patches were measured in a Simmance Abady flicker photometer, very kindly placed at my disposal by Mr. W. Shortt, of the London and South-Western Railway Company. The density readings were in all cases mean results derived from wonderfully concordant readings of the photometer taken by three independent observers.

The method of utilising the results so obtained is illustrated by the following example:—

Lens at $\frac{1}{46.3}$		Pinhole at $\frac{1}{417}$	
R. A. Exposure = $\left(\frac{417}{46.3}\right)^2 = 81$ .		Exposure in minutes.	Density.
Lens...	...	1	...
Lens...	...	2	...
Lens...	...	3	...
Pinhole ..	...	291	...

In the diagram below the lens densities are plotted as ordinates, and the logarithms of the minutes of lens exposures as abscissæ. The curve ADB drawn through the loci so determined is a straight line. A line CD is now drawn at right angles to the density axis from the point .97 corresponding to the density of the pinhole patch, and from the point D where this line cuts the curve AB a vertical DE is dropped, cutting the log. exposure axis at a point E corresponding to an exposure of 2.255 minutes.



Hence, it follows that an exposure of 2.255 minutes with the lens is equivalent to a pinhole exposure of 291 minutes, or one minute with the lens =  $\frac{291}{2.255} = 129$  minutes with the pinhole.

But pinhole exposure = pinhole factor  $\times$  R. A. Exposure.  
or 129 = pinhole factor  $\times$  81.  
 $\therefore$  pinhole factor = 1.6.

The question now arises, is the pinhole factor 1.6 thus determined valid for the same pinhole at all possible plate distances? Is it a constant for the pinhole? My experiments show that such is not the case. As the plate distance from the pinhole decreases—i.e., as the R.A. exposure number decreases—the pinhole factor also decreases. This is clearly indicated by the results of three series of experiments tabulated below:—

	Distance of pinhole from plate.	R.A. Exposure	Pinhole factor.
I	128 m.m.	60.6	1.42
II	159 2 m.m.	68.2	1.49
III	254 m.m.	81	1.6

This fact that the pinhole factor increases with the A.R. exposure number shows that the rule usually given for quadrupling the time of exposure when the distance between the pinhole and plate is doubled is quite inaccurate. It shows, in other words, that the inverse square law of the intensity of light cannot be applied in pinhole photography with a view to determining the amount of photographic action on the plate. If with the low-light intensities prevailing in pinhole photography the photographic action were proportional to the light intensity, then the pinhole factor determined for one plate distance would be good for all plate distances. It would appear, then, that we have in these results an object-lesson in what Abney has called "the failure of a photographic law." The statement that with respect to the amount of photographic action, diminution in intensity of light can be compensated for by a proportional increase in the time of exposure is valid only in the case of lights of considerable intensity. When the light intensity is very low (as in the case of pinhole photography), then the state-



ment breaks down; and the time of exposure must be increased in a greater ratio than that in which the intensity of a feeble light is diminished in order to secure constancy of photographic action at differing plate distances.

It should be noted that the "pinhole factors" quoted in the above table are, to a close approximation, a linear function of the R. A. exposure numbers. Plotting the results given in the table, an approximately straight line is found to express the dependence between the two sets of variables. Whether the simple relationship indicated is merely a fortuitous result of experimental errors, or whether it is the expression of law, I would not venture at present to decide. The *approximate* linear relationship is, however, suggestive, and it will shortly be made the subject of further investigation. Should the existence of such proportionality be definitely established, we should be in possession of a simple geometric method for determining the correct pinhole exposure for any camera extension.

Experiments will also be undertaken with pinholes of larger diameter than .014 in. From what has preceded one would be led to anticipate that under otherwise similar conditions the pinhole factor will decrease as the pinhole diameter increases.

What, then, is the *practical* outcome of the work summarised in this article?

1. That the correct pinhole exposure is, with the small pinholes used in practice, always greater than that calculated on a basis of relative aperture ratios.

2. That the inverse square law cannot be applied in calculating relative exposures at varying plate distances from one another.

3. That using a pinhole made by a number 12 needle, the pinhole exposure factor by which the A.R. exposure numbers must be multiplied, varies from 1.6 to 1.42 as the plate distance diminishes from 254 m.m. to 128 m.m.

It will be seen, then, that the results so far obtained leave us yet far from the realisation of the aim and object stated in the second paragraph of this article. They turn out to be specific, and not general, in their nature. Still, these results are of such a character as to foster the hope that future work along the lines laid down resulting in a more extensive series of data of the same nature may ultimately result in some kind of exposure metre of general applicability in pinhole practice.

DOUGLAS CARNEGIE.

## THE SALON OF THE PARIS PHOTO-CLUB.

THE Salon of the Paris Photo-Club is held this season at the Palais de Glace, Champs Elysées, the Palace of Fine Arts of the City of Paris having been closed to all unofficial exhibitions by a vote of the Municipal Council. The fine galleries occupied two years running by the French Photographic Salon will now be given up to solitude and a collection of the stretches of paintings ordered by the town for decoration of public buildings.

The lighting of the Palais de Glace is excellent, and equally distributed over the panels specially erected round the parqueted rink; also the wall surface being considerably greater than that of the Petit Palais, the frames are further apart, and the general aspect infinitely more pleasing.

The Salon was opened on Saturday, the 16th, by M. Dujardin-Banmetz, Ministre des Beaux Arts, and M. Brown, Director of the Fine Arts Department of the City of Paris. Fifteen hundred people visited the Salon between two and six, amongst which many artists and several well-known art critics, such as de Meurville, de la Sizeranne, Bapst, etc.

The English School is represented by sixty-two frames. The standard of this carefully chosen collection is as high as usual, which is saying much, and we are particularly grateful to Mr. Craigie, who brought it together, for having added such an attraction to our Salon. The peculiar scheme of tone adopted by the English pictorialists at the outset has been noticed—not always favourably—by the French public and art critics. It has been partly modified since, and to-day the works of the staunch, or occasional, supporters of the sombre style suffer still more from the neighbourhood of pictures of a more modern and vivid character. Mr. Craig Annan unites the two opposite styles, and shows two very different pictures indeed, the "Portrait of Mr. Cunninghame-Graham" and a magnificent piece of colour, "The Thames at Hampton Court," whilst Mr. Hollyer with the "Portraits of J. Evans and Mr. Jovey," keeps to his original methods. Six pictures by the Baron von Meyer, an able member of our Photo-Club, are far in advance of what he has hitherto exhibited. Amongst these the portrait of Mrs. Käsebieber and an open-air portrait have attracted universal attention. Mr. Crooke sends a fine portrait of Miss Leslie St. John, Mr. Horsley Hinton two large landscapes, in his well-known and suggestive style, "Rylstone" and "Airedale," Mr.

Holding a well-balanced group of figures, "Music." "La Seine," by Mr. Latham, is an impressive view of Notre Dame de Paris. Mr. Latham, I see, has not been able to scuttle the big lighter in the foreground. I know that lighter, and its obstinacy, well, and can sympathise with the author. A pretty symphony in grey, by Mr. W. Cadby, and an excellent portrait of a lady, just right in definition and values: from Mrs. Cadby, Kipling's cat—but one would have liked to see the sulky back of the unsympathetic brute silhouetted against some lonely perspective of tall, straight trees—this from a literary point of view. Mr. E. Calland's "Freeman's Wharf" is essentially French in treatment (Mr. Calland may or may not take this as a compliment!). It is a striking example of the effect that may be extracted from otherwise uninteresting materials by a clever opposition between blacks and whites, a careful rendering of values, and the choice of a pleasing and artistic medium. "Mater Amabilis," by Mrs. Barton, is a well-composed group, for Mrs. Barton knows how to place her figures, but we do not find in this picture, nevertheless full of sentiment, the admirable quality of flesh texture that strikes us in "St. Ursula," by the same author—a fascinating composition in the simple, naïf style of the primitives—all but the hose of the model, which has a suspicion of modern sauciness. But the hand is a picture by itself. Further on a delicate sketch by Dr. Evershed "La Grue et La Bruine"; the Bank of England tour de force by Mr. Craigie, a clever piece of work full of dignity and individual expression; a sunlight effect by Mr. Blake, well thought out and finely treated; and two excellent landscapes by Mr. Moss. Mr. Barnett's interesting work reminds us of that of Mr. Crooke—reduced. His photographs have a steel-engraving quality that is most pleasing. The hand in "Joan of Arc" is worth studying, but—here is a case for the Puyo-Pulligny anachromatic lens—Mr. Charles Collett's nose and his ear partake of strikingly different foci!

Further on: "Mount St. Michel," by Mr. Cochrane. May I timidly suggest an improvement to this powerful apotheosis of one of the marvels of Brittany? I know the Mount well, I have visited it seven or eight times in the last fifteen years, and have been able to witness the decline and fall of Madame Poulard's cooking—proportional to the ever-increasing invasion of the most hideous herd of French provincial tourists I have

met. Now I feel obliged (notwithstanding my admiration Mr. Cochrane's talent) to admit the truth of certain criticisms I have gathered from the remarks of our more enlightened patrons. It has been said that in Mr. Cochrane's picture of St. Michel "looks small." And I think the cause of the rding of the motive lies in the enormous size of the white column that forms a background to it. Would Mr. Cochrane a more horizon-like style of cloud as a setting to the far y pyramid of rock and hewn stone—just as an experiment? the same author "The Barrel," an excellent piece of work a oily transparent browns. Mr. Keighley's pictures are ays remarkable in composition and full of sentiment. "The pherdess" and "The Halt" are good examples of the artist's onal manner; but he is undoubtedly at a disadvantage h his neighbours at our Salon on the score of the medium he chosen, which does not seem to allow of accents or differ-treatment of different textures. Many of the English, and eral of the American exhibitors appear to take little or no rest in this matter. Perhaps on the other side the French- give it undue importance. Nevertheless, Mr. Keighley's k has been greatly admired. So has Mr. Mortimer's, ose poetic rendering of the more wrathful moods of the an is quite unequalled. His pictures have been particularly iced in several of the leading papers.

The English exhibits are hung together on the central panel the left side of the room, and on the two adjoining panels ween the Photo-Secession and the Belgian exhibition, in ellent light.

Amongst the thirty-five pictures sent by the Photo-Secession find six by Mr. Alvin Langdon Coburn of very high quality. e portrait of Bernard Partridge has attracted quite special ice from the French artists, with the splendid effect of sun-ht and reflected light in "Wier's Close," Edinburgh. There a gamut of light and shade in this simple picture that gives

a rare satisfaction to the eye. Six striking contributions in monochrome and colour by Mr. Steichen, several by Mr. Clarence White, amongst which the "Flute de Pan" has been specially noticed. Mr. Stieglitz shows a fine study of horses and "The Canter," a picture full of suggestive atmosphere; Mrs. Käsebier, six pictures which are excellent examples of the extraordinary versatility of the talented author; Mr. Frank Eugene, two prints from etched negatives, of a very peculiar quality. The whole collection is of a very high order, and maintains the well-deserved reputation of the American school.

The Belgian School, after a momentary eclipse, asserts itself anew. Messrs. Misonne, Leys, Wetremis, and several others show more than promising work. Spain, who seemed to be quite out of the race up to now, is represented by Messrs. Carlos Fingo-Pisacca and Mabrit, who are laying the founda-tion of an interesting school. From Italy we have some delicate work by M. Guido Rey, and some good things by Messrs. Ciutto, Licino, Farini and Alfredo Ornano. The Latins are awakening.

Amongst the French exhibits the most noticeable are those of Major Puyo, monochrome and in colours, of Mlle. Laguarde, Geay, Dubreuil, Grimpel le Bègue, Besson, Bacquet, Manry. Dillaye, Sollet, Mlle. Massion, M. Hachette. The two last exhibitors show excellent examples of the Rawlins process. Bromide is nearly extinct in the French section—platinum is rare, most of the pictures being printed on pure gum bichro-mate, or so-called ready-made gum bichromate papers such as Fresson, Artistique, Hocheimer, or Artigue papers. Three exhibitors have adopted the oil process and many more will take it up later on. On the whole the exhibition is good—not so select as the Photographic Salon, for its purpose is broader and tends towards encouraging rising talent, but un-doubtedly superior to last year's show.

ROBERT DEMACHY.

## PHOTOGRAPHIC ETHICS.

The greater portion of a Lecture by Pirie MacDonald before the Washington (U.S.A.) Convention.

Webster describes as being the science of human duty. Every other profession that we know of that has been established any length of time has found itself forced to a system of ethics—a system of understanding, man to man, each to the other realises at a certain course is the only course which is right, and that all other courses are wrong.

Due to the fact very probably that this profession of ours is so comparatively recent of birth, we have not been able to get together and arrange a code of ethics. We know individually what we believe to be right and wrong, but we are all built differently, and that one man considers right the other man considers not quite right, and the result is instead of a line being drawn absolutely straight, it wavers, and the result is that we do have, as I heard marked only a short time ago, a lot of petty jealousies. My friends, I believe that they are not jealousies, but largely a lack of understanding of one another.

We have in New York City an organisation that has been putting people together in groups, and those people who have been associated most closely together have an infinitely better understanding of one another than any scattered set of photographers of the same number in the world.

### The Duties We Owe.

In considering this question of ethics—and, truly, I do not propose bringing you with a long dissertation on the science of right and wrong, but it is absolutely necessary to explain the proposition in order that I may logically draw to an end. In the ethics of photography we must have three vital points which we must consider. The first is.

1. That duty we owe to the patron.

2. There is the duty which we owe to the profession; and,
3. There is the duty which we owe to ourselves.

The duty that we owe to the patron is beyond any kind of question the first duty. Because of this unformed condition that we are in we have been prone to look on the customer, the patron, as common prey; a person from whom we are to extract absolutely everything which is extractable, and give him just as little as possible. When it comes to a matter of the rights of the customer in the negatives which we have made we have been very prone, many of use, to forget, or to, at any rate, elide the importance of the value of the privacy of the customer. We must definitely get down to some line of procedure; we must get down to an understanding, each photographer with the other, as to exactly how far the line of privacy does go, as to exactly what the customer is entitled to and as to exactly what the photographer is entitled to, so that if a photographer transgresses that law which we have agreed is to be followed, he will be cut off from communion with us because he is not an honourable man according to the voice of photography as expressed in its ethics.

There are many duties that we have to our customers. The duty of giving our best, the duty of giving our absolute devotion, honour, and unswerving fidelity.

### Duties to the Profession.

The duties to the fraternity are an entirely different matter. It is a secondary interest as compared with the duty to the patron, but it nevertheless is an exceedingly important one, the duty that you and I owe to one another. When a client comes in and mentions the name of my friend, instinctively I say, even while I do not agree, perhaps,



with his artistic theories; even while I think, perhaps, that his work is not what he might make it—I say: “Yes, my friend; a bully good worker.” A man who doesn’t say that of his friend is no friend, and we should all occupy the position of friends, one to another. (Applause.) That is the reason for ethics. It breeds equality, that there be no one man bigger than another, and no one man smaller than another. The motto of the New York State Society is “Equality.” Equality is the foundation of ethics. You will find as you look the matter over that unless there is absolute equality it is impossible to agree on any common ground. Unless there is the feeling of equality it is impossible to do that duty which we owe one to the other.

I claim that it is the duty of every photographer to every other photographer to lead the next man to the point that he believes is the proper one to occupy; not necessarily the right one, but the one he believes is the right one to occupy. And so we might follow this subject through.

### Dignifying the Profession.

Every once in a while somebody says we must dignify the profession, and beyond any question it is true; we must dignify the profession. We must dignify the profession by acting absolutely honourable every time. We are undignified as a profession. Frequently we do find people who do unprofessional things, things we know are unprofessional, and the result is that a while ago I went to an affair dressed as other gentlemen were dressed, and I believed myself entitled to as much respect as any man in the room, and a man who is in the rubber business said to me:

“Going to make a flash-light of the bunch?” (Laughter.)

And I said to him: “Are you going to sell some of your damned old rubber hose?” It was the only opportunity for getting even. But you know truly that if we go to an affair of that kind as a professional man we should not go disguised as waiters; we should go as professional people, do our work and get out and not crowd in in a suit of evening clothes and try to do two things at once. And if we do go in as gentlemen we should protect ourselves as I then protected myself.

When it comes to real fraternity; when it comes to getting together, really closely getting together and getting down to the essence of the term fraternity, there is one thought I want to give you. I believe it to be an absolute truth. I want you to remember that “what you give will be returned to you in kind.” I want you to believe with me that just so sure as you lead a fellow craftsman off with a lie, just so sure will you be lied back to. There are people who have had trust misplaced in them, but I believe that the average will hold mighty good, that every time you do give out honestly and squarely a piece of encouragement, a piece of heart, a piece of knowledge, that the same thing in kind is returned to you.

The only possible basis on which a code of ethics can exist is that we must give and not always take; that we must hand out what we believe to be right; that after we have agreed to a thing we must live up to it, even though it cuts.

### The Section Idea.

Over in New York State a couple of years ago it was felt that an organisation of photographers should be perfected. On looking the ground over we decided that a meeting once a year was not adequate. We found that out by experience, and our friend Seavy will probably remember the instance, that when the National Convention was cut off two years the thing didn’t go. If it had been put off for four years you wouldn’t have gotten even the officials together. The result was that away back in Chicago in ninety something or other we decided it was necessary to hold the national convention every year in order that it might be kept warm. The truth is that to hold a meeting once a year only, you only keep in touch by your fingertips, you don’t really get hold of one another; you don’t get on to each other’s favourite yarns and don’t know how much to discount—(laughter)—so in New York State we arranged to divide the State up,

secondarily to the State Society, into what we called sections. We have, for instance, in New York City a section composed of about forty-five members. Then there are centres at other points; at Albany, another centre about Rochester, and another section has recently been formed on the Hudson River centering at Ploughkeepsie, half-way between New York and Albany. The effect of that while this is only our second year there were 350 people at the convention. It is true some came from outside of the State, but the main part of them were people from inside the State of New York. In New York City we have over forty who attend the meetings of the local society regularly every month.

When we first organised the New York City section I went up and down Fifth Avenue and called on some of the people three and four times, but they said “No, no; the thing won’t go; we would like to go to accommodate you, as far as that is concerned, but there is Mr. So-and-so down the street—” and I got every man to go there as my personal friend, to meet me, because I wanted him to; and we got through with the business of organisation in about three quarters of an hour, and then they “chewed the rag” for three hours, just tickled to death to meet one another. People who had lived on the same block for years went there and didn’t know each other’s faces, and each believed the other man was a crook. (Laughter.) That, unfortunately, is the condition in other places. If you see a man from some particular town he says, “I like Mr. So-and-so” in such another town, “but the man in my town, he is bad.”

In New York we have the bitterest kind of competition. We do not get much more money for our pictures than people in smaller towns, where expenses are much smaller, while our expenses are enormous, and it means that in order to preserve ourselves we have to go in and compete, and the bitterest competitors are the best of friends in New York—you see the word comes in all the time.

Some of you are going to point to the fact that at this past meeting in New York there was a bit of friction between our section and the executive. I believe that we were right, and I guess that the executive believed as honestly that they were right, but the very fact of there being a division of idea proves the necessity for the section; in one town from the interest in another; it proves that there is a separated interest; it proves that Pittsburg needs something that the District of Columbia does not need; it proves that you are able to get together on a common basis of real friendliness in Pittsburg, and that you in Washington, having common interests, are able to get together.

We never admit any of these Women’s Christian Temperance Association people as members because it interferes with the wishes of the majority. (Laughter.) I am very fond of many of them myself, but I am a great believer in the law of the majority. We always arrange so that we have a bit to eat and a drop to drink and a couple of cigars to a man at our meetings, and we don’t stand around and wait for people to propose things. Men vie with one another in proposing. One says: “Old chap, I haven’t had a drink with you for a long time,” and the result is they are glad to see each other and there is a genuine fraternal feeling. You may say this is a long way from ethics. I want to tell you the section is the birthplace of ethics. I want to tell you it is not among people whose interests are absolutely alike, but among people whose interests are different, that ethics can be bred at all. Ethics are made to pull people together to some common end; to pull people together so that they really understand and believe each other.

I hear around the hall some one say, “Well, photographers won’t live up to it.” I am a member of a conference. In that conference one of the biggest men in America, one whose tongue yields English that burns, I called down so that he apologised publicly for suggesting that our profession was not up to the average—morally. I want you to know that we are better than the average—morally; that we can and do live together in peace and in harmony, if we know one another well enough. I would like to see you folks next year form a dozen groups and try the scheme out.

COLOUR photography, according to a halfpenny daily paper, is too correct for portraiture, inasmuch as it may render the eye of orange colour should the sitter accidentally wink at the moment of exposure. This remarkable phenomenon is noticeable in what our contemporary calls the “Sangard-Sheppard” process.

A PRESENTATION took place last week to Mr. W. F. Judge, manager of the Lancashire and Yorkshire Portrait Co., Ltd., at their Dublin branch, 58, Capel Street. The presentation, which took the form of a purse of sovereigns and a gold watch, was subscribed by the staff and outside friends.

# THE BASIS OF THREE-COLOUR PHOTOGRAPHY.

(Translated from "Das Atelier.")

All methods of three-colour photography the coloured image is obtained by the combination of three monochromes, which either of a material nature or are formed by reflection or proportion of coloured light. To the former class belong the transparent pictures on films or glass, three-colour carbon prints, or are produced by imbibition processes like pinatype. It is immaterial how they are made, whether superimposed or printed one on top of the other.

The pictures are, however, formed in quite a different way in three-colour reflection or projection methods. In the latter they are projected by a triple lantern on to a screen; in the former apparatus such as a chromoscope is used.

## Subtractive and Additive Synthesis.

In the three material pictures are placed one on top of the other, the colours are formed in exactly the same way as though the dyes themselves were mixed, whilst by superposition of the images on a screen the phenomena observed are those produced by the mixture of coloured lights. When mixing powdered or dissolved colouring matters a dark compound colour is always formed; if to the mixture a third dye is added the colour will become darker, and, with suitable choice of the components, black can be formed. With every new addition of dye some of the reflected rays of light are absorbed, and such material mixtures are therefore called "subtractive synthesis." If, on the other hand, coloured light is projected on to a screen and then on to the same place light of another colour is thrown, a compound colour of greater brilliancy is formed, every part of the surface is illuminated by two sources of light. Thus with every further colour the brightness of the mixture increases, and with suitably chosen colours white is formed. The mixed lights are added, therefore in this case we talk of "additive synthesis."

## What Should the Filters Be?

The constituent pictures in both cases are obtained, as is well known, by three photographic exposures on the original behind coloured filters. This process is called photographic colour decomposition, separation, or analysis.

It is obvious that in this analysis of colour the later coloration of the three constituent images must be borne in mind, for the components produced by photographic means should combine to give a result similar to the original. Another question is whether the separating up of the colours should be effected in the same way, whether the two methods are only to be differentiated by the mode of synthesis, or whether in the colour analysis other principles must come into play, because perhaps the theoretical principles of the two processes are different.

To present the general opinion is to accept the latter view, for the line is rigidly drawn between additive and subtractive filters in the exposures. Further, for three-colour projection for obtaining constituent coloured images, those colours must be chosen which correspond to the three fundamental sensations of the Young-Helmholtz theory of colour vision, whilst quite independent of these in similar processes of three-colour printing, the constituent images are stained blue, red, and yellow.

The above considerations necessitate a clearing up of the facts, and bring into prominence the following questions which require answering:—

What is the difference between the additive and subtractive colour mixtures.

How important is the Young-Helmholtz theory in three-colour photography?

What colours should be chosen as the fundamental colours?

What difference exists between the additive and subtractive colour mixtures?

How should the filters be adjusted to a given make of plate?

## The Difference Between Additive and Subtractive Colour Mixture.

The following are the fundamental laws for the mixture of coloured lights:—

If two coloured lights are mixed there is always formed together

with the compound colour, which lies midway between them, a certain amount of white.

2. If one of the mixed lights alters continuously the appearance of the mixture also alters continuously.

3. Lights of similar appearance always give similar mixtures. The quantity of white which is formed in the mixture is greater, the greater the difference or separation of the colours of the components, and the mixture of complementary colours is white. The brilliancy of the mixed colours is increased by the proportion of white, but the saturation is decreased.

The second law requires a systematic continuity of the compound colours, it insures the rigorous connection between the gradations of the constituent prints and the compound colours formed by their combination.

The third law requires special examination, for from this it is obvious that light compounded of complementary colours behaves exactly like simple spectral colours. The spectrum peculiarities of the lights used in three-colour projection—that is, the absorption ratios of the so-called reproduction filters—are without any influence on the results, and one has only to take into consideration the colour and saturation. The three coloured lights, therefore, when suitably chosen, give as pure a white as when simple spectrum colours are used.

In the additive methods of three-colour photography, as is well known, three positives are made from the negatives. They are covered with vermilion-red, ultramarine-blue, and yellow-green glasses, and then projected one on the other on a white screen or combined by means of mirrors in a chromoscope.

All other colours are formed by the mixture of these three components, and these colours are generally called the fundamental colours for the additive three-colour synthesis. That is, however, only partly correct, for one may equally as well consider those colours fundamental which are peculiar to the three positive constituent images which form the complete picture. The constituent images do not show the above-mentioned colours, but blue-green, yellow, and purple-red.

In triple projection one of the lights is cut out by each positive, and therefore the latter appears on a white screen in the compound colour of the two other lights. If, for instance, a positive is placed in front of the red light, a blue-green positive image is formed on a white ground, and in the same way the blue and green projection images will give yellow and crimson images. The three constituent pictures thus show the same colours as those which are used in the so-called subtractive methods of three-colour photography, and their combination corresponds equally then to a subtractive method, for by their mixture there is formed not white but black. The second and third laws are, however, absolutely maintained.

By this statement a very clear connection between the two methods of three-colour photography is obtained; whilst, with the additive mixing of coloured lights, the spectrum composition plays almost no part, in the mixing of material colours, whether by the combination of powders or solutions or by the superposition of stained transparent films, the results depend essentially on the spectrum composition of the components.

With regard to this, the following rule may be laid down: If the absorption bands of the colours to be mixed overlap, the rules stated above for additive light mixture approximately applies to the subtractive colour mixtures, with this difference, that black and not white is formed with the compound colour. Suitably chosen colours thus behave exactly like spectrum lights if the tone of the compound colour only is considered.

As a proof of the difference between an additive and a subtractive colour mixture it is usually advanced that yellow and blue lights when mixed give white, whilst yellow and blue colours combine to a green. This difference only exists, however, according to the various ideas of "blue" and "yellow," for yellow and blue dyes also give colourless mixtures, when they are so chosen that their colours correspond to complementary lights. If this is denied, one must also declare the formation of a neutral grey impossible. This grey is only formed from a blue, which is formed of crimson and blue-green, and the third fundamental colour, yellow.



If the absorption bands overlap, then variations always appear, which can scarcely be determined beforehand except by intimate study of the spectral composition of the colours.

If thus, for the two processes of colour photography, constituent images are used of equal colour, and if in the subtractive method colours are chosen which answer to the above requirements, there is—at least, theoretically—no impediment to prevent one from obtaining very nearly equal results. In practice, in the preparation of material three-colour prints, however, far greater difficulties have to be overcome, for the blackness of the pigments, their insufficient transparency, as well as the want of stable dyes which answer to the theoretical spectrum composition depreciate to a great degree the final result.

The blackness of the pigments is especially troublesome; it is particularly noticeable when the colours are impressed on paper, because then only the weak light reflected from the white paper has to be considered, and this the coloured films only allow to pass in a very incomplete way. Transparencies illuminated by a brilliant light appear much purer, even if they hardly attain the purity of the optically projected images. If the impure constituent images are combined, the blackness increases unduly, for it is in logarithmic projection.

If we mix white with black, there is obtained even with 50 per cent. of black a very bright grey, in which no one would suspect the high proportion of black. If, however, the addition of black is gradually increased, this at once becomes unduly noticeable. From Fig. 1 will be seen the connection between the quantity of

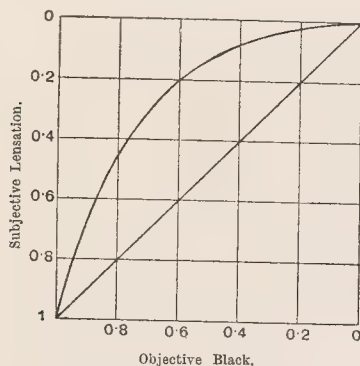


Fig. 1.

black actually present and the subjective sensation. A green, for instance, which contains 50 per cent. of black, appears to us relatively pure, for we have the sensation that it is only degraded by 10 per cent. of black; if, however, we add to this green just so much of the complementary red that the proportion of black is further increased 25 per cent., the colour has a very impure impression, for we recognise in examination almost as much black as green. An objective proportion of black amounting to 75 per cent. corresponds practically, as the diagram shows, to a subjective sensation of almost 40 per cent. of black.

By this fact the difference between the various three-colour images is clearly defined; the three-colour projection images or the chromoscope pictures are extremely pure, therefore an increase of black by admixture of the complementary colours will only be slightly recognised, whilst the impure pigmentary images when combined must by the simultaneous increase in black have an unpleasant dirty appearance.

### Does Young's Theory Apply in Three-colour Photography?

A hundred years ago Thomas Young tried to explain the perception of all colours by only three independent colour-sensations. He assumed that in the eye there were three nerve fibrils, the excitation of which caused the colour sensations. The excitation of one nerve gave rise to the sensation of red, that of the second produced green, and that of the third violet. If all the nerve fibrils

were equally excited we recognise the sensation of white, and with simultaneous excitation, but in different degrees of two or three of these nerves, all possible colour sensations are explained.

In order to support this theory, which was later more fully worked out by Helmholtz, the proof must be brought forward that the three elementary colour sensations actually suffice to explain the whole scheme of colours—that is to say, that by the simultaneous action of red, green, and violet light on our eyes any possible colour sensation can be produced.

As every colour can be split up into the simple colours of the spectrum, the proof of Young's theory will be obtained if the formation of all spectrum colours is effected by mixture of the three components which correspond to the three fundamental sensations and which can be called the fundamental or primary colours.

Thus we have here a physiological problem to solve, in which we must note not only the formation of the spectral colours as regards hue, but also as regards their saturation. If, for instance, two complementary spectrum colours—for instance, violet and yellow-green—are mixed so that white is formed, there is, according to the discrimination of our eyes, a much smaller quantity of violet than yellow-green required. The spectrum colours thus possess a different degree of saturation; violet is the most saturated then follow blue, red, orange, green, and yellow.

Young chose the most widely separated colours in the spectrum—the red, green, and violet. When, however, later experiments in mixing these were made, it was not found possible to produce the intermediate colours with their full saturation. If, for instance, the extreme spectrum red was mixed with the green of the E line, a yellow was obtained which agreed in hue with the spectrum yellow, but which was too white. If a yellower green was used so that a better yellow was obtained, then the mixture with violet gave a too whitish blue. With the three spectrum colours chosen the intermediate colours could be indeed obtained, but not of sufficient saturation.

One is forced to the conclusion, therefore, that the fundamental sensations must correspond to much more saturated colours than those of the spectrum. These supersaturated primary colours cannot be produced, as the spectral colours are the most saturated that we know; they can only be numerically estimated, and calculation proves that Young's theory is actually in accord with these hypothetical fundamental colours.

Besides the previously mentioned experiments of mixing the spectrum colours, others were made to clear up the question of the primary colours. The experiments with colour-blind persons were of great value, as were also the phenomena of visual fatigue as shown by our eyes after the continued action of different colours.

The fundamental colours determined by various experimentalists agree so far, if the saturation is excluded, that they may be generally called red, green, and violet or blue, yet they show considerable differences.

König and Dieterici, F. Exner and V. Grünberg, have fixed on a bluish-green for the fundamental green; Clerk Maxwell and Helmholtz choose a yellowish-green. The statements as to the primary blue vary between a greenish-blue (V. Grünberg) and a blue-violet (Maxwell), whilst there is a fairly unanimous consensus as to the extreme end of the spectrum being called the primary red.

With these primary colours the physiological process of colour vision has been explained, and it will now be seen that there is no authorisation to consider the same as the fundamental colours for three-colour photography. If we had only to reproduce the spectrum colours with their peculiar saturation, and to deal with colours of similar quality, the physiological primary system would be the correct one. Three-colour photography has, however, quite another problem to solve, for by its aid we have to reproduce the world of colour that lies around us, and to reproduce it equally correctly.

The difference between the two problems is best explained graphically.

Let us imagine a circle (Fig. 2) on the periphery of which are all the colours in continuity from red, through yellow, green, blue, and violet; further, that each colour extends over an equal space; further, that in the centre of the circle O there is white, and that in every radius between white and the peripheral colour lie whitish shades of that colour. Every two colours which are at the opposite ends of a diameter are complementary, and their intensity such that

mixing them they give white. The surface of the circle is then mixture surface, every diameter a mixture line, and the result of mixtures of colours can be geometrically determined by the circle of the centre of gravity.

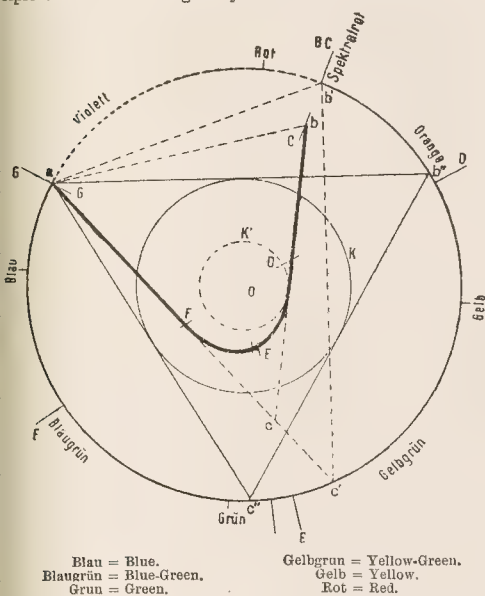


Fig. 2.

in this surface we trace every point which corresponds in hue relative saturation to the spectrum colours, the result will be curve of approximately the form of the thick line curve in Fig. 2. Colours are thereon designated by the letters of the Fraunhofer spectrum. The spectral blue violet and the red are the most saturated, and are therefore the furthest from white, or O, the centre, whilst blue, green, and blue-green, being considerably less saturated, lie

further from the circumference. The spectrum, blue-violet of the G line, should be assumed to lie on the periphery, and therefore all peripheral colours must be as saturated as this. If the colours of this curve are to be imitated by means of the three fundamental colours, they must be so chosen that the mixture triangle must enclose the spectrum curve. The simplest plan is to choose those colours lying in  $a$ ,  $b$ , and  $c$ ; equally saturated colours—for instance, those lying in  $a^1$ ,  $b^1$ ,  $c^1$ —may be chosen. If one assumes still more brilliant colours as the primaries, then the mixture triangle may have any possible position as long as it encloses the spectrum colours.

Other requirements are apportioned to those fundamental colours which should be used for three-colour work. They are not required to possess the saturation of the spectrum colours, for the colours of objects which surround us do not reflect homogeneous spectrum light, but mixtures of the same, and these have always a less saturated appearance. But it must be possible to reproduce all colours of equal saturation, for in the world of colour round us we find yellow and green as saturated as blue and red, and, further, violet and purple, which do not exist in the spectrum, must also be considered. Material colours are also spectrum colours, and the ratio of the mixtures must thus be so arranged that colours of equal saturation are formed.

If we assume that the material colours to be reproduced lie on the periphery of the circle K, they cannot be reproduced by mixture of the physiological colours  $a$ ,  $b$ ,  $c$ , or  $a^1$ ,  $b^1$ ,  $c^1$ ; the three colours symmetrically disposed in the colour circle  $a^{11}$ ,  $b^{11}$ ,  $c^{11}$  are selected to satisfy these requirements. Therefore the choice of the three colours is quite immaterial, for the triangle  $a^{11}$ ,  $b^{11}$ ,  $c^{11}$  may be rotated at will, and yet always enclose the circle K. If the physiological colours are to be used, then only those colours of equal saturation but of whitish hue lying in the circle  $K^1$  can be obtained.

Coloured lights or dyes, which correspond to the physiological primaries, do not, therefore, equally apply to those material colours which we have to reproduce by colour photography. If such primary colours are used in optical synthesis, only very whitish compound colours will be partly formed, and in subtractive synthesis very black compound colours.

From these considerations it ought to be clear that the Young-Helmholtz theory of colour vision possesses no importance, for the theory of three-colour photography, and that it is therefore not correct to identify the physiological fundamental colours with those of three-colour photography.

A. VON HUEL.

## A COOL STUDIO.

A GLASS house is a veritable trap to catch heat, a fact of great advantage to the gardener, but at times awkward for the photographer. A restful coolness and (what is almost as necessary) an absence of coolness is vital during summer. First and foremost, good ventilation is needed. The theory of an unventilated place is stagnant and depressing. Take a person into such a room and she wilts and tires. Where available, the number of windows should be open—the more windows the less chance of draughts. Whenever sitters are not actually in the studio it is feasible, and often several windows may be open even when work is in progress. But a good blow through is only a part of ventilation. The quiet, automatic sifting of air through ventilators is needful at all times, for there are seasons in spring and fall—in winter, too—when windows cannot be opened, but when changed air becomes as foul and stagnant as in the heat of summer.

### Ventilation

Ventilation must be carried out with some attention to the methods of air. It is well known that if air is passing out from the top of a room it causes a draught under a door. The outgoing air, in short, must be replaced. If the door be sealed so that cannot pass under it, the room will grow stagnant in spite of a hole at the top. Air exhibits a disinclination to pass out and by the same aperture. If a lath, or even a cord, be stretched across the hole to divide it in two it will be found that a current of air starts. So with our ventilators, we need more than one;

and several small ones work better than two larger ones. A row placed high in the slant and another row close to the floor will act best. It is commonly supposed that air comes in through the lower and passes through the upper ventilators. This is not necessarily so. Air does not float upwards in itself naturally; only when it is heated. In a room of stagnant air the flow may be downwards. It is possible to have a pool of "bad" air either at the roof or the floor; and so it is advisable to have ventilators near each. A single window opened does little good. If opened top and bottom a flow of air commences.

### How to Suggest Coolness.

Fresh air attained, it is next necessary to have suggestions of coolness. A red-plush upholstered chair is an abomination on a blazing day. If such a chair is in use it might be temporarily covered with some calico wrapper in a good photographic cool colour, or a chintz of quiet, unobtrusive pattern. A wicker chair is better, and sometimes a deck chair, or even a hammock, is better still, though both may be used for unsuitable people unless the photographer is careful. Artificial plants should be retired and cool-looking growing ones used instead. Some of the lilies which grow in china bowls containing only pebbles and water are excellent for this purpose. Light thin draperies sometimes help the effect.

The skylight frame is, of course, painted some light, cool shade. In some studios a little extra painting in cream or green or some such tint will help the general effect, as will a certain amount of shade. If the sitter passes from a dark dressing-room into a bright



studio, heat is at once suggested. If the dressing-room is brightly lit and the studio screened, the suggestion will be coolness.

Water has a restful look, and it should be used. But water must be clean and clear, and a globe of goldfish is a pretty ornament, and as good as a toy when children are present.

#### Hot Weather Memoranda.

Children, by the way, are thirsty little mortals, and often a fractious child is merely a thirsty one. A filter—one of those glass ones in which the drip, drip of the water may be watched—should be in every studio. A block or chips of ice floating in the water will ensure coolness.

In hot weather we are not content with fresh air; we must feel the flow of it. A few hand fans should be in every studio, either Japanese paper fans or palm leaves. The latter usually look better. And electric fans that do not buzz too much will send cool currents across the studio.

Last, there is the operator himself. I have visions of a terrible sight, seen a quarter of a century ago. It was an old line "professor," with somewhat long hair streaming over the collar of a velveteen jacket. The day was a hot one, the studio stuffy, and the professor was mopping himself with a large brown-and-gold silk handkerchief. Poor little sinner! no wonder the child was fractious. There is no need for an operator to wear black, if it is not in keeping with the day. He should look cool and comfortable, even if he has to don white to do so. It is not what is but what seems.

#### ON THE INSOLUBILISATION OF GELATINE BY THE OXIDATION PRODUCTS OF PHENOLIC BODIES.

We have already shown that the insolubility of gelatine produced by a pyrogallol developer is not due to the pyro but to the oxidised product. (B.J.P., April 13, 1906.)

We have also shown that the possibility of obtaining, under certain conditions, that it is possible to produce the same result under certain conditions with other developers of the phenolic group.

The present researches were undertaken to see whether the same effect was peculiar to the phenolic compounds which are developers, or whether it was common to all phenols. Gelatine was treated with the solutions in three different ways (a) with an aqueous 1 per cent. solution (b) with a 1 per cent. aqueous solution with 3 per cent. of anhydrous sodium carbonate added, and (c) with a 1 per cent. solution with 3 per cent. of anhydrous carbonate, and 3 per cent. of anhydrous sulphite of soda.

Comparative tests were made in bottles full and half full, and open and closed with the following substances: Ordinary phenol, paracresol, naphthol,  $\beta$  naphthol, resorcine, gallic acid, tannin, dioxy-naphthaline, phloroglucine, salicylic acid, paranitrophenol, and naphthol monosulphonate of soda (1.4), and  $\beta$ -naphthololsulphonate of soda (R. salt 2.3.6).

In closed bottles none of these solutions render the gelatine insoluble in boiling water. When exposed to air insolubilisation is produced by some of these solutions, but only under the conditions observed with the developer—that is, in the presence of carbonate of soda.

The following table gives the results of the tests:—

1 per cent. Solution with 3 per cent. Anhydrous Carbonate of Soda exposed to the Air.	Time approximately necessary to produce Insolubility in Boiling Water. Days.
Gallic acid .....	2
Tannin .....	4
$\alpha$ naphthol .....	25*
$\beta$ naphthol .....	5
Resorcine .....	45
Phloroglucine .....	5
Dioxy-naphthaline .....	5

The alkaline solutions most readily oxidisable, such as gallic and tannin, produce insolubilisation after a long time in the presence of sulphite, probably because they oxidise more slowly. All the solutions which act are coloured more or less dark brown, and the gelatine is also stained.

\* In the oxidation of  $\alpha$  naphthol a brown precipitate is formed which was not observed with  $\beta$  naphthol, which probably explains the more rapid insolubilisation with the latter.

These results prove that phenols, which are not developers, possess the property of rendering gelatine insoluble, whilst the developing function plays an important part in the rapidity of action. Resorcine only acts after a month and a half, whilst under the same conditions hydroquinone acts in one day, and pyrocatechin in two days. The results obtained with resorcine prove that quinone compounds are not the only products of oxidation which produce insolubility. The formation of quinone cannot be assumed to take place in the case of resorcine.

A. AND L. LUMIERE AND SEYEWETZ.

#### ASSISTANTS' CERTIFICATES.

THE following are the conditions under which the new "registrars' certificate" of the Professional Photographers' Association is granted. They are quoted from the No. 6 "P.P.A. Handbook," just issued:—

In accordance with the notification of the committee at the time the original prospectus was published, that the matter would be fully reconsidered in the light of a year's experience, a sub-committee appointed by the committee invited criticism of the existing scheme from those assistants who applied for prospectuses and went further. The replies were fully considered, and the whole bearings of the scheme carefully discussed. The information derived from assistants themselves was a valuable help towards the realisation of the defects of the scheme from the employes' point of view, and, beyond that, the correspondence disclosed that the prospectus itself was too elaborate and detailed to be easily understood by the majority of the class to whom it was addressed. In several cases it was perfectly clear that it was entirely misunderstood. It was made abundantly evident that a large proportion of the photographic assistant throughout the country are not capable of classification according to any specialised character of their work, but are employed generally as all round hands, and also that their earnings are not, as a rule, much more than sufficient to meet the cost of living. It has been decided, therefore, to satisfy the requirements of this class by instituting a new grade of certificate, to be entitled "The General Assistants' Certificate," and, in order that there may be no excuse for not applying for the certificate on the ground of its being too expensive, it has been resolved that applicants be charged only the registration fee of One Shilling.

The work of the general assistant being necessarily varied in character, the method of determining the candidates' qualification adopted with regard to classified assistants cannot very well be applied, and a new method is adopted. The candidate is required to state his qualifications, and the certificate is given for those which are upheld by present and previous employers.

The following are the directions issued to applicants:—

#### GENERAL ASSISTANTS' REGISTRATION CERTIFICATE.

Applicants for these certificates are required to furnish a list of the various branches of photography in which they claim to be proficient, and also to state the names and addresses of their present and previous employers, with period of service with each, giving dates of entering and leaving if possible.

If the qualifications claimed are confirmed on inquiry of the employers, and the examiners are convinced of the ability of the applicant, the association will grant a certificate setting forth the grounds upon which it is granted, and the particulars of the holder's employments.

Each application must be accompanied by a postal order for one shilling, as a registration fee. No further fee will be charged. As direct inquiry is made of present and past employers, testimonials and references should not be sent.

A Register of Certified Assistants will be kept by the association, for the use of employers requiring assistants.

Holders of certificates, when advertising for situations, are recommended to add the words "P.P.A. Certificate" to their advertisements.

Certificate holders are entitled to receive the advice of the committee of the association upon any matter connected with their photographic employment.

# PRESIDENT'S "AT HOME" AT THE PHOTOGRAPHIC CONVENTION.

announce on another page, the Wednesday afternoon of Con-  
n week will be left open for members to accept Mr. Hum-  
s invitation to join him in a marine excursion down South-  
n Water, an item in the programme which should be accept-  
ven to those who entertain fears of mal de mer whenever they  
board ship, for Southampton Water is almost always as calm  
pond, the vessel, "The Duchess of Kent," is the best boat  
Solent waters, and she will make her journey at half-steam  
e those on board an opportunity of photographing the yachts  
their craft in the water. In addition to these attractions, the  
ese Band of Herr Carl Heubert will accompany the party,  
will perform the following programme of music:—

arch .....	"Welcome" .....	Kral.
altz .....	"Aquarells" .....	Strauss.
lection .....	"Romeo and Juliet" .....	Gounod.
ng .....	"Erublingsluft" .....	Reiterer.
altz .....	"Lysistrata" .....	Linke.
lection from "Lohengrin" and "Tannhauser" .....	Wagner.	
renata .....	Tschaikowsky.	
alse .....	"Bei uns z'Haus" .....	Strauss.
lection .....	"Veronique" .....	Message.
skewalk .....	"La Kraquette" .....	Clerice.
lection .....	"Faust" .....	Gounod.
arch .....	"King Cotton" .....	Sousa.

every respect, therefore, the Presidential "At Home" can  
r help being one of the most enjoyable of occasions, and  
hich, in years to come, will mark out the Southampton Con-  
n as offering a commendable variation from the stereotyped  
a party which has come to be regarded as the inevitable  
y of the Convention on the Wednesday afternoon of its week.

## THE PROPOSED CAMERA CLUB.

OWING on the meeting recently held at the Charing Cross Hotel  
rting the scheme of a camera club in the West End of London,  
are being taken to secure the necessary interest and support.  
a circular which has been issued it is explained that a club is  
cess of formation, the object of which is to provide a meeting  
for those interested in the practice of photography as a hobby;  
ain idea being that such facilities shall be afforded so that e  
becoming a member will find he has the use of completely  
ped club rooms, enlarging, day and electric-light printing and  
rooms, and several dark rooms, together with the opportunity  
aining instruction in photographic matters.

s stated that the following membership is required:—  
50 to 300 town members at an annual subscription of £2 2s.  
3 country members at an annual subscriptions of £1 1s.  
rance fee £1, for which a £1 share in the syndicate or company  
be issued, but after the first 325 members have joined there  
be a further entrance fee.

re would be no liability to members beyond the payment of their  
ace fee and subscriptions; under these conditions the club  
be a Members' Club, with limited liability.  
start the club on a satisfactory basis financially a small syndicate  
npany will be formed with a capital of £600 in £1 shares, bear-  
per cent. interest, and a reserve fund will be formed out of any  
s profits and future entrance fees.

urly one hundred gentlemen have already expressed their desire  
ome members, and about £120, exclusive of entrance fees, has  
promised towards the capital required. The club room will be  
led with daily and weekly papers, and the photographic period-  
nd writing materials. It is proposed to supply light refresh-  
s, and to hold during the winter months demonstrations on  
graphic subjects for beginners, as well as for more advanced  
rs.

lies will be admitted to the studio, but not to membership of  
lub.

e committee invite all those qualified for membership, and desire  
se use of the club and its facilities, to support them in this move-  
and at the earliest opportunity, to send in their names, or if  
urther information is desired, the Honorary Secretary, H. W.  
olme, Blenheim Mansions, Queen Anne's Gate, S.W., will be  
y to afford it.

## BOGUS PHOTOGRAPHERS.

WE are glad to see the "Daily Mail" exposing the tricks of the  
impostors who pose as photographers, which it does in an article as  
follows:—

We have met him in various guises—the man who, under some  
pretext, obtains admission to a house and then quietly appropriates  
any articles of value he can see.

His last impersonation is as ingenious as it has proved successful.  
He poses as a photographer, and, duly armed with his tripod and  
accessories, he calls at the house of a lady who lets apartments.  
He asks no fee, but explains that he is calling on behalf of a high-  
class magazine devoted to the apartment-letting industry. He  
wishes merely to take one or two views of the interior for the  
purposes of reproduction in this nebulous publication, a copy of  
which will be forwarded.

The gratified landlady allows him to fix up his apparatus, when  
he discovers something has gone wrong. Can the lady find a screw-  
driver and a hammer? The lady goes off to find the articles he  
requires, and in her absence the "photographer" conceals about  
him any valuable trifles that may be lying about.

On his victim's return he announces that he has rectified matters  
and taken the photograph. He engages her attention while packing  
up his things by chatting genially, and the loss of the valuables is  
discovered too late.

The police state that this branch of fraud and theft is quite new  
to them, and that it is doomed to as short a run as the "electric wire  
inspector" (who asked his victims to go to the top of the house and  
ring electric bells), the bogus water-tap inspector, and the man with  
the new gas-bracket (ordered by the master of the house and subse-  
quently found to have been a mistake). All call with guileless  
objects and leave the richer by any silver ornaments that may be  
lying about.

The camera figures in another and even more irritating form of  
fraud, where a man pretends to snap-shot a private house for repro-  
duction on a dozen picture postcards receives a deposit, and decamps.

## Photo-Mechanical Notes.

### The Cost of Making Half-tone Engravings.

It is to be feared that few photo-engravers are able to say what it  
costs them to produce half-tone and line blocks, and many quotations  
perhaps are based not as they should be on cost of production, but  
on the alleged price at which a competitor offers to do the job.  
Attempts to fix a regular price per inch are never likely to succeed,  
and we fear efforts made with the aim of fixing a minimum price  
per inch are similarly unlikely to be of any service, for the reason of  
the very great danger that such fixed minimum will become a maxi-  
mum. But these movements towards standard prices will prove a  
boon to the photo-engraver if they do no more than compel him to  
enquire into the actual cost to him of the work he turns out. On this  
subject we quote a letter from Mr. Geo. H. Benedict, of Chicago, one  
of the largest photo-engravers in America, from the current issue of  
Penrose's "Process Work."

"For several months" (writes Mr. Benedict) "we have kept an  
accurate record of the number, size, and shop cost of all the half-  
tones and zinc etchings we have turned out.

In the shop cost we include wages, material, rent, power, and  
light, but not the cost of any work charged as extras, or any portion  
of the office expense.

The result is:—The shop cost of all half-tones was 9c. (4½d.) per  
square inch, the average cost per cut was \$1.48 (6s. 2d.), but it is  
certain that cuts under the average size cost more per square inch  
and less per cut, and cuts over the average size cost less per square  
inch and more per cut.

Our theory is that the approximate cost of a half-tone of any size  
is one-half the average cost per cut, plus one-half the cost per square  
inch, and by combining the square inch cost, and the average cut  
cost, we have the true proportion of a fixed charge and square inch  
rate, and a consistent selling price that will afford 100 per cent. profit  
on the shop cost, and allowing 25 per cent. for operating expense,  
advertising, etc., a net profit of 25 per cent.



Using even figures, and assuming that a fair day's work for each photographer and the crew to complete the cuts is as follows, the result of basing the selling price on a fixed charge of \$1.50 (6s. 3d.) per cut plus 10c. (5d.) per square inch is:—

20 10-inch cuts at \$2.50 (10s. 5d.) each is \$50.00 (£10 8s. 4d.) for a day's work (or 200 square inch at 25s. (1s. 0½d.) per square inch).

16 25-inch cuts at \$4.00 (16s. 8d.) each is \$64.00 (£13 6s. 8d.) for a day's work (or 400 square inch at 16c. (8d.) per square inch).

12 50-inch cuts at \$6.58 (27s. 5d.) each is \$78.00 (£16 5s. 0d.) for a day's work (or 600 square inch at 15c. (7½d.) per square inch).

10 80-inch cuts at \$9.50 (£1 19s. 7d.) each is \$95.00 (£20 4s. 2d.) for a day's work (or 800 square inch at 11 7-10c. (about 5½d.) per square inch).

From this it will be seen that \$2.50 (10s. 5d.) each for 10-inch cuts would be less profitable than 80-inch cuts at 11 7-10c. (about 5½d.) per square inch.

As to zinc etchings—the result of our investigation is that the cost per square inch and per cut is approximately one-half the cost of half-tones. It is, therefore, reasonable that to afford an equal profit, zinc etchings should be sold at one-half the price for half-tones."

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications have been made for Patents from June 5 to 9:—

MASK.—No. 12,994. Improved form of mask for printing from photographic negatives on photographic papers and postcards. Arnold Moritz, 39, Fitzjames Avenue, West Kensington, London, W.

DAYLIGHT LOADING DEVICES.—No. 13,038. Improvements in devices for loading photographic cameras with plates, films, etc., in daylight. P. M. Justice for Emile Wunsche, Aktien Gesellschaft für Photographische Industrie, Germany.

FOCAL-PLANE SHUTTERS.—No. 13,107. Improved photographic focal-plane shutter. Louis Borsum, 18, Southampton Buildings, London.

CHANGING BOXES.—No. 13,351. Improvements in photographic changing boxes. Optische Anstalt C. P. Goerz Aktien Gesellschaft, 31, Bedford Street, Strand, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

ROLL-FILM.—No. 16,999, 1905. The claim in regard to this invention is for "a photographic film constituted by two gelatine silver emulsions or sets of emulsions and an intermediate transparent flexible base of non-absorbent material, such as celluloid, the emulsion or set of emulsions on the one side of the base being relatively faster than the emulsion or set of emulsions on the other side." Leonard Smith, 22, Park Hill Road, Croydon, Surrey.

PRINTING FRAMES.—No. 13,817, 1905. The novel form of frame consists of one in which sliding spring clips are provided on the clamping back of the frame, which back is hinged in several places, and may be attached at one end to the other portion of the frame. John Lewis, Villette, Kenilworth Road, Berkswell, near Birmingham.

COLOUR-PHOTOGRAPHY.—No. 6,881, 1906. The claims are for different patterns of colour screens built up of triangles, hexagons, or rhombuses, so as to fit together without intervening spaces or overlapping, a quantity or the whole of these geometrical unit areas being coloured, and so arranged that at every point where the unit areas, whether of triangular or compound nature meet, all the colours occurring in the screen are represented once or more fold. In the accompanying drawings some examples of such a colour screen are depicted. In the screen shown in Fig. 1 equal sized equilateral triangular unit areas (a) fitted together without intervening spaces or overlapping, are grouped together to form regular hexagons. In the colour screen, Fig. 5, in which

the areal division is the same as Fig. 1, the three colours which have to be considered in three-colour photography (R = red, B = blue-violet, G = green) are grouped once round every point where three hexagonal elements meet. Fig. 2 represents a screen divided into equal sized equilateral triangular unit areas fitted together without intervening spaces or overlapping. In the colour screen shown in Fig. 6, in which the areal division is the same as in Fig. 2, six differently coloured elements are grouped once round every individual central point where six triangular elements meet. These six colours (R = red, B = blue, G = green, O = orange, Y = yellow, V = violet) would be suitable for a method of six-colour photography. In the case of the colour screen shown in Fig. 8, in which the areal division is the same as in Fig. 2, the two colours suitable for a system of two-colour photography are grouped alternately three-fold round every point where six triangles meet; the black areas representing the orange coloured elements and the white areas representing the blue

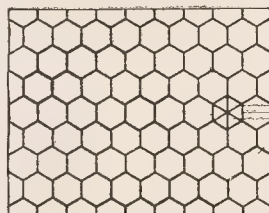


Fig. 1.

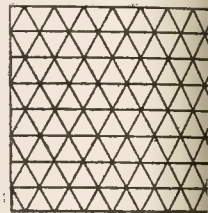


Fig. 2.

green, O = orange, Y = yellow, V = violet) would be suitable for a method of six-colour photography. In the case of the colour screen shown in Fig. 8, in which the areal division is the same as in Fig. 2, the two colours suitable for a system of two-colour photography are grouped alternately three-fold round every point where six triangles meet; the black areas representing the orange coloured elements and the white areas representing the blue

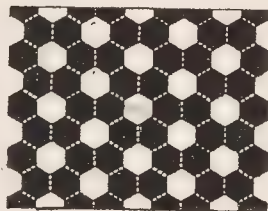


Fig. 3.

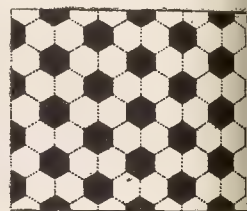


Fig. 4.

coloured elements. In the three-colour screen depicted in Fig. 5, equal sized equilateral triangular unit areas fitted together without intervening spaces or overlapping, are grouped together to form rhombuses, and round every individual point where three rhombuses meet the three colours employed in three-colour photography (R = red, B = blue-violet, G = green) are represented once, whereas round the remaining centres, where six rhombuses

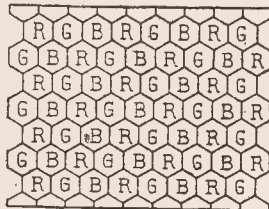


Fig. 5.

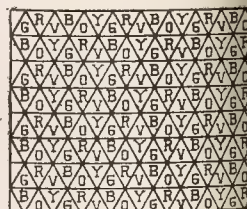


Fig. 6.

meet, each of these colours is represented twice, the same colour lying opposite each other. It is also possible in addition to the coloured elements arranged round each individual point where the unit areas meet to have colourless, transparent, or opaque, white, or black elements respectively, or combinations of these represented. Other divisions of the colour screen are also possible, e.g., rhombuses might be formed by the intersecting two series of parallel equidistant lines at an angle of 60 degs. each other, and round each individual point where four such rhombuses meet either two colours might be represented alternately

ing twice, or four different colours once, or three different coloured elements might be represented in combination with one colourless transparent, or opaque, or white, or black element respectively. If the screened surface is upon a glass or other transparent support, the screen can be used placed face to face upon a suitably prepared colour-sensitive plate for taking a negative, or for viewing in colours the positive copied from such negative. When the screened surface is required upon paper or similar material upon which printed impressions may be made, a screened relief surface may be employed for the production of polychrome prints by means of a photo-mechanical process. For the production of such colour screened paper, a printing block with the screen form represented in Fig. 3 may be employed in which the white hexagons must be considered as standing out in relief. Fig. 4 represents the paper surface after

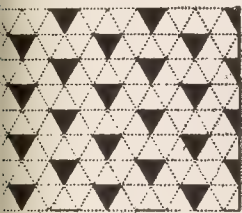


Fig. 7.

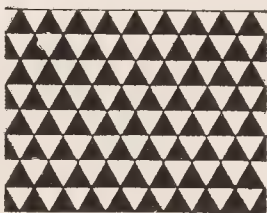


Fig. 8.

the printing of the first colour, in which the black areas represent, e.g., the red unit areas. In order to print the other coloured elements the same printing block as Fig. 3 can be employed, the relief areas being stained with the corresponding inks in succession, and by a lateral displacement of the block printed in register so that another series of hexagonal areas shown in Fig. 4 is covered at each printing, until the whole surface has been covered with coloured elements as shown in Fig. 5. In the same way a printing block in the screen form of Fig. 7 may be employed for the production of a colour screen as in Fig. 6, the black unit areas being those in relief. Fig. 9 shows another form of screened printing block (in which the rhombus elements shown in black must be considered in relief), which, by turning at an angle of 60 degs., and adjusting in register after each colour printing, can be employed for the production in three printings of a colour screen as in Fig. 10. The paper colour screens which have been described may be usefully employed

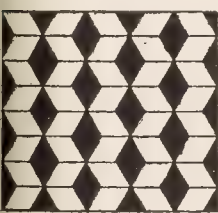


Fig. 9.

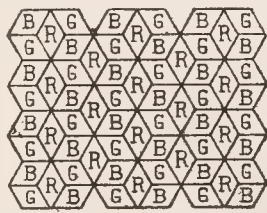


Fig. 10.

for the production of two or more coloured pictures by means of one of the ordinary photo-mechanical printing processes. A printing block or stone is prepared in the usual manner from a negative of the subject to be printed in colours taken through the corresponding glass colour screen upon a panchromatic plate, and the block printed in black over the paper colour screen superposed exactly in register. Each colour spot will be shaded down more or less with black, or remain entirely uncovered just in proportion to the required action of that particular colour at the point in question. By this method it is possible to obtain finished colour prints in a very short time, as the coloured screened paper may be kept in stock in large quantities, and practically only one printing has to be considered. When the colour screen is employed for taking negatives, it can, of course, be printed upon glass or other transparent support, and the sensitive emul-

sion then coated upon the screen surface, the plate or film being exposed from the back through the screened surface. The method of printing on film may be the same as that for printing on paper. In the case of glass, however, I adopt the following process:—A suitably reduced and sharp negative is taken upon a sensitive plate. From this negative three positives are printed upon bichromated gelatine surfaces, one of the gelatine supports being glass, the other two celluloid or collodion films. After washing out the soluble gelatine the positives are coloured in suitable solutions, e.g., one in red, the second in yellow-green, and the third in violet-blue colour. The celluloid or collodion films are then laid upon the glass plate, and by means of a magnifying glass, brought into register so that the colours are regularly distributed. In this position the films are cemented securely upon the glass plate, e.g., with Canada balsam, and the whole forms the taking screen, which in taking a negative is placed upon a panchromatic plate, the screen surface being towards the plate. From the resulting negative a positive is made, and this positive is viewed through a similar colour screen in the corresponding colours, whereby the photograph appears in natural colours. It is to be understood that by the expression rhombus I mean a rhombus composed of two equilateral triangles, i.e., having the obtuse angle 120 degs., and the acute angle 60 degs. John Henry Smith, 417 Seestrasse, Zurich, Switzerland.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—

SCREENS.—No. 12,235, 1906. Adjustable compensating screens for use in photography and in colour-photography. Brasseur.

## New Materials.

"Gevaert Matt" and "Casoidin" Papers. Made by L. Gavaert and Co., Oude God, Antwerp.

The former of these two papers is a collodion printing-out paper specially recommended for gold-platinum toning, but also rendering some very fine tones of a sepia and red chalk character by simple toning with one or other of the precious toning metals alone. The surface of the paper, an extremely fine matt, is one which fits it for the great majority of commercial professional work. Its ease of manipulation, in our not very lengthy experience of it, is on a par with the best collodion papers, and we did not discover any inconvenience as regards curling of the paper whilst in the washing waters and toning baths. The rich black tones obtained with the gold and platinum baths are very satisfactory. For the warmer tones, the prints are treated to a bath of ammonia, and after a brief washing are toned in a diluted platinum bath. For the red chalks, the ammonia bath is replaced by common salt, and the platinum by a gold bath containing borax and acetate of soda. By the way in which it lends itself to these different methods, the Gevaert paper is evidently fitted for the work of photographers aiming at variety in the prints which they issue to their customers.

The so-called "Casoidin" papers is apparently the result of using a preparation of casein as the vehicle of the silver. It prints rapidly, considerably more so than a representative brand of P.O.P. against which we tried it, tones quickly in the sulphocyanide bath, and yields also very agreeable purplish tones in the combined bath. The surface of the paper is a fine delicate matt, resembling that of albumen. In other respects of manipulation the prints are toned and fixed like P.O.P., but are burnished by hot rolling when mounted.

MESSRS. John J. Griffin and Sons, Ltd., have added to the "GOLDON" self-toning paper recently issued, a matt variety, a sample of which we have found to respond satisfactorily to the treatment recommended by the makers, viz., fixation in a strong hypo solution. The paper gives a fine vigorous print; and the agreeable matt surface accords well with tones obtained.

THE "Chromo" (ortho-chromatic) plate of the A.G.F.A. Company, sold in this country by Messrs. Chas. M. Zimmermann and Co., of 9 and 10, St. Mary-at-Hill, London, E.C., has now been issued in a new form—namely, as the "Agfa Chromo-isolar" plate. The name will indicate that the new issue is a plate specially



prepared against halation. It is, in fact, a combination of the chromatic properties of the "Chromo" plate with the anti-halation substratum, which is the distinguishing and patented feature of the "Isolar." The new plate is thus highly fitted for much difficult photographic work, and is, of course, just as suitable for everyday subjects, presenting no special difficulties, as an ordinary plate. Its orthochromatic properties, we find, on renewing our acquaintance with it, to be of a pronounced kind, and to fit for purposes of copying coloured originals, etc. For this latter purpose the makers are now enclosing in each box of plates a gelatine film screen, 3in. square, properly adjusted to the plate.

A new method of stripping and hatching in black and white and colours has been introduced by Mr. T. S. Bruce, the well-known instructor in retouching and allied branches of work, whose many qualifications to be named as a master of his profession must be known to many of our readers. "Stipplette," as the new method is called, imitates—and imitates extremely successfully—the hatch and stipple effects which are usually obtained with the sable brush somewhat laboriously and none too quickly. By the "Stipplette" method, which equally with the sable brush lends itself to the personal control of the artist, the coarsest and finest hatch or stipple is obtained quickly, and the effect can be obtained over the usual wash, aerograph or powder basis. From its saving of time and labour without sacrifice of result, Mr. Bruce's new method is evidently destined to be of the greatest service to the profession who will find it adaptable to present methods of work, quickening them and cheapening production. Particulars of Stipplette are obtainable from Mr. Bruce, at 4, Villers-on-Heath, Vale, Hampstead, N.W., or from photographic dealers.

## New Apparatus, &c.

Jandus Enclosed Arc Lamps. Sold by Drake and Gorham, Ltd., 66, Victoria Street, London, S.W.

These new lamps are advanced by the makers as possessing the special advantages which attach to lamps of the enclosed arc type. They are put forward for portraiture, enlarging, process work, and photographic and process printing, their small size and economical working recommending them for these various purposes. The "Jandus" lamp is made in several sizes for continuous or alternating current, the consumption of current being from one to four units per hour. The expenditure for carbons may be judged from the stated average life of the carbon, viz., twenty hours. The carbons are automatically cut out of circuit when they require renewing. As regards the efficiency of the lamp from the photographic standpoint, the following figures from a circular issued by Messrs. Drake and Gorham will permit of an opinion being formed of its usefulness in the studio. Fully exposed negatives are obtainable in one-fifth of a second at  $f/6$  on a plate of about 250 H. and D., the sitter being 5 ft. from the lamp. For printing from average negatives by contact, on P.O.P., the times of exposure given are from a minute to a minute and a half, according to the distance of the frame from the lamp—12 or 18 in.

Both classes of lamp, for direct and alternating current, are made to take standard voltages of from 100 to 250, the prices being as follows:—Lamp, £4, £4 2s. 6d., and £4 15s. Resistance: £1, £1 5s., and £2. These are for continuous current: the cost of the lamps for alternating current is a few shillings more in each case.

## CATALOGUES AND TRADE NOTICES.

THEODORE BROWN, of Drummond Road, Bournemouth, sends us his new catalogue of stereoscopic apparatus and publications. It contains full descriptions of its producer's stereoscopic appliances, notably of the well-known "stereoscopic transmitter." We notice Mr. Theodore Brown described on one page as "late editor of the 'Optical Lantern Journal,'" whilst on another his name is given as editing our intermittent contemporary. The discrepancy, we hope, does not imply the cessation of our contemporary from appearance.

MESSRS. MAWSON AND SWAN, Mosley Street, Newcastle-on-Tyne,

send us their latest list of aniline dyes stocked by them for photographic purposes.

THE City Sale and Exchange offer free a twenty-four-page closely printed, with particulars of goods, at reduced prices. Cameras and lenses make up the majority of the apparatus which we observe, is listed at distinctly "bargain" prices.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

June.	Name of Society.	Subject.
23.....	Bradford Photo. Society .....	Yorkshire Photographic Union A
23.....	Bristol Photographic Club .....	Excursion to York.
23.....	Leeds Camera Club.....	Outing to Yate.
23.....	Redhill and District Cam. Club	Yorkshire Photographic Union A
23.....	Hull Photographic Society ..	Excursion to York.
23.....	Tynemouth Photo. Society .....	Outing to Ockley.
23.....	North Middlesex Photo. Soc. ...	Yorkshire Photographic Union A
23.....	Manchester Amat. Photo. Soc.	Excursion to Whittle Dene.
23.....	Halifax Camera Club.....	Outing to South Mimms.
23.....	Manchester Amat. Photo. Soc.	"Portraiture in the Studio." D
23.....	South London Photo. Society ..	strated, T. L. Cooper.
23.....	Bradford Photographic Soc. ..	Yorkshire Photographic Union A
26.....	Royal Photographic Soc. ....	Excursion to York.
26.....	Manchester Amat. Photo. Soc.	Outing to Disley.
26.....	Hackney Photographic Society	Outing to the Twin Cities.
26.....	North Middlesex Photo. Soc. ...	Outing to Beckfoot.
27.....	Leeds Camera Club.....	Technical Meeting. "Orthochro
27.....	London and Prov. Photo. Assn.	Plates and Sensitizers" (3rd a
		and "Absorption of Ultra-
		Rays by the Glass in Apparatu
		by Photographers." A. J. Ne
		and A. J. Bull.
		"On Composition." C. H. Briele
		"Control in Printing." H. W. Be
		Exhibition of the Society's Collec
		Record Prints.
		Excursion to Wighton and Alwood
		Annual General Meeting.

CROYDON CAMERA CLUB.—Although the season for demonstration and lectures has closed, a large number of members assembled week to hear Mr. A. Arbuthnot describe his new gum process the result of over three years' patient experimental work with various colloids and sensitizers. The paper, which, we are glad to understand, will be shortly on the market, is sensitised by brushing with ammonium dichromate and methylated spirits with the special solution which will be supplied. Drying is complete in ten minutes, or even less, and the paper prints in about the same time in the shade from a fairly dense negative. Development is expeditiously effected, either by a sawdust broth, or by brush. It is claimed for the paper that the user need have no previous knowledge of gum printing, and by following a few simple directions, he cannot possibly fail to secure good results, the uncertainty characteristic of the process having been entirely removed. Only essentials are a reasonably good negative, and an apparently correct exposure. The lecturer stated that simple mechanical development gave practically all the tones and details present in the negative, showing a full range from black to white, with appreciable compression at either end of the scale. He laid stress on this point, as he said there seemed to be an impression on one must necessarily be an artist in order to work the process: at the same time, there was ample facility for the pictorial worker to correct or alter the tone values, etc., by means of a spray brush; the film was very tough, and local development could be resorted to without destroying the textures. With the ordinary gum process, Mr. Arbuthnot said, the parts developed locally frequently an entirely different texture to the rest of the paper. The discussion which followed was mainly confined to the experience of the workers of the club. Mr. Packham said that, judging from excellent prints passed round, the process appeared to be a good one, but he had seen nothing which could not have been produced by ordinary "gum." Of course, if all elements of uncertainty had been eliminated, this would be a very strong point in its favour. Mr. Lepine Smith had tried the process under consideration and appeared to give systematically good results. He regarded it as a great advance on any other single-printing gum method. Mr. Allen pointed out that the shadows were very free from glossiness.

expressed a very favourable opinion as to the merits of the camera, as did Messrs. J. M. Sellors and W. H. Rogers. Mr. Daw produced a print of his, which had received twelve distinct coatings; if the same results could be obtained with one coating as appeared to be the case, it was obviously folly to employ more.

**OUTHAMPTON CAMERA CLUB.**—Mr. C. Daw, one of the prominent workers of the above club, read a paper to the members on Monday, the 18th inst., on the subject of "Individuality in Photography." The writer at the outset expressed the opinion that individual ideas were more possible of attainment in the way of landscape photography than in architectural work, which latter the club members had so strongly taken up. Proceeding to deal exclusively with landscape work, Mr. Daw urged that it was necessary for workers to travel far and wide for effective subjects, that every district afforded material, from which good results might accrue. He urged that the first necessity with all would do work showing individuality was the recognition of the fact that simplicity must be sought, and that the worker should have some definite reason in his mind why he exposed a plate upon a subject. Having found a subject which promised to provide the least some basis for the carrying out of his idea, the worker should not proceed further till he had discovered the best conditions of lighting possible of attainment, and that he must not necessarily be satisfied with natural conditions of sky and atmosphere, even supposing such conditions were represented on his negative, but having his basis he must from other sources complete the picture with details harmonising with his motive. Mr. Daw recommended workers to make sketches, however rough, of the subjects of the subject chosen before making the exposure, so as to be sure that there should be scheme and concentration in the production, and he pointed out that as far as the print was concerned there was no necessity to employ any particular method or system, but that for the enthusiastic worker who had a definite purpose, the process with which he was best acquainted was the best for him to use. The keynotes of Mr. Daw's paper were the demand, first, for simplicity of subject, and secondly for deliberation and study in his effort to make others see what the worker therein. A very helpful discussion followed, and Mr. Daw was heartily thanked at the close.

## News and Notes.

**MR. J. J. ROUSE**, of the well-known Australian firm of Baker & Rouse, is at present paying a visit to Europe, and is spending a few weeks in London, during which time he is interesting himself in photographic manufactures for the Australian market. Letters may be addressed to Mr. Rouse at the Hotel Russell, Bloomsbury, London, W.C.

**'SANDERSON' CAMERAS.**—In commenting upon the new "Sanderson" booklet of Messrs. Houghtons, Ltd., last week, we should have mentioned that Messrs. Harrods, Ltd., have on show at their premises in Brompton Road, a special "Sanderson" exhibition. This consists of a large collection of "Sanderson" cameras of all patterns, sizes and finishes, and a collection of work done with the "Sanderson" camera. Mr. E. H. Carpenter, Mr. Aubrey Harris, and other well-known amateurs. The exhibition thus affords an opportunity of seeing a large number of "Sandersons" under the most favourable conditions. MANY of our older readers will learn with regret the death at the age of forty years ago of Mr. Russell Manners Gordon. Mr. Gordon's pictures were well-known in the sixties, and very excellent they were. They were all produced on dry collodion by a process which he himself devised. The deceased gentleman was seventy-seven years of age, and left property value £12,682.

**THE SCOTTISH SALON.**—The Board of Selection is composed as follows:—Messrs. J. Craig Annan, Glasgow; W. Crooke, Edinburgh; Patrick Downe, R.S.W., Glasgow; Alexander Keighley, Yorkshire; and James Patrick, Edinburgh. Messrs. Craig Annan, Crooke, and Patrick have served already on the board, and the other two names

represent a new procedure in its formation, the introduction of a well-known artist and photographer from "furth" of Scotland.

**ROYALTY at the Kodak Exhibition.**—The Prince and Princess of Wales paid a visit on June 14 to the Kodak Galleries, No. 40, Strand, where is being held an exhibition of photographs illustrating the recent visit of their Royal Highnesses to India.

THE new premises of Mr. F. H. Fry, the well-known enlarger at Frisian House, 5, Highbury Grove, London, N., are shown in the



accompanying photograph. Mr. Fry has installed the most complete plant for the production of enlargements and other trade work.

THE West of England Manufacturers and Industrial Exhibition to be held at Plymouth in October and November, includes a photographic section in which prizes and medals are awarded. The prospectus is obtainable from the Secretary, A. D. Breeze, 41, Union Street, Plymouth.

**THE FINGER PRINT SYSTEM IN GERMANY.**—The "Times" reports some interesting statistics illustrative of the efficacy of the finger-print system in detecting criminals in Germany. By means of a collection of 65,948 impressions some 3,000 persons were identified during 1905, a result comparing very favourably with that obtained by the old-fashioned system of relying upon photographs, since a collection of 27,050 portraits, consulted in 1,716 cases during the year, enabled only 145 criminals to be recognised. The unerring accuracy of the more modern method seems to be recognised by the law-breakers themselves, for it is stated that in many instances in which a false name had at first been given the mere production of the apparatus was sufficient, before any impression had been taken, to lead the suspects to abandon their efforts at concealment and to confess their identity.

"THE Morning Post" warns its readers of the circulars sent out by Tanqueray, of Paris, offering a "free photo-enlargement." Letters of victims continue to reach the "Morning Post," and it is therefore well to repeat our contemporary's repudiation of a testimonial issued by Tanqueray in the shape of a letter by "Lindfield Brookes," purporting to have appeared in the "Post." These flights of fancy are what we are accustomed to from M. Tanqueray, and we should have thought that all our readers, at any rate, would have taken them at their proper value, i.e., nothing. Yet only a few weeks ago a gentleman asked us to publish his indignant protest that "Truth" should grant its support to the Parisian frauds. Apparently M. Tanqueray's colossal bluff is gulped down by people who ought to know better, yet it is surprising that any person should exist blind to such frauds.

**THE R.P.S. FELLOWSHIP.**—The following have been elected Fellows of the Royal Photographic Society:—F. Martin Duncan, Harold Hood, C. G. Zander, and G. H. Crabtree.

**SUICIDE of a Photographer.**—Mr. Fred Good, photographer, Burton-on-Trent, died at Rugeley last week from poisoning. The deceased, who was well-known throughout Staffordshire, was on a cycle tour when he purchased some perchloride of mercury, stating that he wanted it for photographic purposes. He went into a restaurant, and after breakfast he told the proprietor's wife he had



taken poison and asked for a doctor. He had suffered from nervousness, and left a note stating "Like a decayed tooth, he was best extracted."

**THE Artistic Copyright Society.**—This society, of which Sir Lawrence Alma Tadema, R.A., is president, have just issued a circular from 39B, Old Bond Street, W., in the course of which they say that the energies of the committee have been fully occupied with the consideration of the new Artistic Copyright Bill, and with corresponding or conferring with members interested in special points dealt with by its provisions. At the recent annual general meeting Mr. Edwin Bale made a short statement as to the position of the Bill, and explained that, with the exception of three points, the requirements of the members of the society and of those interested in copyright had been reconciled. Those three points had still to be considered; but only one of them was of the first importance. That was a question between the Artistic Copyright Society and the Newspaper Society, as to dealing with sketches sent to illustrated papers. A conference had been suggested between the two societies, and as the members of both were anxious to arrive at a satisfactory solution, it was hoped that very soon the point would be settled. The Bill is now in the hands of Mr. Scrutton, K.C., for final revision, and as soon as this is completed, copies will be circulated among the members.

The above paragraph from the "Times" of Tuesday last no doubt represents the tenour of the circular issued by the Artistic Copyright Society, which body, we can easily suppose, is satisfied with the Bill as it now stands. But unless very material changes have been made in it since we reviewed its terms in our issue of January 19 and February 2 last, we do not anticipate any support of the Bill in Parliament, and we certainly do not envy Mr. Scrutton his task of "finally revising" the tangle of ambiguities and contradiction which, as we have shown, crop up in almost every clause of the Bill.

The competition arranged by the Birmingham Photographic Company, of Stechford, for prints on "Criterion" paper is booked to close on July 15, and is already being largely responded to by amateurs workers. Dealers about to stock the firm's productions should consider the present time a favourable opportunity.

**THE Word "Photography."**—Those who read Dr. Murray's criticism of the writings of certain photographic historians will be interested to hear that the forthcoming portion of the Oxford Dictionary is a double section, and takes Vol. VII., O-P, as far as piper. Dr. Murray notes that the group of photo-words are with difficulty compressed into fifteen columns, and number no fewer than 240, all except three being of the nineteenth century, and all except six, consequent upon the introduction of photography in 1839.

**THE Norwegian Coronation.**—Mr. Robt. W. Paul informs us that his operator has gone over to Norway to procure animated pictures of the Coronation of King Haakon, which takes place at Trondhjem on Friday, June 22. Special facilities and unique positions have been granted to him, and, weather permitting, it is hoped to secure an unparalleled series of pictures of this function.

## Commercial & Legal Intelligence.

**COMMERCIAL Photo. Company, Limited, Staveley, Westmoreland.**—Debenture registered May 29, for a sum not to exceed £2,000; charged on the uncalled capital and the assets.

**SALE of Improper Postcards.**—The Preston Borough magistrates last week made an order for the destruction of 942 improper postcards seized upon the premises of R. C. Elliott, Moorlane, and ordered the detention of twenty others in view of possible further proceedings. The defendant pleaded that he thought he was keeping within the law. A great many of the postcards were actually copyrighted, and their sale in Blackpool, Manchester, and other places had not been interfered with. The Bench, however, considered the whole of the postcards were improper.

**A MIDLAND Bankruptcy.**—The affairs of Arthur Henry Seeley Draycott and John Arthur Draycott (trading as the Draycott Gal-

leries), photographers and dealers in works of art, carrying on business at 138, The Parade, Leamington, and also at 64 and 65, New Street, Birmingham, came before the first meeting of creditors' week at the offices of the Official Receiver (Mr. A. S. Cully), debtors ascribed their failure to "loss with Draycott (Limited), with shares, heavy expenses, and want of capital." John Arthur Draycott commenced business in 1881 as a photographer at Sun Coldfield. He was without capital, and after trading for about 10 years he executed a deed of assignment, his liabilities amounting to about £200. A dividend of 6d. in the pound was paid. In February, 1901, when he was trading in Walsall, New Street, Birmingham, Northampton, and Leamington, he transferred the assets to a company called Draycott (Limited), which was formed in that year with a nominal capital of £20,000. The company undertook to take over the trade liabilities, and the debtor received 8,995 shares, giving him an undertaking not to trade within one hundred miles of the town mentioned. Shortly before the date the debtor lost £1,675 through the failure of a cycle company, and he had to borrow money to discharge certain guarantees that he had given on behalf of the company. He remained with Draycott (Limited) as managing director until November, 1902, when a receiver for debenture holders was appointed, and the estate was realised on their behalf. In July, 1905, the debtor made arrangements with his son, Arthur Henry Seeley Draycott, who was a photographer's assistant, to purchase the business at 138, The Parade, Leamington, and they commenced trading there, under the style of the "Draycott Galleries." The business was managed by John Arthur Draycott, and his son was engaged in a situation until November, 1905, when he went to Leamington to assist his father. Shortly before that date a branch shop was opened at 64 and 65, New Street, Birmingham. On March 2 last a deed of assignment was executed by Arthur Henry Seeley Draycott, and Mr. J. W. Blackham was appointed trustee. The landlord distrained at the Leamington shop for arrears of rent, and sold on April 21, realising £15. The unsecured liabilities include £780 ordinary trade debts, £110 charges, and £3 3s. auctioneer's costs. The case being a summary one, the Official Receiver was constituted trustee.

**BANKRUPTCY at Torquay.**—A meeting of creditors of Alfred Richmond Maytum, living at Formby Avenue, and carrying on business at 2 Abbey Road, Torquay, as a photographer, was held on June 14 at the offices of the Official Receiver (Mr. A. E. Ward), at Exeter. The debtor's statement of affairs showed that there was owing to twenty-two unsecured creditors £245 16s. 6d., and to one creditor fully secured £900. The assets were estimated at £41 16s. 10d., leaving a deficiency of £204 16s. 10d. The cause of failure alleged by the debtor was "misrepresentation of the value of the business at Torquay purchased by me in October last. I attribute my insolvency entirely to this." The Official Receiver, in his observations on the case, stated that the debtor filed his own petition in consequence of judgment against him for £50 and costs. He had been in business as a photographer for the past thirty-five years, starting first at Ashford, in Kent, with practically no capital. In October last he purchased his present business at Torquay for £170, on a representation, as he says, that the net profits of such business were £425 per annum. At this time he appears to have had liabilities amounting to about £20, and a capital of £40 in cash, being the balance of sum of £200, for which he had, twelve months previously, sold the photographer's business at Worcester. Sixty pounds was paid to the vendor at the time of the purchase of the Torquay business, of which £50 had been borrowed by the debtor from a relative for the purpose. To secure a portion of the balance, the debtor gave two bills of £50 and £33, maturing respectively in March and October, 1906. In March last the debtor was sued on the first-mentioned bill by a Mr. Banner, with whom the bill had been discounted. The action was defended on the ground that no value had passed from the original holder of the bill to Mr. Banner, but judgment was ultimately given against the debtor with costs. The latter amounted to £33, but have not yet been taxed. The usual order was made. The public examination of the debtor subsequently took place before the Registrar, Mr. J. E. Daw. Replying to the Official Receiver, the debtor said his receipts from the business did not average £3 a week, out of which he paid two assistants' wages, house rent, rent of shop, and had to live. He had sold his interest under his mother's will. Questioned by Mr. McIntyre, of London, for creditors, debtor admitted

letter he wrote to the person from whom he purchased the business to the effect that some money was due to him under all of his mother, and that a quarter's instalment was not quite. He considered a monstrously excessive value was put on the business. It was not correct that he never intended to pay Ackland. Mr. Easterbrook, representing debtor, produced two which were handed over by Mr. Ackland when business was used. Debtor said that he did not know one of the customers names appeared in those books. There was not a single address any of them. The entries were not made by Mr. Ackland's keeper, who told him she knew nothing of them, except an at the end of the second book, which she said was made at Mr. Ackland's dictation. The balance-sheet which Mr. Ackland showed when he was treating for the business showed receipts for the £660. Debtor's first week's takings, after paying certain expenses, was 9s. The examination was concluded. A public examination of George William Austin, photographer, 19, Highbury Place, Islington, N., took place at the London County Court on Wednesday, the 13th inst., before Mr. Justice Giffard. The statement of affairs filed by the debtor showed gross liabilities amounting to £629 15s., of which £505 15s. were due to unsecured creditors. To partly secured creditors £68. the value of the securities being estimated at £60. The liabilities expected to rank against the estate for dividend returned at £514 10s. The assets were estimated to produce £7s. 6d., from which £55 5s. had to be deducted for the claims of preferential creditors payable in full, leaving nett assets at £2s. 6d., and disclosing a deficiency of £450 7s. 6d. The nation was ordered to be closed, Mr. Derham, who appeared for half of the debtor asking no questions, and no creditors were present.

## Correspondence.

Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given. We do not undertake responsibility for the opinions expressed by our correspondents.

### A NOTE ON THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—Will you kindly allow me to correct an error which I made in my last week's letter on this subject?  
 $Y_2 = 4 + Y_1 = 2$  should read  $Y_2 = 4$  and  $Y_1 = 2$ .  
 $Y_2 = 2 + Y_1 = 1$  should read  $Y_2 = 2$  and  $Y_1 = 1$ .  
 $Y_2 = 1 + Y_1 = 0.5$  should read  $Y_2 = 1$  and  $Y_1 = 0.5$ .  
 Yours truly,  
 ARTHUR PAYNE.

### THE STATE OF WINCHESTER CATHEDRAL.

To the Editors.

Gentlemen,—The tone of the letter by Mr. F. A. Bridge is exceedingly amusing; doubtless it was intended as such. The point in question is:—I have been incorrectly informed as to the condition of Winchester Cathedral, and these misstatements have been corrected. I should end the matter; but Mr. Bridge opens up quite another line in attacking me as "one of those non-members who are good enough to make suggestions re the management of the Photographic Convention." It so happens that at the special request of the President of the Photographic Convention, I have supplied photographs of Winchester, and illustrated books for his personal use, and it has been a pleasure for me to have been of use to him. I will have Mr. Bridge to digest this little fact, and perhaps before long I shall have professional men again he will be sure of his ground. Yours truly,  
 ALBERT GANDY.  
 I delete from Mr. Gandy's letter a quotation from a private letter, which appears to us irrelevant to his subject. We have done our part in allowing our correspondents to state the facts as they saw them. Winchester Cathedral in correction of the information we first gave, we must now decline to admit the prolongation of a discussion which has become a personal one.—Eds. B.J.P.]

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.O., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- A. Wrigley, 46, Forest Road, Southport. Photograph of Boarding Scholars of the Southport Modern School.
- J. Jackson, Seaton Carew, Aberdare, Glamorgan. Photograph of St. Michael's College, Aberdare.
- W. Richard, Honey Street, Bodmin, Cornwall. Photograph of Mr. R. Johns, of Tywardreath.
- F. T. Taylor, Paternoster Buildings, Castle Square, Carrarvon, North Wales. Photograph of the Rev. E. W. Jones.
- C. H. Evans, 12, St. Helen's Road, Swansea. Photograph of H.M.S. "Montague" on Shutter Rock, Lundy Island.
- J. H. Bayley, 44, North Street, Ripon, Yorks. Two Photographs of the Bishop of Knarborough.
- P. and B. Clifton, Garrison Studio, Newbridge, County Kildare, Ireland. Photograph of Drummer and Drum Horse, 19th Hussars.

F. H.—We congratulate you. You will see we refer to the matter on another page.

ARC-LIGHTS.—Kindly oblige by advising me on the following. I have an electric light studio 13 ft. by 14 ft. and 10 ft. in height (floor to ceiling). The walls and ceiling are papered white. I am using a Davey arc-lamp fitted in an umbrella reflector (the reflector being 4 ft. in diameter). The light seems to be rather nice and soft, but still I find that all the negatives are very unsatisfactory; each one appears to have an electric light glare about it. Should the walls be white, or some other colour? Is a Davey arc-lamp suitable for portraiture? I find, also, that I cannot take a full-length photo with a 6-in. lens on account of the room being so small. What lens would you advise, as I require a lens to cover a half-plate, and I find that I can only get 8 ft. 6 in. away from the sitter? I must have a lens suitable for full lengths. Your prompt attention to the above will greatly oblige.—W. E. J. W.

The Davey lamp is suitable for portraiture, and should give ample light in a small studio. The size of the umbrella-shaped reflector (4 ft. in diameter) is rather small. It is difficult to say what is the cause of the "electric light glare" you speak of, in the absence of any specimens of your work. It may be caused by insufficient diffusion of the light or by too much reflected light, or by under exposure. White walls are not so suitable as light grey, and you would have the reflected light more under control if the walls were papered a medium grey, and a large reflecting screen were used. The amount of reflected light required varies with the sitter and the style of lighting. You cannot expect to get full-length cabinets. The perspective would be horrible. See under "Ex Cathedra."

SHOP FRONTS.—I have orders to take several shop fronts, but cannot do so, as there is always reflections of opposite shops. Can you tell me a way to stop this? Blocking out is useless. I have thought of having large black curtains, hung on a tripod stand, and a hole for lens. Would this do?—SHOP FRONT.

Usually it is not only the lens, but bright objects in the roadway and across the street which are reflected. The back screen is the best plan if you can get one big enough. We have used one 12 ft. square for this class of work, spreading it out on two 12 ft. poles behind the camera, the bright parts of which were draped. If such a screen will cut out the objects which are reflected, well and good. If not, we suggest that you try flashlight exposures at night if the position permits.

SULPHIDE TONING OF P.O.P.—I am using the ammonium sulphide toning bath for P.O.P. Do you consider the results as permanent as sulphided bromides or as the plain fixed P.O.P.? I find a



difficulty in getting other than a warm tone with the sulphide on P.O.P., as when I continue toning the whites get yellowed slightly, and the print gives the effect of sulphur toning. The water here is very "hard." Would that be the cause? I want to get reasonably permanent prints, but the margin of profit is so cut down here that one has to take advantage of every possible chance of saving. I like the warm tone I get, but some people ask for a colder colour, and the article on P.O.P. mentioned a very cold tone.—D.B.

We believe the prints are equally as permanent as those fixed only, but we should assume that the bleaching and darkening process adopted for bromides will give a more lasting result than that obtained with P.O.P. by the ammonium sulphide process, for the reason that the change is partial in the latter case and complete in the former. Most probably the hard water is the cause of the yellowing from the formation of sulphide of lime which is less soluble, and afterwards decomposes in the film. Try with distilled water for the bath and the first wash water afterwards.

**STUDIO BLINDS.**—A little while ago you very kindly gave me advice about studio erection, and in answer to my query re blinds for top you recommended a light green. My studio face (almost) north, but perhaps it is owing to a fair amount of glass roof. Will you be kind enough to tell me if the enclosed material would answer my purpose to produce the subdued light?—STUDIO ERECTION.

The colour is very suitable, though we should prefer a material with rather closer texture than that of the sample sent.

**ILL-EFFECTS OF METOL.**—Would you advise me, through the B.J., what I could get to prevent my hands developing into sores. I use a great deal of metol developer, and I think that is the cause of it. I have tried several remedies without effect.—WILL TAYLOR.

There is very little doubt that the metol is the cause of the trouble. Many who employ it suffer in the same way as you do. The only certain remedy is to cease to use it, and then the sores will soon disappear. If you still continue to employ it you had better work in finger stalls, or India-rubber gloves, so as to prevent the metol coming in contact with the flesh. Lanoline applied to the sores acts as a palliative in some cases.

**STIGMAT.**—A lens of about  $f/6$  aperture of focal length capable of taking the negative in the first instance is about the most suitable for making enlargements from that negative. Hence the lens suitable for all sizes of negatives would have to be of very considerable focal length, so long, indeed, that the camera extension would be unnecessarily and inconveniently great for small work. The same objection applies, but not with such force, in regard to the use of one lens only for copying.

**VARIOUS.**—1. Is there any journal of cinematography; if so, where could I get same? 2. Also, will sulphide of potassium throw down silver in hypo that has been made up with citric acid and sulphite of soda. I should feel greatly obliged if you would answer this through your journal.—E. L. BARNES.

1. Such a journal is, or was, published by Mr. Theodore Brown, Bournemouth. See our note this week under "Catalogues." 2. Yes, the silver will be precipitated as sulphide.

**POSTCARD.**—1. The white spots are rarely the result of defective manipulation. We should take up the matter and that of the setting-off of the printing with the makers. The latter is certainly due to defective manufacture.

**BROMIDES.**—1. In a reply you gave in the last issue you stated that meta-bisulphite was preferable to use to add to hypo bath for bromides (amidol developer). Will you kindly state why, also proportion to add, etc.? 2. And can you mention a really good book on bromide work only, as a reasonable price?—E. J. M.

1. The metabisulphite is better, as it does not endanger the decomposition of the hypo as does a bath of acetic or citric acid, traces of which may be left in the print when it passes to the fixing bath. The quantity of meta-bisulphite is not very important. About half to one ounce per pint of fixing bath, containing three ounces of hypo. 2. The only books are: "Bromide

Enlarging and Printing," by S. H. Fry (6d.); "Bromide Printing," by Rev. F. C. Lambert, and two books on toning bromides by C. W. Somerville and R. E. Blake-Smith respectively. 3. Fallowfield, 146, Charing Cross Road, London, W. A. B.—We cannot understand how 12lb. of paper can yield 1 lb. of ash. We could not say what weight of silver was present without an analysis. Perhaps the makers of the papers can give you a rough idea.

**A COUPON QUERY.**—I should like your advice on the following. I sent out a canvasser (no wages, only commission) to coupons the same as enclosed, and it appears he went into a firm in —, and they stamped all my print coupons with their own stamp, so that the canvasser could sell them in their district, and so get customers on my ticket. I should be pleased if you could let me know what action I could take against them. I have written them twice, but they have ignored my letters: Your advice on this matter will greatly oblige.—M. B. O.

We do not see that you can do anything. As the coupons were stamped with the consent of your canvasser you cannot make any claim against the firm.

**BEGINNER.**—We believe the print to be on collodio-chloride paper, toned first with a gold bath and then with platinum, as given in the Almanac, 1906, p. 976. Any collodion P.O.P. will answer. **POSTCARDS.**—The stains are due, we believe, to insufficient fixation. Fifteen to twenty minutes is none too long for cards. There is no possible way of removing the stains.

**N. M.**—Insufficient fixation with subsequent light action, or the use of an old fixing bath, particularly one that has been used for developed plates or papers, would at once cause the stains. Occasionally, similar stains are due to allowing the cards to lie on top of the other in the first washing water, and then a preliminary bath of a 10 per cent. solution of common salt will obviate them.

**SELF-TONING PAPERS.**—Will you kindly inform me if I can with safety use self-toning paper for ordinary photographic work, i.e. will it keep colour as well as toned paper? I use the Lux paper, but for unpaid proofs only. It gives beautiful sepia prints and if it will keep colour it would save a lot of time.—J. M. I. Treated with proper precautions there is no reason why prints should not be permanent. The fixing bath should be slightly alkaline, and the prints are all the better for washing before immersion in it. We advise you to select a paper with which these conditions can be observed.

The Bristol Photographic Club.—No. 2 of this club's monthly magazine reaches us, and contains, we see, an article upon "Artistic Perception," by Mr. Alex. Keighley. It is intended to follow this up by a series of articles from other well-known workers.

An exhibition of photographs of Switzerland by Dr. O. Thurstan Holland has succeeded the house exhibition of Herr Dührkoop's work at the Eberle Street Rooms of the Liverpool Amateur Photographic Association. It will remain open until July 3. Dr. Holland brings together sixty-five examples of his well-known work in Alpine photography, and exhibits also 150 lantern slides. The next house exhibition of the Liverpool Association will be of photographs by Mr. C. F. Stuart.

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## SUMMARY.

First Division of the Court of Session last week recalled judgment of Lord Ardwall, and awarded Mr. William Crooke, Edinburgh, £5 damages against the Scots Pictorial Publishing Company for publishing without leave in "The Society Pictorial" a portrait of the late Sir Henry Irving; but, inasmuch as the defenders had tendered £20, the pursuer was found liable in expenses since the date of the tender. (P. 510.)

The death roll this week includes Mr. A. H. Wall and Mr. J. ... (P. 512.)

Manly's new process ("Ozobrome") of producing carbon prints from a bromide image is described in the patent specification. (P. 513.)

The inability to see the plate on first coming into the dark-room ... (P. 502.)

Colour Photography.—Dr. Albert Norman has communicated to R.P.S. his working methods in making transparencies by the Sanger-Shepherd process. (P. 506.)

Colour Photography. — Herr Novak, of Vienna, has published ... (P. 505.)

The sulphide toning of P.O.P., advanced by some for its cheapness, is shown to be of very doubtful advantage in this respect. (P. 503.)

The advantages of, and apparatus for, wholesale development. (P. 501.)

A method of dealing with negatives which conform fairly closely to an average, is recommended by a contributor, and consists in ... (P. 504.)

We publish the continuation of the papers by Mr. N. S. Amstutz on the properties of engraved half-tones. (P. 507.)

## EX CATHEDRA.

### A Single-Picture Exhibition.

The Professional Photographers' Association have in course of organisation an exhibition something on the lines of that held by the Professional Photographers' Society of New York, of which mention has been made several times of late in our columns. The exhibition will consist of a number of prints, each representing the work of one photographer's establishment, and thus enabling those visiting it to compare notes with their fellows as to what may be done in the presentation of a commercial photograph. The exhibition will be held in the small gallery at the office of "The British Journal of Photography," from October 11 to November 11, that is to say, for a great part of the time during which the Royal and Salon Exhibitions will be open in London. While it will be composed of work by members of the P.P.A. it will be open to all photographers and to the public generally.

### Plate Development in Batches.

As his business increases, the progressive professional finds out that the development of plates singly or in pairs is too slow a method of working, and results in too much time being spent in the dark-room, and too little in contact with clients or in business-making. The development of plates singly also conduces to irregularity or inequality of result, and where exposures are made with reasonable accuracy much more uniform results are obtained by wholesale development. This may be done in various ways. Developer may be placed in a porcelain grooved tank, but we have found that unless very dilute there is a great risk of uneven development, and as dilute developer means prolonged development this method is put out of court. An alternative is to place the plates in a number of small dishes, the dishes resting on a large board operated by a rocking device. This method ensures freedom from damage by one plate slipping over another, but it means covering each plate with developer separately, and the wave of developer caused by rocking is steadier in one large dish than in many small ones. To develop a dozen or more plates in one dish necessitates that the dish shall have a glass or flat wooden bottom or the plates slide over each other, and while this may be at once remedied with ordinary plates, if highly sensitive orthochromatic plates are employed it is not possible to see what is happening, as the dish must be kept covered. From the glass bottom it is difficult to pick up the plates when ready for fixation; the dish is also heavy and liable to breakage, so that in many ways wood will be found superior.

### Wooden Developing Dishes.

For convenience in handling a well-constructed wooden dish is probably superior to anything. It should be constructed of straight-grained, well-seasoned wood. Yellow



pine answers well, but is rather soft, and any strain on the joints is apt to compress the wood slightly and so give rise to leakages. Straight-grained mahogany may be used, at any rate for the sides. Grooved joints are preferable to dovetails for the corners, and every joint should be perfectly tight-fitting and the wood quite dry before joining up. When glued and screwed with brass or copper screws the wood may be saturated with paraffin wax, ironing in the wax with a warm flat iron. If difficulty is anticipated with plates sliding over each other during development the dish may be divided up by means of wooden pegs projecting about three-eighths of an inch. These pegs may be arranged so that two come at the side and two at the end of the half-plate. If slight depressions are made in the bottom of the dish, one for each plate, the finger is able to lift the plate more quickly, and there is not the danger of the sharp corner cutting into the skin as it sometimes does if the nail is reasonably short. The disadvantage of the pegs, which, of course, are glued into position before waxing the tray, is that they limit the use of the dish to one size of plate, but this is a disadvantage which always attends the use of any specialised apparatus.

#### The Crooke- Irving Case.

Photographers will congratulate Mr. William Crooke, of Edinburgh, on what is virtually a reversal of the judgment against him almost exactly twelve months ago. The revised judgment is important as regards copyright in photographs, because, in the course of it, it was made clear that a number of photographs may be taken of a person at one sitting arranged by a third person, and copyrights in certain of them are obtainable by parties other than the party arranging the sitter, provided that the photographer be paid in respect to these photographs. Such a possibility is a perfectly natural one, and there is nothing in the Copyright Act to prevent it, but the suggestion in Lord Ardwall's judgment a year ago was that Mr. Shorter was *prima facie* entitled to all the portraits taken at the sitting, unless it could be shown that Mr. Shorter or Sir Henry Irving agreed to any of the photographs becoming the copyright of the photographer.

#### Factorial Development.

We recently published an article by Mr. A. Lockett which showed that the personal error in working the factorial system is very slight, provided the "dark-room" is well lighted. There is, however, a source of error not mentioned in the article, that forms an insurmountable difficulty to many who work under the conditions that have normally to be put up with. A correspondent writing to us on this subject says:—"If I make an exposure by daylight, and then proceed to the dark-room to develop the plate, I find it not merely difficult but quite impossible to judge the time of appearance. The light I use is a flat flame gas jet behind two thicknesses of ruby medium of 10in. by 8in. area. When accustomed to the light I can see easily enough, but when I come in from daylight, the first plate that I develop is practically invisible while in the developing dish. The second plate is more easily seen, but I can never venture to judge the time of appearance from it. Any attempt to do so only leads to a series of false alarms which are terminated by the sudden discovery that the image is fully out. When I arrive at the third plate I can observe the time of appearance with considerable accuracy, but, by this time, the first plate dealt with is sufficiently fixed to bear examination, and if this proves to be satisfactory I simply proceed on the same lines with the rest of the exposures, and do not worry about time of appearance at all. As most of my development is done in the daytime, immediately after the exposure, I am seldom in a position

to employ the factorial system at all, and probably many others have the same difficulties to contend with. Possibly the time required for the eyes to become accustomed to the red light varies with different people, but it is evident that there is a certain period (about ten minutes in our correspondent's case) during which the estimation of the time of appearance is either impossible or unreliable. There is a very probable source of error here and while it may be eliminated by waiting in the dark room until the eyes become acclimatised, we should prefer to spend the time in development and risk spoiling a couple of plates. These are developed for a fixed time, and ten minutes we can judge from the first plate whether the time is correct or not, and then proceed with the rest accordingly. Those who develop only at night, or who spend all their time developing, can, of course, use the factorial system without difficulty, but those who work under the conditions we have considered should always bear in mind the possibility of error from a cause which we cannot remember to have been noted by Mr. Watkins or any of his converts to factorial development.

#### The Surface of Portrait Photography.

Quite apart from questions of likeness, light and shade; contrast or brilliant or pose and general arrangement, the factor in the appreciation with which professional work is met is found in the surface of the photograph. This naturally varies somewhat with the class of customer, but the size of the portrait, but, generally speaking, it may be found that the public taste runs to a semi-matt surface. To a great extent this quality of surface is the reason for the popularity of matt collodion papers and of some of the newer gaslight papers. It is the experience of some professional workers that the A.A. platinotype paper does not possess a sufficiently smooth surface, and they use such prints through a burnisher slightly warmed, so as to assist in straightening the cards. To many, of course, one of the charms of either smooth sepia or black platinotype is the velvety character of the surface, and care should always be taken to ascertain, not necessarily by a direct question, which kind of surface is preferred by customers ordering platinotypes. With carbon there is the choice of double transfer from the ground opal surface, or from a flexible temporary support, and of single transfer on almost unlimited selection of papers. From an artistic point of view the single transfer surfaces are most pleasing, and next to these the flexible support, the prints being wetted after trimming, so that the glaze is almost lost except in the shadows, where it gives a richer effect. Carbon prints, especially if dark, when stripped from ground opal glass tend to have a heavy or leathery appearance in the shadows. This depends to some extent, it is true, upon the character of the negative, particularly in the matter of shadow detail, but it is always a danger to be guarded against.

#### The Convention.

There is little more to add to the notice of the Photographic Convention of the United Kingdom which we have published during the past few weeks. We hear that a contingent from Paris is coming to Southampton, and that so far as the United Kingdom is concerned the attendance promises to be the largest for some years past. As befits its venue in such a yachting centre as Southampton, the Convention, it is understood, will not encourage, in fact it will discourage conventional hot town attire of the frock coat and the tall hat. Cool summer clothing such as the tourist dons for his comfort in hot weather will be adopted, it is hoped, at ordinary meetings of the Convention, the dinner of the Wednesday being the only occasion when "dress" is

rigueur. This notification of what we believe is the  
ing and intended practice of many Conventioners may  
haps be welcomed by some as saving them anxiety in  
cting their wardrobes.

w Our  
rders  
rk!

Photographers who are trying to raise  
the tone of their profession must have  
felt disgusted with a paragraph which  
at the round of the press last week under such headings  
"A Photographer's Pillory." It recorded the act of  
photographer in the Home Counties towards a sitter  
alcitrant in the matter of payment. The photographer  
hibited in his window a photograph of the young man,  
aching to it the inscription:—

THIS IS THE MAN WHO PUT HIS HAIR IN CURLS TO HAVE  
HIS PHOTOGRAPH TAKEN, AND THEN CAN'T PAY FOR THEM."

spite the grammatical evidence in its favour, we were  
otant to credit the incident as related in the news-  
pers, but on inquiry we find it correctly described. We  
e further discovered that the photographer is, or was,  
arpenter, a fact on which he may congratulate himself,  
his craft in working wood may shortly afford him the  
ans of livelihood when the opportunities of engaging  
a more cultivated profession have been withdrawn. We  
afraid the entrance of artizans into the "photographic  
fession" is attended with even worse results than might  
expected, not to say hoped. The case of an individual  
o followed the vocations of photographer and sweep  
res elsewhere in this week's Journal.

## SULPHIDE TONING OF P.O.P.

Readers of our "Answers to Correspondents" columns  
y have noticed, there is frequently manifested on the  
rt of our inquirers the desire for a process of toning  
ich dispenses with gold chloride or other expensive  
stance. Candidly, we are not at all in sympathy with  
h methods, for we have reason to distrust if not to  
ay the claims which have been made from time to time  
"goldless" toning preparations. "Sulphur toning"  
n an acidified solution of hyposulphite—stands self-  
ndemned, in our experience, as a method of producing  
nts which will last, though we occasionally hear of  
se who do not share this view. A letter in our pages  
ly a few weeks ago is an instance. Our object now,  
wever, is not to refer to "goldless" processes in general,  
t to that in particular in which the toning is done with  
sulphide.

In the early days of silver printing the toning bath  
quently employed was an acidulated solution of hypo,  
o which the prints were immersed with or without wash-  
g; the result was actually that the prints were toned  
th sulphur or sulphide compounds. The process did  
t give permanent prints, and there was considerable loss  
intensity.

Hardwich, in 1856, was one of the first to investigate  
e action of ammonium sulphide on fixed silver prints,  
d he stated that the brick-red image turned first brown,  
n brownish black, and finally pale yellow. Sutton, in  
67, also investigated the subject. He described the same  
anges, and expressed the view that as the whites kept  
re this was a proof that there was no silver left in the  
ites of the image, a view which was combated experi-  
mentally by Carey Lea.

Quite recently there has been a recrudescence of the  
ea of utilising the action of a sulphide as a toning agent.  
his may be due to the fact that the sulphide toning of

bromide prints has been brought so prominently to the  
front, or, as indicated by a query in our last issue, it may  
be the direct result of keen competition and cut prices.  
At any rate, the practice of applying to P.O.P. a process  
which has proved extremely valuable in the case of  
bromide and gaslight prints has evidently been on the  
increase of late, and we have made a few experiments  
to determine as far as possible the safest procedure to  
adopt.

We may assume that the particular sulphur and silver  
compound which should be formed is the well-known mono-  
sulphide  $Ag_2S$ , which is of a brown or blackish-brown  
colour, and is, as prepared by chemical precipitation, a  
most stable salt. It can be formed by the action of a  
sulphide on metallic silver. There are, of course, many  
other sulphides and oxysulphides of silver, all of which  
are very unstable and easily decomposed by the action  
of damp air and light. The formation of these must be  
as far as possible avoided, therefore the very first thing  
we have to do is to ensure that our print contains no  
disturbing compounds. This is not such a difficult matter  
to do, provided we set about it in a systematic way.

The prints should be immersed in a solution of salt  
and water, so as to convert the whole of the soluble silver  
salts into chloride, then thoroughly washed to free them  
from any acid or acid salts used as a preservative for the  
emulsion. In fact, the safest plan would be to use for  
the first bath a solution of salt and washing soda, and  
then wash thoroughly. Thus the print would consist of  
nothing but the light-affected silver salts and silver  
chloride in the vehicle.

Perfect fixation is a *sine qua non*. The fixing bath  
must therefore be freshly made—that is, must not  
have been previously used. The prints must be allowed  
to remain in this and kept continually on the move for  
at least a quarter of an hour, and then rapidly washed  
for a few minutes, and again immersed in another and  
fresh hypo bath, so as to ensure the perfect solution of  
the hyposulphites of silver. The prints must now be  
thoroughly washed, so as to entirely eliminate all silver  
hyposulphites, and they are ready to be toned.

There must be considerable over-printing, as not only  
is there considerable loss, particularly in the high-lights,  
but unless a fairly rich image is obtained rich tones are  
difficult to get, and this is apparently more likely to  
happen with some commercial papers than others. There  
is also another disturbing factor. In cases in which a  
tinted support was used the colour, by the action of the  
sulphide bath, was not only entirely bleached, but was  
actually converted in one case into a pale apple green.

The next point to determine was whether it would be  
possible to use sodium sulphide instead of the ammonium  
compound, as the former is more stable and equally as  
handy. In comparative experiments on prints on the same  
papers and printed under squares with densities ranging  
from bare glass to 3.01, that is, opacities from 1 to 1.024  
in geometrical progression, no difference could be detected  
in the action of the two sulphides except that the ammo-  
nium was slightly more rapid.

The amount of sodium sulphide that should be used is  
apparently dependent on the temperature of the solutions  
and whether distilled water is used or not. The average  
quantity is apparently about five grains to the pint. With  
this strength rich tones are obtained in from fifteen to  
twenty minutes. Quickening the action by increase of  
sulphide certainly produces blacker tones in the shadows,  
but the lighter half-tones assume an unpleasant greenish  
tinge, particularly with collodio chloride papers.

After the prints have been toned to the desired colour  
they have to be thoroughly washed, and here a little



difficulty was met with which may or may not be of importance. One of the most delicate tests for an alkaline sulphide is sodium nitro-prusside, which gives a magnificent purple colour with an alkaline sulphide. Prints washed in successive changes of water and in running water gave not the slightest trace of this colour when the drainings were allowed to fall into a test tube, yet a drop of the nitro-prusside solution gave a distinct coloration in the whites of the prints. As the solutions were made with distilled water, it at once seemed probable that the washing water, which was hard tap water, had precipitated some of the comparatively insoluble calcium sulphide in the film. This idea seems borne out by the fact that sodium sulphide added to the tap water gave in a very few minutes a very cloudy mixture, which rapidly turned yellow, pointing to the presence of some metallic impurity.

As to the subsequent action of precipitated calcium sulphide in the image-bearing film we are not prepared to speak definitely, but should it be harmful it would necessitate the use of distilled water for all operations, which would at once place this process out of court in comparison with gold toning. It might be used with ordinary water for very cheap work, the subsequent fate of which was not of the slightest moment.

Experiments were also made in which the prints were bleached with bromine water—also with ferricyanide and a halide—and then submitted to the action of sodium sulphide. We followed out, in fact, the process adopted in the sulphide toning of bromide prints. Others previously toned with gold, with platinum, and gold and platinum were also treated by the two methods, but with extremely unsatisfactory results in all cases. The tones

obtained were hideous, and verged on a dirty green sepia in the high lights and lighter half-tones and green blacks in the shadows.

The process as it is to be worked may thus be summarised:—

- (1) Immersion for ten minutes in salt, 1 oz.; soda carbonate cryst., 1 oz.; water, 20 oz.
- (2) Washing for fifteen minutes.
- (3) Fixation for fifteen minutes in hypo, 3 oz.; water 20 oz., made fresh, followed, as a safeguard, by a second fixation in a fresh bath for five minutes.
- (4) Washing for twenty minutes.
- (5) Toning in ammonium sulphide, 5 drops (or of sodium sulphide, 5 gr.); water 20 oz.
- (6) Final washing for fifteen minutes.

The conclusion to which anyone trying the process will come will probably be identical with our own, namely that simple treatment of the well fixed and washed print with sulphide is capable of giving very fair brown and purple brown tones, but that to produce these results uniformly the routine must be conducted with considerable exactness, and it must not be supposed that the process can be applied with equal success to all brands of P.O. Furthermore, each individual must consider whether, after all, the cost of the gold is such as to make the process worth while. Perhaps we do not appreciate as keenly as we might the need of cutting down every item of expenditure in cheap work—we certainly cannot sympathise with the production of work at these miserable prices—yet we doubt if the sulphide “gold-less” process is any cheaper in the end than orthodox gold toning, in its most commercial form, the combined bath.

## PRINTING BY PILOT.

The Americans have reduced labour-saving to a science, and are willing to accept any idea whether new or old so long as they can save time in working and incidentally put money in their pockets. The photographer is not behind the rest of his countrymen in this particular, and as he is more go ahead than his British cousin, he has many labour-saving dodges in his workrooms.

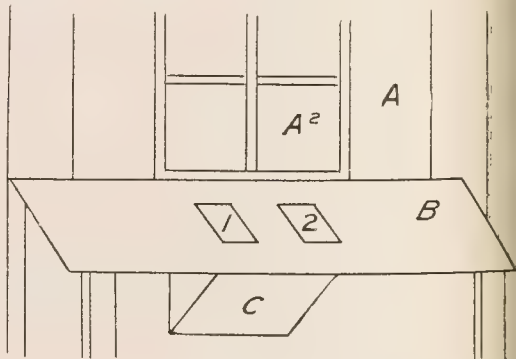
Dodges that have originated in the old country, and have perhaps been forgotten for a decade, are perfected and run for all they are worth in America. One of the best examples of this kind came before my notice some short time ago, and as it is very useful where large quantities of negatives are handled, it may be worth while describing it, and at the same crediting the old country where it was worked many years ago, and for all I know may be in use to-day.

With large quantities of negatives to be printed from, a great portion of the work lies in examining each print, perhaps two or three times, before it is ready to be taken in. If it were possible to use one negative as a pilot so that when this one negative was fully printed the whole batch could be brought in, it would mean a great saving of time and money. There are many difficulties to be faced, negatives having a way of being either too thin or dense, flat or brilliant; some taking a tenth of the time to print compared with another which might have been exposed on the same day under different conditions. The professional photographer, alas, cannot choose his time and light for his work, and even if he could it would be impossible to make every negative of a given density; therefore, if the mountain will not come to Mahomet he like a wise man goes to the mountain. Whilst admitting it is not possible to get all negatives of the same density a good operator will keep them within reasonable bounds and ingenuity will do the rest.

For printing by the method I am about to describe a special bench is required. It must be made at the side of the printing-room, as we shall require the use of a certain amount of daylight. Beneath it a hole about 2 ft. square is cut in the side of the printing-room

under the bench, and a reflector made of a few boards covered with white paper is fixed under the bench from the bottom of the hole to the front of the bench. Then in the bench itself, over the reflector, are cut two holes each large enough to take a half-plate. In these two holes we place two pieces of finely-ground glass, and our apparatus is complete.

The following drawing will perhaps make the explanation clearer.



A is the side of the printing-room, which should be lit by A<sup>2</sup> a window of yellow glass. B is the top of the bench. C is the reflector. 1 and 2 are the two holes.

The idea is to bring all the negatives for the day's work up to the densest, following the nautical maxim that the speed of the fleet is judged by the slowest ship. Therefore we pick out the densest negative to act as a guide or pilot. This we put over hole No. 1. We take the next negative of the batch, place it over hole No. 2, a

pieces of clear celluloid with which we have provided ourselves, we add piece after piece until the density of the pilot is equalized, and so on until all the negatives are brought up to equal density.

No doubt there is some careful judgment required to match the negative, but this is not an unsurmountable difficulty, and after little practice a practical printer will be able to tell without doubt how many pieces of celluloid are required.

There are no further difficulties to overcome. Unskilled hands load the frames and put them out to print. Care must be taken no time is lost in getting all frames out as near the same time as possible. All the foreman has to do is to examine the pilot negative, and when he considers that the print is printed to the right

depth all the frames are brought in commencing with the first frame that was put out.

The advantages of this method are many and obvious. One skilled printer and one or two apprentices could manage large quantities of frames with ease. The pilot print could be toned or developed, as the case might be, and correct printing assured before the frames were unloaded. For platinotype and carbon printing its value is increased tenfold. Flashing by exposure during examination would be obviated, uniformity obtained, and work carried out with clockwork regularity.

This is not theory, but a method that is in daily use, saving much needless work, and reducing the risk of uneven printing to a minimum.

W. E. DUNNE.

## FOREIGN NOTES AND NEWS.

### Rapid Filters for Three-Colour Work.

Professor Novak communicates to the current number of the "Photographische Korrespondenz" the following methods of making a set of rapid filters, using dyes prepared by Meister Lucius and Bruning:—

Rapid filter green ..... 1.75 gms.  
Water ..... 1.50 ccs.

In 100 ccs. of a 6 per cent. solution of gelatine add 20 ccs. of dye filter; of this dyed gelatine 7 ccs. should be coated on 100 sq. cm. glass, and two such screens cemented together. The stock solution of dye must be freshly prepared, for if kept it turns brown. The red filter is prepared as follows:—

Rapid filter red I. .... 1 gm.  
Water ..... 40 ccs.

In 100 ccs. of a 6 per cent. solution of gelatine add 20 ccs. of dye filter; of this dyed gelatine 7 ccs. should be coated on 100 sq. cm. glass, and two such screens cemented together.

Novak states that these filters approximately transmit 33 per cent. light than the old König filters, and that the ratio of exposures of a cloudy sky is as 1:2:2. The splitting up of the colours by new filters is said to be very satisfactory.

### A New System of Colouring Prints

Herr Pietzner, of Vienna, has patented a new process of colouring prints, and some results are very highly spoken of in the German papers. It can be applied to photographs on linen, ivory, paper, leather, porcelain and glass, and the results are said to be characterized by the wonderful fineness and fascinating effect, such as has not been attained by any other process. Apparently there are no practical difficulties, and the materials are shortly to be placed on the market.

### Three-colour Photographs of the Solar Eclipse.

Professor Mengarini, of Rome, took several negatives by the three-colour method of the total solar eclipse of August 30, 1905, and at a recent public lecture in Milan some of the results obtained were shown and created enormous interest. It is stated that the corona was shown in all its finest shades of colour.

A VERDICT of "Suicide whilst temporarily insane" has been returned at the inquest on the death of Mr. F. Good, of Burton, whose decease was announced last week.

MR. PETER MAWDSLEY.—The sum of £28 12s. 6d. subscribed almost exactly one year ago by a number of our readers in response to our appeal on behalf of Mr. Mawdsley has been handed on to the recipient by our publishers at regular intervals, the concluding instalment having been paid last week. In writing to acknowledge the receipt, Mr. Mawdsley asks us to transmit to those by whose kindness he has benefitted his heartfelt thanks. For the past two years he has been confined to his bedroom, but he is grateful to those who aided in relieving the conditions under which he is forced to live.

### A New Method of Photographing Coins.

Dr. E. Demole comments upon the usual method of obtaining good photographs of coins and medals, that is to take a cast, colour, and photograph it. He suggests the following method:—Place the coin or medal between two sheets of white glazed card, which should be very thin and dampened. The whole should then be placed between two pieces of thick felt and then subjected to strong pressure in a copying press. After a short time the impression of the coin is perfect. The impressions should then be lighted from one side and photographed not on to a plate, but on to smooth glazed bromide paper. The result is a negative, which is rather weak, but the reversed lettering is again reversed in the negative, and the side lighting having left the surface in comparative shadow, the face of the medal remains white or grey, as though all those parts in relief had not been illuminated, whilst the illuminated parts remain black. The result, although a negative, has all the characteristics of a positive. The lighting is certainly a little stronger and unnatural, but it is quite sufficient to give all the necessary details of the coins. The real negative is, of course, the impression on the paper, and the negative made by the lens is the positive. The catalogue of the coins of the Numismatic Society of Geneva, which number some thousands, has been illustrated by this process.

### A New Blue Toning Bath for Bromides.

ACCORDING to "Das Bild" the following modification of the ordinary method of toning bromide prints blue is said to give extremely brilliant results. Two stock solutions are required.

A. Potassium ferricyanide..... 8 parts.  
Water ..... 1,000 parts.  
B. Ammonia iron alum..... 10 parts.  
Hydrochloric acid..... 10 parts.  
Water ..... 1,000 parts.

For use mix—

Solution A. .... 100 parts.  
Solution B..... 200 parts.  
Water to..... 1,000 parts.

There is very little tendency to stain, and the shadows possess a transparency not attained by any other methods.

A NEW Professional Society in Philadelphia.—According to the "Photographer," at a meeting of the professional photographers held at the Phillips Studio, 1,206, Chestnut Street, on June 5, at 8 p.m., the Professional Photographers' Association of Philadelphia was formed. There were seventeen photographers present, all of whom joined the Association—and in addition there are a number of applications for membership. The following officers were elected:—President, Ryland W. Philips; Vice-President, William H. Rau; secretary and treasurer, H. Allen Krips.

PROFITABLE Photography!—A correspondent writes:—"I was shown some photographs this morning, taken by a photographer in North London. Six cabinets (P.O.P.), mounted, and a whole-plate enlargement on a 12 by 10 P.S. mount—2s. 6d. the lot."



## THREE-COLOUR TRANSPARENCIES BY THE SANGER-SHEPHERD PROCESS.

THE following is the report of the demonstration recently given by Dr. Norman before the Royal Photographic Society. It constitutes the most detailed and authoritative description of the method employed in preparing three-colour slides by the Sanger-Shepherd process of which we know. Dr. Norman, it would be seen, prefers to over-stain and then wash out the surplus. Any fine detail removed at the same time is restored by a brief supplementary staining. No better recommendation of this procedure can be advanced than the magnificent photo-micrographs in colour of Dr. Norman's, to which a medal was awarded at the St. Louis Exhibition.

Dr. Norman said he proposed to deal lightly with the negative and the lantern slide and to spend most of the time on the manipulation of the films, with printing, developing, staining, varnishing, and sealing the slide, and at the end he would show a few slides on the screen. As his methods of working were the same for outdoor or indoor work, he proposed to stain up a set of films in the way he was accustomed to do for photomicrography, and to make a specimen throughout. The subject he had selected was crystals of sodium carbonate. He chose that specimen because it was a good one on which to demonstrate registration of the three images. The specimen was photographed by polarised light, a selenite being used to show the crystals in colour, and with a strong light the exposure given was 25 seconds for the red screen, 1½ minutes for the green screen, and 30 seconds for the violet screen, and this was practically quite correct. He found the new plates supplied by Messrs. Sanger Shepherd and Co. very sensitive to red light, as was shown by the exposure given. He ordinarily used a ruby glass in the dark room lantern with gaslight, and working three feet away from the light he got no trace of fog whatever, but if the plates were held close up to the light the plate quickly fogged all over.

When dry he spotted the negatives if it was necessary, and after that he varnished them. The varnishing was an important matter, as it prevented injury in printing.

The next step was to make a lantern slide from the negative taken through the red screen, and that slide (in black and white at first) had to be converted into a blue colour by means of the solution supplied. He found that with an average negative an exposure of ten seconds at 2½ feet from a fish-tail gas burner would be about right. There was little to say about the slide except that it should not be under-exposed, as under-exposure was a cause of one image overlapping another. A correctly exposed slide should be full of detail and gradation. He had such a slide in his hand. When developed, etc., the slide was bleached in a solution of red prussiate of potash. It was then washed in water for ten minutes or until the slide showed no trace of yellowness, when it was ready to be converted to the blue colour, which was done by immersion in one part of the minus red solution added to two parts of water, and then it was placed in fresh hypo for one minute. The slide had to be washed for ten minutes, dried, and then varnished. A pink and a yellow film had then to be made from the negatives taken through the green and the violet screens.

### Timing the Printing of the Films.

These films may be obtained ready sensitised, and although they will keep a considerable time in the calcium chloride case it is advisable to use them whilst fresh, as after keeping them for only a few days in the case they will begin to get stiff. A sensitised film was placed in the dark room over the negatives in the printing frame, with the celluloid side to the negative, and as a guide to exposure, which is done in diffused daylight, a Chapman Jones Actinometer is found useful. Practically the only numbers used are the 1, 10, and 11. A piece of Solio paper should be used with the actinometer. The correct point at which to stop printing can only be found by experience. On printing the films the image will show only very faintly. The films are developed in warm water, ranging from a temperature of about 90 degrees to 105 degrees Fahr., the temperature depending a great deal on the solubility of the films. The work may be done in the dark room, brightly lighted by an orange medium window, or we may work in diffused light, such as is obtained by drawing down a dark blind in a room, or we may work by weak gaslight. Dr. Norman said he used a deep porcelain dish and filled it with water

at 105 degrees, and immersed the film, leaving it quite still for three or four minutes before examining. Plenty of time must be given to let the surface of the emulsion on the film show signs of solution. Directly the top layer of emulsion has given way we lift the film out and lower the temperature of the water to about 85 degrees, then the film is re-immersed, and if the emulsion continues to dissolve we know that development is proceeding all right. Presently we shall see the details more perfectly, but development must be carried on slowly to get the best results. At a later stage, instead of the emulsion running off with a creamy appearance it will look like milk, and later still the water draining from the film will be very nearly clear. If then the image is not fully developed the temperature must be raised by adding more warm water. It will then be found that the emulsion will again run off the surface till the image is completely developed. If the film is held over some dark surface every detail in the image can be seen. When development is complete the film is placed in a clean hypo solution, 1 in 40, until all the white bromide of silver has been dissolved out, when it must be washed in running water for about half an hour and hung up by clips to dry, or it may be stained at once. Dr. Norman preferred, as a rule, to dry the film first.

### Staining and Assembling.

In preparing to stain up, the first thing was to separate the two impressions, leaving sufficient margin, and in order to distinguish the films a corner should be cut off the one that is to be stained yellow. The two films have now to be stained. The film should be held at the side by a clip and dipped in the dye. It is well to reverse the clip from one side to the other in order to equalise the action of the dye. It is desirable to stain very thoroughly and then wash out the surplus. If the lighter details become too weak in the washing it is of no importance; a second immersion in a weaker solution of dye will restore these fine details. In making up the slide the first film should be one-eighth of an inch narrower than the blue slide, and the second film should be one-eighth narrower than the first film. The films being placed in register and held together with clips these margins must be roughened with a pointed instrument so that the gummed strip of paper which holds all together may adhere firmly. Out of 200 negatives Dr. Norman said he had only one which would not register, and felt sure that in that case it was due to under-exposure in one of the negatives.

### Cementing and Mounting.

The films must then be varnished, and for that purpose special crystal varnish was used. One corner of the film was held by a clip, and as the film is very flexible it is advisable to support it by means of a piece of cardboard held between the fingers. A little of the varnish is poured on at one end and allowed to flow all over. Now these films are hung up and left to dry for twenty-four or thirty-six hours. By leaving them to dry for some time they are less liable to get tacky when the final registration is made. The films are placed together in register and held by clips, while a strip of gummed paper is laid over the roughened edge of the films and rubbed into close contact. The back of a knife may be used to rub the paper into the edge of the films. When the gummed paper strip is dry it acts as a hinge, and allows the films to be lifted up, so that a little Canada balsam may be poured between each close up to the paper hinge. A clean cover glass is required. It will be noted that these glasses are usually convex on one side and concave on the other. It is well to place the concave side inward, otherwise when the slide is bound up there will be a certain amount of pressure: then the binder gives, air creeps in, displacing the balsam and spoiling the appearance of the slide. A pool of balsam is poured on the centre of the top film and, when the cover glass is laid on, clips are again applied to force out the excess of balsam. The slide should be warmed to assist in expelling the balsam. It should be placed on one side for an hour or so and the balsam round the edges wiped off to allow more to exude. The slide is then cleaned with spirit and bound round the edges in the usual manner. As it is not practicable to have a mask between the cover glass and the films it must be pasted on the outside.

# PHYSICAL CHARACTERISTICS OF RELIEF ENGRAVINGS, ESPECIALLY RELATING TO HALF-TONES.

The following, third, paper of a series which is at present appearing in the "Inland Printer" (New York) continues the discussion of the properties of half-tones which the author, Mr. N. S. Amstutz, has studied, first in connection with his method of line engraving, but later, as will be seen from this and the preceding articles, from the point of view of chemical etching. Previous articles from the "Inland Printer" were reproduced in our issues of April 27 and June 8.

order that the data which have been gathered may be of use to the process-worker, it has been thought best to show graphic curve diagrams of the relation of the black and white dots of the engravings and the press impressions therefrom, shown in the March issue.

The first of the diagrams, Fig. 7, illustrates the characteristic curves of the engravings, Figs. 1, 2, and 3, at 65, 110, and 150 lines per inch for the black and white dots, at various periods of time in acid.

The dotted lines extending toward the left show the probable position of the curves toward the original size of the enamel dot on copper before the etching was commenced, and the extension

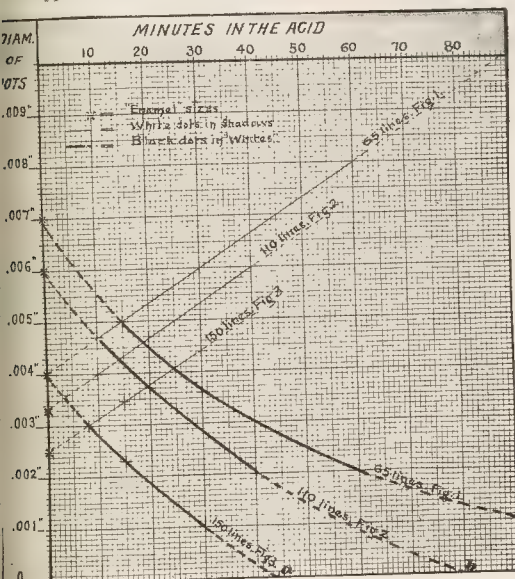


FIG. 7.—Engraving characteristic curves of dot diameters from Table A of Figs. 1, 2 and 3.

on towards the right predicates the time when all the black dots would have been entirely etched away. This point would be found where the dotted lines reach the base of the diagram, as at *a* and *b*. The 150-line engraving would, under flat etching, have reached this point in about three-fourths of an hour and the 110-line plate would have advanced to a similar value in about one hour and twenty minutes.

It is interesting to note the decreasing rate of etching for the finer screens. Probably due to spent acid, on account of the larger area of metal to be removed. In the finer-lined screens this does not take place, as the black dots are much more susceptible of "topping," because of the more rapid side action of the acid.

From the diagram it is easy to approximate the diameter of the black or white dots for etching periods other than those given in Table A of the March issue.

Suppose it was desired to know the probable diameter of the black dot of a 65-line screen at the end of twenty-four minutes, instead of at fifteen or thirty minutes, as given in the table, it is only required to follow the "minute" horizontal line at the top of the diagram to "24" minutes and then downward until the 65-line curve is intersected; from which, by following a parallel horizontal line to the left-hand edge, it will be seen that the diameter is about .0041 inch. Conversely, suppose some one was to

demand the necessary time to leave the plate in the acid to produce a black dot of .004 in. diameter at 110 lines, it is only necessary to pass horizontally from .004 to the intersection of the "110-line" curve, and then vertically to the "minute" line where one finds that seventeen minutes' flat etching will be sufficient to produce a black dot .004 in. in diameter on copper, under a given acid strength, 39 deg. Baumé, known as "new iron," starting from an enamel dot on the copper of .006 in. diameter.

From the foregoing, it will be noted that the graphic curves shown give much more information than a table can possibly convey, because it is not apparent from a table what the intermediate values are, and it so frequently happens that it is these very ones

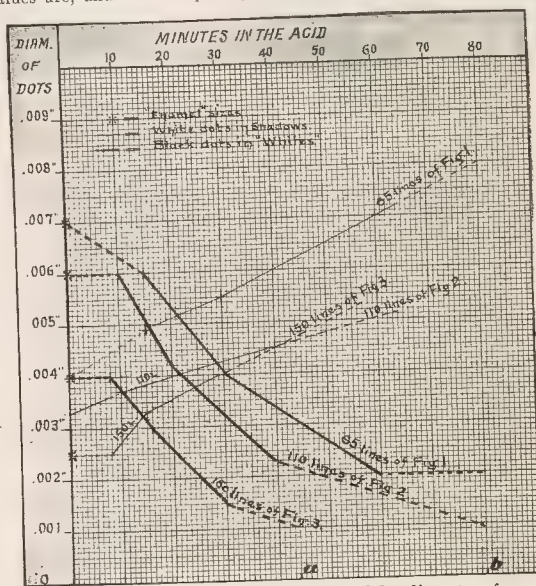


FIG. 8.—Printing characteristic curves of dot diameters from Figs. 1, 2 and 3.

that are missing from a table and for which one finds the most urgent demand.

If the process-worker knew of the possibilities of the graphic curve, he would familiarise himself with its construction and therefrom, by noting three or four positions or values of any given phenomenon, deduce the law to which it is amenable in a few minutes, without requiring hours of laborious calculations. One can put into tabular form the results of various and sundry measurements, but the bare figures do not convey any hint, except to a mathematical expert, as to the law which underlies the values given. Furthermore, should any value or condition occur somewhere between the values noted, he is entirely at sea as to the relation of the one to the other.

In order that the engraving and printing characteristics can be easily compared, the latter are shown in Fig. 8. In comparing these two diagrams, it is interesting to note the divergence of the printing curves from those representing the characteristics of the engravings. Such a comparison at once shows the effects of the overlays, as well as the spreading action, due to the press-work and ink conditions. If the overlays followed the tonal relation of the engravings, the curves of Fig. 8 would be symmetrically disposed in relation to those of the engraving, Fig. 7, showing a uniform modification.



If this was followed consistently, then the curves of Fig. 8 would be located proportionately higher on the diagram for the black dots and lower for the white ones, as the action of the press-work is to broaden the black dots and narrow the white ones.

Reasoning backward, from a given size of printed black or white dot, knowing the spreading effect of the ink and the rate of side action of the acid, it becomes relatively an easy matter to predict

intensification, clearing, printing on the metal, side action in etching overlays, spreading action of the ink and surface to the paper meet the final requirements of a finished result.

The surface of the paper should be, so to speak, "passive," that no special modification of the tonal values takes place, due to its texture. Coated and highly surfaced paper eliminates this for the better grades of printing, but as the half-tone process is forced

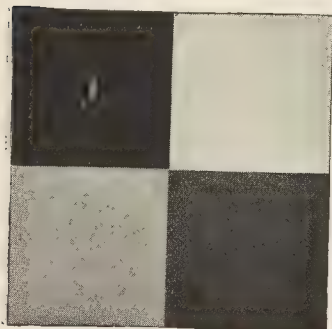


FIG. 9.—10 minutes.



FIG. 10.—20 minutes.



FIG. 11.—40 minutes.

SPECIAL 110-line TEST ENGRAVINGS (FLAT ETCHINGS.)  
Data are given in Table F and Figs. 12 and 13.

cate the size of the "enamel" dots on the copper, and therefrom determine their size in the negative before and after intensifying or before and after clearing the same.

It then simply remains to determine the rate of side action of the intensifying and clearing solutions to know positively what size of dot to project on to the ground glass of the camera to hold the

its way to the front in daily newspaper work, the modifying effect of the surface texture must be recognised and proper allowances made therefore in all of the subsequent steps of the process.

The spreading of the ink in printing, to a degree, neutralises the effects of side action in the acid bath, but its modification takes place at a uniform rate away from the edges of all printing surfaces

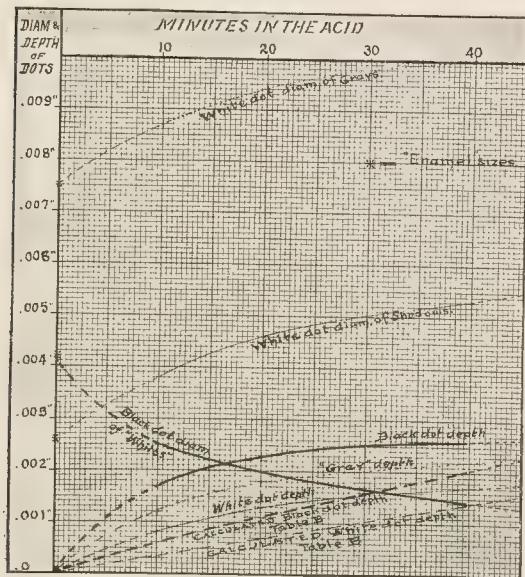


FIG. 12.—Special 110-line Engraving.  
Characteristic curves of dot diameters and depths from Table F and Figs. 9, 10 and 11.

best working relation throughout all of the successive steps of the process.

Knowing the kind, or rather size, of printed dot that is best adapted for the specific interpretation at hand, places the process-worker upon fundamental ground so that he can then adjust the screen and size of aperture to produce the size of dot that will, after passing through the modifying influences of development,

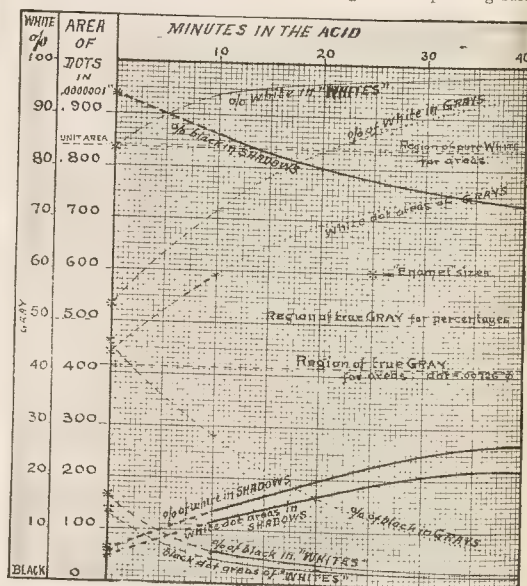


FIG. 13.—Special 110-line Engraving.  
Characteristic curves of dot areas and percentages of white and black from Table F and Figs. 9, 10 and 11.

or points, regardless of the size of such surfaces or points. If the spreading action was proportional to the variation in area of the same, then the effect of side action in the acid would be neutralised more consistently and to a larger degree.

These remarks apply to inks that are not of the "double-tone" or highly viscid order. When inks of this kind are used, the smallest white dots of the shadows (white when printed with single-tone

become filled with ink by reason of the viscosity of the ink, the colour particles to bridge over the depression, by drawing the ink away from contiguous surfaces, forming a thickness of ink that is greater than that left on the adjacent portions of the printing surface by the ink rollers.

Because a greater physical thickness of pigment is found in the recessions, these will appear darker than the surrounding areas, thereby produce a double-tone effect which can be utilised to considerable advantage if the press and rollers are exclusively used for double-tone purposes. Paradoxically, the ink applied to the dots or type faces appears a maximum black.

The law of interpretation of the screen, etc., will not be the same when single-tone ink is used. Fundamentally, it cannot be the same, hence special treatment is required.

The whole subject is so closely bound up with the modifying effects of overlays and presswork, which, on the basis that "no effect is stronger than its weakest link," neutralises to a marked extent the care and attention that may be given to the dot-relation of the previous stages of the process. Fig. 8 illustrates the effect of tonal aberration due to this cause. It is contended that changes in effects are produced, which cause the reproduction to be a mere pretence, it is time that the fundamentals are studied in a setting of stakes made that shall for all time remove this taint art from "rule of thumb" domination.

The effects of true overlay interpretation should be the retention of the tonal values, harmonising with the qualities of the subject being reproduced; and yet how little is the underlying law of pressure per unit area understood? When the time does come when the make-ready will be constructed in harmony with the whole printing areas, the field will be emancipated from the shackles of uncertainty that now overshadows it.

It is not too much to expect that wide-awake workers will give impetus to the scientific investigation of this subject in all of its related phases.

The statement is ventured that, given a specific subject having values ranging between maximum white and maximum black, a compensated screen negative and a flat etching, without staging, therefrom, the printed result will show more faithful tonal reproduction than a "staged" engraving, because in staging a variable personal equation is introduced. We have come to look on results that are highly keyed as to the whites as a desideratum, and so they are, providing the middle tones are drawn out of relation and sacrificed on the altar of pure whites. In order to further study the scope of half-tone interpretation, Figs. 9, 10, and 11 have been made so as to show this value under ten-minute, twenty-minute, and forty-minute periods of time in the acid.

These are made up of four 1-in. squares, and are numbered respectively 1, 2, and 3. The squares that carry these numbers are black, the ones directly beneath are the greys, the ones diagonally opposite the shadows and those to the right are the whites.

True tonal interpretation may be represented by a straight line "curve." The basis of comparison is a unit area comprising the square of the pitch, or an area 1-110 in. on each side, which encloses .0091 by .0091, equalling .00008281 square inch.

In the dead-black portions, obviously, the whole area is black; in the pure whites the whole area should be white, but the evidence of a black dot persists. This can be brought to such a minute dimension, however, that the very small per cent. of black, in what would otherwise be pure white, is negligible for practical work. The middle tone value will come when one-half of unit area is black and one-half white. In the three-quarter region, away from the white, 75 per cent. of the area will be black and 25 per cent. white, and going in the opposite direction one finds the reverse, or 75 per cent. of white to 25 per cent. of black. Linking up these points, one finds a straight line connecting all of them.

It is the aim of the half-tone worker to show such an interpretation in the finished print, but the great average of work does not come as close as it might to these ideal conditions, because, as already stated, of the many modifying influences encountered between the subject itself and the final print (not the engraver's proof).

However, if one does not seek for fundamentals and a familiarity with underlying laws, one cannot reason intelligently from causes to effects, so it behoves every worker to strive for greater proficiency in his chosen craft by working to a purpose.

Figs. 9, 10, and 11 show dead blacks, the smallest black dots of the "whites," the smallest white dots of the shadows and an intermediate grey tone. From these one may judge as to the relation that interpretation bears to the printing areas, and how close the theoretical requirements are met. One should not find a coincidence between the engravings themselves and the theoretical "curve," because allowances must be made for the spreading action of the ink and paper conditions in printing.

These engravings further show the rate of acid action in relation to depth of etch, as each one has been measured and the results are shown in the curves of Fig. 12.

Table F summarises the data of Figs. 9, 10, and 11 for 110-line screens. In this table the original characteristics of the dots as produced in "enamel" on the copper are first given for the black dots in the "whites"; the white dots of the greys, and the white dots of the shadows and the succeeding characteristics of similar tone-values at the end of ten-minute, twenty-minute, and forty-minute flat etches.

In order to simplify the numerical values for the areas, they are given in ten-millionth parts of a square inch; thus the area of a black dot under ten minutes etching is given at 49.1, which actually reads .00000491 square inch.

The curves in Fig 12, in addition to the diameter characteristics of the white and black dots of the "whites," greys, and shadows, for various periods of time in the acid, also show the measured depths of the etching action for the same tonal values. In addition

TABLE F.—Diameter, Area, Depth, etc., of Engraved Dots for 110 Lines per Inch, shown in Figs. 9, 10, and 11; also in Diagrams, Figs. 12 and 13.

Kinds of Data.	"Enamel" Conditions.			Condition of Dots at End of								
				10 Minutes.			20 Minutes.			40 Minutes.		
	"Whites."	Grays.	Shadows.	"Whites."	Grays.	Shadows.	"Whites."	Grays.	Shadows.	"Whites."	Grays.	Shadows.
	●	○	○	●	○	○	●	○	○	●	○	○
Diameter .....	.0042	.0075	.0026	.0025	.0087	.0038	.0020	.0094	.0046	.0014	.0100	00.53
Area .....	138.5	441.7	53.1	49.10	594.5	113.4	32.0	693.9	166.2	15.4	785.4	220.6
Depth .....	.....	.....	.....	.0017	.0012	.0008	.0023	.0013	.0013	.0026	.0022	.0017
Cent. White ...	83.25	53.34	6.41	94.07	71.80	13.70	96.14	83.70	20.10	98.14	95.86	26.70
Cent. Black ...	16.75	46.66	93.59	5.93	23.20	86.30	3.86	16.30	79.90	1.86	5.14	73.30

White," or unit area, at 110 lines per inch = .0091 × .0091 = .00008281 square inch. In the table areas the ciphers are omitted, and to conform therewith, unit area becomes 828.

● = smallest black dots in whites.      ○ = white dots in Grays.      ○ = smallest white dots in Shadows.



tion, two dotted curves are shown, which illustrate the estimated depth for various etching periods that were given in Table B of the March issue; these curves relate to the white and black dots only.

Fig. 13 shows the area and percentage curves, the values of which are tabulated in Table F. It is extremely interesting to note the

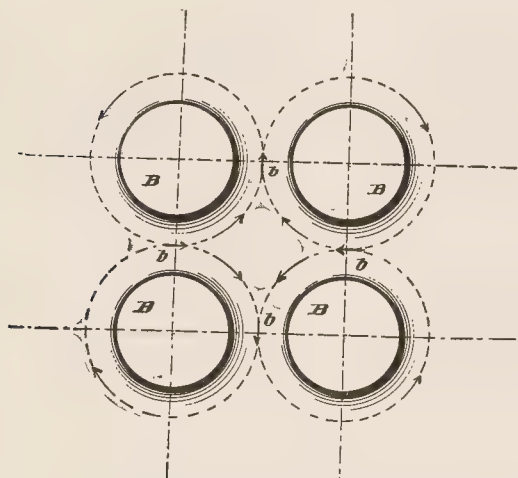


Fig. 14.—"Hot Circulation."

interrelated changes that take place in the dimensions of the engravings under variable time periods of etching. From these there has been deduced the existence of a second acceleration. This law is applicable to the greys from the moment a series of white dots, A, of quadratic relation (Fig. 15) have reached such an enlargement of border,  $A^1$ , shown at  $b$ , as to break down the wall of metal,  $b^1$ , which, prior thereto, separated and confined the acid action to four disconnected but contiguous depressions, A

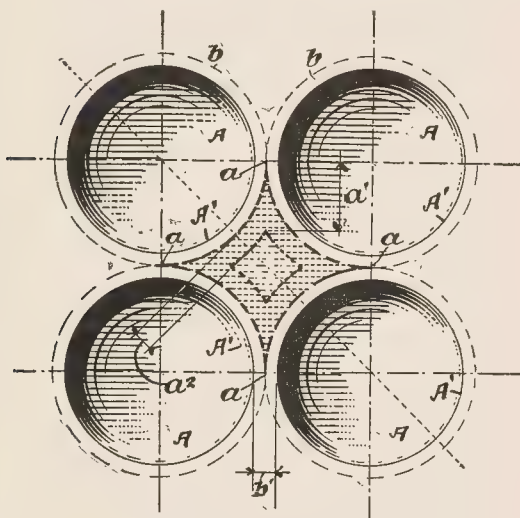


Fig. 15.—"Periodic Acceleration."

(white dots). The form of black dot will now approximate the assembling of four crescents, with their convex portions meeting each other.

The horns of the crescents will unite in pairs to form pointed projections,  $a$ , reaching into the space of acid activity, where the acid will attack them from both sides simultaneously, so as to

cause them to recede toward the centre of the unetched area. The concave portions of the crescents will not recede, at  $a^2$ , toward the centre of the dot as rapidly as the horns do, over the distance  $a^1$ , hence the dot area is not reduced uniformly, but at a differential rate, thereby causing a second acceleration, which, if not compensated for by special dot formation through screen distance and diaphragm outline, will nullify the middle tone translation to the great perplexity of the operator.

These horns, as stated, recede faster than the concave portions and in consequence the area is reduced more rapidly per unit time so long as they exist than when the remaining dot has attained a square or circular form.

The other law that is predicated by the investigations so far made is the differential rate of etching around the black dots of the "whites" in contrast to that within the white dots of the shadows. A name is ventured for each phenomenon. The first may be called periodic acceleration, and the last dot circulation. In order to illustrate these, Figs. 14 and 15 are used. In Fig. 14 four black dots, B, are shown; around these arrows are drawn indicating the possible direction of acid activity around the dots when there is little rocking and no brushing in the etching tank. At the points,  $b$ , midway between the dots, arrows are shown pointing in the same direction, indicating a harmony of the white around any one dot to that of two adjacent ones. The interaction predicated is similar to that of two pairs of intermeshed toothed wheels, wherein the rotation of any one imparts rotation at the same velocity to the other three of a given set of four. Ignoring friction, any number of wheels so connected might be set in rotation by moving any one, and the axis of each wheel would represent a black dot of the "whites."

N. S. AMSTUTZ.

## THE CROOKE-IRVING CASE.

### REVERSAL OF JUDGMENT.

ON Friday last, in the First Division of the Court of Sessions, before the Lord President and Lords Kinnear and Pearson, judgment was given in the reclaiming note presented by William Crooke, photographer, 103, Princes Street, Edinburgh, against the interlocutor of Lord Ardwall in the action by Mr. Crooke against the Scots Pictorial Publishing Company (Limited), 180, Hope Street, Glasgow, to interdict them from continuing and repeating the publication in the "Society Pictorial" of a photograph of the late Sir Henry Irving, and to have it declared that the defenders had infringed his copyright by publishing the photograph in the paper on November 12, 1904. There was also a conclusion for £2,000 damages, and for delivery of all copies made, or, failing delivery, payment of £1,000 damages. Lord Ardwall assozied the defenders, with expenses.

The Division recalled the judgment of the Lord Ordinary, and awarded the pursuer £5 damages, but in respect of a tender of £200 by the defenders when the defences were lodged, found the defenders entitled to expenses since the date of the tender.

The Lord President said in this case the defenders, the Scots Pictorial Publishing Company, admittedly published in the "Society Pictorial" a portrait of the late Sir Henry Irving, and they did so admittedly, without the leave asked or obtained of the pursuer, Mr. Crooke. Although at first in these proceedings it was stated that the portrait which they published was not a portrait taken from the original sketch, it was now practically admitted, because there was really no controversy upon the matter, that that was not so, and that that portrait was a reproduction of the photograph of Sir Henry, which was taken by Mr. Crooke, and of the copyright of which Mr. Crooke was the registered owner. The present action accordingly was brought by Mr. Crooke for interdict against them publishing it again and for damages. The defence of the publishing company was that the copyright was not Mr. Crooke's. His Lordship did not think there had really been any controversy upon the general law which was applicable to the question of the copyright of the photographs of sitters who went to photographing establishments to have their portraits done. The law was laid down in the case of *Boucas v. Cooke* and others, in the King's Bench in 1903, and that law had been adopted by the Lord Ordinary in the present case. His Lordship contented himself with quoting the portion of the judgment in

as, which the Lord Ordinary also adopted. It "It seems settled that, if a person goes to a photographer and asks for a sitting, he is entitled to the copyright of the photographs then taken, it being presumed that he is liable to pay for them, and intends to pay for them. On the other hand, it is that if a photographer invites some celebrated person to give him a sitting, and the person agrees to do so, the copyright of the photographs is the photographer's, even though the sitter should afterwards pay for copies. Further, if a third person employs a photographer to take the likeness of another person, whether that person be a celebrated person or not, and arranges for a sitting accordingly, the photographs taken at such a sitting belong to the third person, and he is liable to pay for the sitting." His Lordship entirely adopted the general proposition. The Lord Ordinary had applied that proposition to the present case, and he had assailed the defenders. The Lord Ordinary had written a very long and careful opinion, but round of his judgment might be taken in a single sentence, which—"I hold it proved that the photograph in question was taken by Mr. Shorter; that he is the person entitled to the copyright of it; and that any agreement by him to give up the copyright of the photograph in question was entered into by him under essential duress, induced by the misrepresentations of the pursuer." Accordingly, the Lord Ordinary held the copyright of the photograph to belong to Mr. Shorter, and he assailed the defender. His Lordship had been able to take the same view as the Lord Ordinary. The result of what led up to the matter was not doubtful. It was known that Sir Henry Irving, the distinguished actor, was coming to pay a visit to Edinburgh, and there were at least two, if not more, persons at that time who were very anxious to have Sir Henry's photograph. There was no doubt that Mr. Shorter, who had to do the "Sphere" newspaper, was anxious to publish a photograph of Sir Henry, and he was also undoubtedly anxious to have a photograph, of which he should have the copyright. It was, his Lordship thought, satisfactorily proved that Mr. Shorter, who was a friend of Sir Henry, having been unable to get Sir Henry to sit for his photograph in London, seized upon the opportunity of his being in Edinburgh to have his photograph taken. It was also quite certain that Mr. Crooke wished to have a photograph of Sir Henry, probably for the advertisement of his own powers of photography, and he was using, probably, also as an advertisement, to take the photographs, and to give a copy of the photograph so taken to each of the members of the Pen and Pencil Club, he having, it seemed, done the same thing on other occasions with regard to celebrities. The result of all that was that arrangements were made for Sir Henry to sit for Mr. Crooke. There was some controversy upon the terms which preceded the granting of that sitting, and it was very strongly pressed upon the Court that Mr. Crooke had gone further than the true facts warranted him in a certain letter, in which, in an earlier period, when Mr. Shorter applied to him, he replied to Mr. Shorter that arrangements were already in train for Sir Henry giving him a sitting. His Lordship was bound to say he thought Mr. Crooke's letter did go beyond the very strict statement of facts, but he did not think for the purpose of this case that very much mattered, because he thought the result was that Sir Henry Irving came to Mr. Crooke's studio, well knowing that he was to be photographed for more persons than one. He knew he was going to be photographed for the purpose of a copy of the photograph for his friend Mr. Shorter. Nay, more, if it had not been for his friendship for Mr. Shorter his Lordship thought that it was more than probable that Sir Henry would have given no sitting at all. At the same time he equally well knew that while he was there he was going to be photographed with a view to a presentation copy of the photograph being given to the members of the Pen and Pencil Club, and he knew also he was going to be photographed for Mr. Crooke, so far as copyright was concerned. Sir Henry, through his agent, made a very proper and obvious arrangement that as he was putting himself to the trouble of being photographed like that he should be allowed first of all to have a veto upon what photographs were to be published, and, secondly, that he should be allowed to have copies for his friends at so much per copy. All that was arranged, and accordingly Sir Henry went and subjected himself to the ordeal of the camera. There was a little dubiety as to which of the various photographs that were thus taken was precisely taken

first. His Lordship did not think that matter could be cleared up with perfect certainty. In Mr. Crooke's books the photographs were put in a certain order. That order would make out that the large photograph, which was the subject here of piracy, was taken first. On the other hand, Mr. Crooke himself said that he thought that exceedingly improbable. But his Lordship was bound to say that he did not think that mattered. He did not think that there was an appropriation of photographs made by Sir Henry at the time, saying, "Now, this time I am before the camera the photograph belongs to Mr. Shorter; this time it is for the Pen and Pencil Club, and this time it is for yourself." His Lordship did not think it was commonsense to suppose that anything of that sort happened. Sir Henry, like any other sitter, would be very anxious to get the sitting over as soon as he could. The photographs were taken, and the particular one in question was taken in rather an unusual manner, because at the precise moment at which Sir Henry sat for this large photograph he was operated upon by two cameras at once, the result being the large photograph and the small photograph, which was afterwards given to the Pen and Pencil Club. While what precisely passed in the matter of time in the photographer's studio was uncertain, what happened afterwards was perfectly certain, because they had got the correspondence of the parties written at the time when there was no question of that or any other dispute. On May 10, Mr. Crooke having submitted to Sir Henry, as he promised, the whole of the negatives of the photographs thus taken, wrote to Mr. Shorter:—"Sir,—I am herewith sending you the two negatives of Sir Henry Irving of which you can buy the sole copyright; no copies having been printed except two of each for himself. I am also sending you for inspection a copy of the picture taken for the Pen and Pencil Club. My price for the sole copyright and possession of the two negatives, and also the permission to reproduce, if you wish, the full-length now sent for your inspection, with those Sir Henry is reserving for himself, if he has no objection, is £5 5s." Mr. Shorter, on May 11, wrote to Mr. Crooke as follows:—"Dear Sir,—I accept your terms, and shall be glad if you will send in an account for five guineas to cover the copyright of the two pictures. I am also glad of your permission to reproduce the one sent to the Pen and Pencil Club, which I actually prefer." That, to his Lordship's mind, ended the business. That was an offer by Mr. Crooke for the sum of five guineas to give up the copyright of these two photographs, and it was accepted by Mr. Shorter. His Lordship was bound to say he did not understand what the Lord Ordinary meant by the misrepresentation of the pursuer. There was no representation in the letter at all. His Lordship could not call representation the mere statement of fact that Sir Henry had barred the publication of certain of the negatives altogether. Mr. Crooke's statement was that Sir Henry had chosen two, that the pursuer proposed to keep one for the purposes of the Pen and Pencil Club, and there was the offer of the other two to Mr. Shorter. If Mr. Shorter had wanted to make that a question of selection he was bound in his letter to say so. Mr. Shorter did not kick at the idea of the larger one being reserved for the Pen and Pencil Club. He did not start any theory such as was now started, which was really a theory, of there having been a determinate appropriation at the time Sir Henry sat in front of the camera. If that was so, it seemed to his Lordship to end the case, the result being that as the only person who paid five guineas at all was Mr. Shorter, who, for that sum, purchased these two pictures, none of which was the one in question, the copyright must be in Mr. Crooke, simply because nobody else paid for it. His Lordship was of opinion that the pursuer was entitled to decree. What the decree was to be was another matter. It did not seem to his Lordship a case where there was any necessity for pronouncing interdict, because the matter had been done, and he did not suppose that the paper proposed to reproduce the picture again. Then there was the matter of damages. They had evidence that, supposing a paper had to ask a photographer to allow a picture to be reproduced, the ordinary price would be from half a guinea to one guinea. Now here there was taken what was called "French leave," and no doubt also by the taking of "French leave," the photographer did not get what he generally did get, the right to stipulate that his name as the author of the photograph should be put in a conspicuous position. But then the damage Mr. Crooke had suffered seemed to his Lordship exceedingly small, because one could not, as a person of common-



sense, think, that really that copyright was a matter in which there was a great deal of money. The only persons who would want it would be people who wanted the photographs for themselves, or other newspapers who wanted to reproduce it, and they would probably get it for half a guinea or a guinea. His Lordship thought the pursuer would be amply remunerated here if he got an award of five guineas, which, of course, would carry expense of process.

The other Judges concurred.

Mr. Johnston, K.C., for the defendants, moved for expenses in respect of a tender in process. At the lodging of the defences the defenders put in a minute tendering the pursuer (1) delivery of the whole of the copies of the picture complained of by the pursuer, so far as in the possession of the defenders, or at since the raising of the action; (2) a judicial undertaking not to print or publish any further copies of the picture, or, alternatively, if the pursuer desired, the defenders consented to interdict in terms of the first conclusion of the summons; and (3) the sum of £20, together with taxed expenses to date in full of the conclusions of the summons.

The Lord President said the tender was a proper one in the action, and carried expenses to the defenders since its date.

#### "ETCHOGRAPH PLATES."

A PHOTOGRAPHIC accessory which is new, we believe, to this country, has been put upon the market in America by W. Jay Little, of 363, Boylston Street, Boston, Mass., under the above name. "Etchograph Plates," according to the "American Amateur Photographer," "offer more possibilities in the way of improving negatives than anything we have seen in a long while. It consists of sheets of thin celluloid coated with a transparent and non-actinic soft etching ground, which may easily be etched away with a needle. Its first and most obvious use is the rendition of a photograph into line. The



plate is laid on a print or negative, and all outlines and shadows are traced, using a firm stroke and a sketchy manner. When this is finished we have a transparent drawing on a red ground. This may be added to as desired, and is then printed on any photographic paper, giving the effect of an etching."

"Another variety of the tissue has a stippled effect. By simply printing a hard negative through this on any paper, the print has all the delicate quality of a gum print. When etched the effect is exactly that of a mezzotint engraving. Pure whites, if needed, must be added to the plate by means of a spotting colour, which is furnished."

"Variety No. 3 is very thin, and is intended especially for portrait backgrounds. By photographing a subject against a black background and then etching a line background on variety Nos. 2 or 3, or wiping out a landscape on No. 3 (a very easy proceeding, as it should be only a suggestion), an infinite variety of effects can be obtained

without working on or altering the original negative. This is an advantage not to be despised, as several different backgrounds can be made and used if variety is desired, or if the first one is not wholly successful.

"Another use which the writer has discovered is for local reduction or intensification of negatives. The plate is laid over the negative and scraped over the dense parts, as, for instance, the clouds of an overdeveloped landscape. Very thin parts can be protected by an extra coat of spotting medium if necessary. The change which this process will produce in a strong negative is marvellous."

#### DEATH OF MR. A. H. WALL.

Mr. A. H. Wall, well-known to large numbers of the older generation of photographers, died on Sunday last, June 24, at Stratford-on-Avon.

One of the most beautiful personalities that ever graced photography has been removed by the death of Alfred H. Wall, at his home in Stratford-on-Avon, on Sunday, June 24, at the ripe age of seventy-eight years. Mr. Wall was born in London; his early youth was spoiled by an unsympathetic step-father, and, running away from home, he first joined one of the early Daguerreotypists and soon afterward "went on" as a super in the company of the great Macready, who was attracted by the lad, and soon gave him a small part. His sketches were admired by Findlay, a famous miniaturist of the day, who engaged him to paint the backgrounds of his miniatures, and in 1850 Mr. Wall began business with a partner in Cheapside, London, as miniature painters and Daguerreotypists. The miniature was killed by the Daguerreotype. In 1851 Mr. Wall was assistant to a photographer working near the Great Exhibition, and later opened a studio in the Strand as miniaturist and portrait painter—a complete failure. In 1852 he married and set out with his bride as a touring portrait painter, with fair success. He used the name of R. A. Seymour, and in the "Photographic News" for 1861 will be found the story of his tour. The early death of his wife sent him back to the stage, where he made some success in a touring company, and in more than one provincial stock company, as actor, scene-painter, and play-wright. The three plays he produced were successful. One of them, "The Hermit," is still occasionally produced, and had the distinction, almost, if not quite unique, of being constantly in the repertoires of touring companies for forty years.

In 1864 Mr. Wall was again in London, and in photography, and began the publication of "The Art Student," an excellent little illustrated journal that was before its time. For Hazell, Watson and Viney he edited "The Illustrated Photographer" during 1868, '69 and '70, another magazine that was before its time; and since then his connection with photography has been limited to occasional contributions and criticism. In earlier years he was a regular contributor to THE BRITISH JOURNAL; then, in consequence of a political revolution transferred his pen and influence to "The Photographic News," and for some time, when "The News" was in difficulties, wrote almost the whole of the matter in each issue.

In general journalism he acted for some time as assistant editor of "The Illustrated Sporting and Dramatic News"; he founded and edited for three years the Australian edition of "The Illustrated London News," and on return to England edited several papers and magazines for the same proprietors. For Cassell and Co., Ltd., he wrote many books, chiefly for children; he wrote and illustrated several of their topographical books, and for them wrote his most successful volume, "Fifty Years of a Good Queen's Reign," published in 1887, and re-issued as "Sixty Years" in 1897.

About 1888 Mr. Wall received the very congenial appointment of librarian to the Shakespeare Memorial Library at Stratford-on-Avon, which he held until his retirement from active life in 1895. In his London days he was the intimate friend of Rejlander, Sutton, Baden Pritchard, Jabez Hughes, Woodbury, Traill Taylor, and all the men who were making photographic history. He founded the old South London Photographic Society, and was one of the founders and most active members of the Solar Club.

Even in retirement at Stratford-on-Avon he was always active, often planning, and occasionally executing successfully, new literary schemes. Quite recently he published a school History of King Alfred, through Chapman and Hall. Personally, he was a charming

le, companion, and raconteur, much sought after by literary  
ors to Stratford-on-Avon, who found his knowledge and his  
ate library over at their service. His purse, too, was always  
for a needy friend, with the result that he was never in a wealthy  
tion, though his income was large at times. The death of his  
nd wife a few months ago was a shock from which he never  
ed completely, and his own death, at the end of an illness of  
ral weeks, was the result of age and natural decay. H. S. W.

re regret also to announce the death on Monday last of Mr. J.  
rdia, of the well-known firm of Newman and Guardia, of  
tisbury Avenue, W. Mr. Guardia had been suffering from an  
nal trouble for some time past, and was forced to undergo an  
ation, from which we are sorry to say he did not recover.

## Patent News.

rocess patents—applications and specifications—are treated in  
to Mechanical Notes."

he following applications were made for Patents from June 11 to

FLASH LAMPS.—No. 13,418. Improvements in supports for flash  
lamps. Ferdinand Hrdliczka-Csiszar, Birkbeck Bank Chambers,  
Southampton Buildings, London.

STEREOSCOPES.—No. 13,449. Improved form of stereoscope and  
method of producing views for same. Courtney Spencer Jones,  
Mountsorrel, Woodford Green, Essex.

LIGHT DEVELOPMENT.—No. 13,451. Improvements in apparatus  
for developing and fixing photographs in daylight. Percy Free-  
man Lee, 54, Colne Road, Burnley.

ORTHOCHROMATIC PLATES.—No. 13,561. Improvements in the manu-  
facture of iso or orthochromatic plates. Edwin Ebernezer Burn-  
nett, 2, Heber Road, Cricklewood, London.

PRINTING APPARATUS.—No. 13,738. Improvements in printing  
apparatus for photographs by artificial light. Hermann Muller,  
48, Avenue de la Beauté, Parc St. Maur, France.

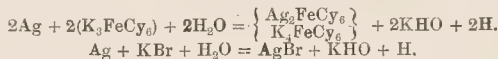
PRINTING FRAMES.—No. 13,739. Improvements in printing frames.  
Hermann Muller, 48, Avenue de la Beauté, Parc St. Maur, France.

### COMPLETE SPECIFICATIONS ACCEPTED.

Specifications are obtainable, price 8d. each, post free, from the  
Patent Office, 25, Southampton Buildings, Chancery Lane,  
London, W.C.

PRINTING.—No. 17,007, 1905. The three claims for this  
invention are as follows:—1. A bath for use in photographic  
printing in pigmented gelatine or other colloid or mucilaginous  
substances, from a metallic silver image produced by develop-  
ment, consisting of (1) Potassium or other alkali bichromate;  
(2) Potassium or other alkali ferricyanide; (3) Potassium or other  
alkali bromide, or one or more of the soluble haloid salts of an  
alkali; (4) Water. 2. The improved method of producing pic-  
tures in insoluble gelatine or other colloid which consists in im-  
pregnating a gelatine or other colloid surface on a suitable  
support with a solution as claimed in (1), to which may be added  
alum and citric acid, placing in contact with the gelatine to other  
colloid surface a metallic silver image produced by development  
in any support separating the two supports, and washing the  
gelatine or other colloid surface, whether adhering to the metallic  
silver image or to its original support, or whether it has been  
transferred to another support. (3). The process of producing  
picture in pigmented gum by mixing a concentrated solution of  
the bath claimed in (1) with a solution of pigmented gum, and  
spreading the same in the metallic silver print produced by  
development. The solution in which the tissue is soaked is  
called the "pigmenting solution" by the patentee, who directs  
its use as follows:—"I soak a piece of paper coated with pig-  
mented gelatine, otherwise called carbon tissue or pigment plaster  
in the pigmenting bath until it becomes saturated. In the  
meantime I place a bromide print or other image consisting of  
metallic silver in a dish of cold water. As soon as the pigment  
plaster in the pigmenting bath has become limp or saturated, I

withdraw it from the bath and place it face upwards upon a  
glass plate. I now take the bromide print or other image, con-  
sisting of metallic silver from the dish of water, and place it  
carefully upon the pigment plaster lying upon the glass plate, and  
squeegee the two papers into contact. I then place the combined  
papers upon blotting paper until ready for development. Up to  
this point the method of producing a pigmented picture upon the  
original silver print, and an impression for transfer upon an-  
other support, is the same. After the squeegeed papers have  
been in contact about 20 or 30 minutes the image of the silver  
print will have acted upon the film of the pigmented gelatine  
and the two papers will require to be separated. There are two  
methods of separating these papers; according to the first method,  
when the original silver print is intended to be the support of the  
picture, the adhering papers are soaked in hot water and  
separated, and the development takes place by washing away from  
the silver print all the pigmented gelatine adhering thereto that  
has not been rendered insoluble by the action of the metallic  
silver. The black silver of the print will have become a faint  
brown in the operation. According to the second method, when  
it is desired to transfer the gelatine impression to another sup-  
port, then the two adhering papers are plunged into cold water  
and separated by slowly and firmly pulling them asunder. In this  
case the pigmented gelatine film remains on its support and  
holds an impression of the silver image, and may be squeegeed  
down upon a fresh support and developed by removing the  
original support, washing away the soluble gelatine and leaving  
the picture on the fresh support. The silver print may then be  
washed and re-developed by any of the usual developers for  
bromide prints, and again washed, when it will serve for the  
production of another pigment print by being treated according  
to the second method above described. In this manner several  
transfer prints can be obtained from one metallic silver print  
produced by development. Of course, a re-developed silver print  
can be treated as described in the first method, and a pigmented  
picture produced upon the original support. Photographic nega-  
tives may be intensified and lantern slides may be coloured by  
adopting the first method hereinbefore described. Another  
application of my invention relates to collotype printing. If a  
collotype plate prepared in the usual way is soaked in the above-  
mentioned pigmenting bath, and a bromide silver print is  
squeegeed into contact with the surface, and allowed to remain  
in contact for about half an hour, on stripping off the bromide  
print, an impression of the bromide print in insoluble gelatine  
will remain on the surface of the collotype plate, which can then  
be washed and treated as usual, to produce a collotype printing  
surface. The impression is reversed as regards right and left,  
and therefore suitable for mechanical printing. Pictures in pig-  
mented gum can be produced by mixing a concentrated solution  
of the above-mentioned bath with a solution of pigmented gum,  
which is spread on the metallic silver print with a brush or  
otherwise. The results obtained by my invention are not due to  
any catalytic action, but can be traced to chemical decomposition,  
thus:—



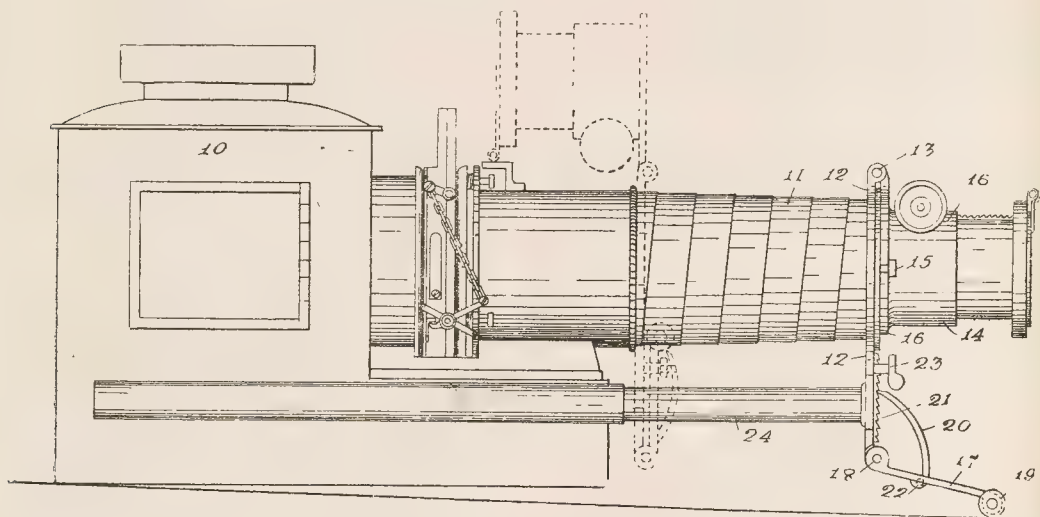
The H and  $\text{K}_4\text{FeCy}_6$  reduce the bichromate salt producing  
insolubility of the gelatine, and as these two products are strong  
reducers and are not soluble, they can be made to penetrate the  
film to any desired depth, thus securing rich pictures with perfect  
gradation. Thomas Manly, 140, Haverstock Hill, London.

MULTIPLE-EXPOSURE CAMERAS.—No. 20,570, 1905. The apparatus is  
of the class in which the consecutive exposures are effected by  
means of a rotary shutter having an adjustable aperture which  
permits light to pass while the sensitised medium is momentarily  
at rest, and in which the sensitised surface is supported in a  
carrier receiving a horizontal step-by-step movement, at the end  
of which the plate is raised or lowered, and the step-by-step  
movement reversed, so as to produce a second row of impressions  
below or above the first. Similarly at the end of this movement  
the plate is again raised or lowered, and the step-by-step move-  
ment again reversed. In this way the whole sensitised surface is



covered with a number of rows of photographic impressions, in the well-known manner. Means are provided for imparting an intermittent horizontal reciprocating movement to a sensitised surface across an aperture for the entrance of the actinic rays, and also with adjustable means for moving surface transversely to its line of reciprocations so that a variable number of rows of separate pictures may be obtained on the sensitised surface. James William Anderson, 53, Washington Street, Santa Cruz, Cal., U.S.A.

**OPTICAL LANTIRNS.**—No. 15,607, 1905.—The invention consists of an extension tube formed of a special strip; also of a system of connecting the lens (14) to the adjustable frame (12) by means of the hinge joint (13) situated at the upper part of such frame, and so arranged that the lens may be turned over on to the upper part of the extensible tube. John Ambrose Sprason, St. George's-place, St. George's, Birmingham.



**VIEW FINDER.**—No. 11,670. The invention consists of a view finder which automatically records the alteration in the view for work on the plate when the front bearing the lens is raised. A small view finder is attached to some suitable part of the camera or its fittings, preferably the rising front, or any other part of it which rises with the photographic lens itself. An ordinary small view finder (suitable for the purpose) consists of a small short focus lens set perpendicularly in front with a piece of mirror placed at about an angle of 45 degrees behind it, and a piece of ground glass or another lens horizontally on top. Sometimes there are three lenses in all. The rays that pass through the front lens are reflected upwards by means of the mirror, and the image is seen upon or near the top of the finder. The tops of these finders are frequently masked in proportion to the shape of the sensitive surface. According to the invention we may link or connect any fittings to the front lens of the finder, so as to automatically move it up or down in relation to the other part of the finder as required in connection with the rising front of the camera or lens itself. For instance, one end of the lever may be connected at one side of the finder, or both sides, if necessary, to a rigid part of the camera, and this lever may be slotted at the other end, and connected with pin or pins to any part that holds the small lens of the finder. Small pins may then be fixed at any desired position in the finder body, so as to work in the same slot or slots of the lever or levers. This enables one to graduate the improvements of the finder lens (i.e., impart thereto a differential movement) in proportion to the movement of the rising front of the camera, as it may only require one-eighth of an inch movement of the finder lens to show the same amount of alteration in the view finder as one inch movement of the camera lens taking

the picture. In such a case the action would be that the whole of the finder would rise with the rising front, but the front lens of it being arranged to travel proportionately in the finder, the angle of view would be altered, thus the correct view would be seen in the finder, and similar to that upon the sensitive surface. Arthur Lewis Adams, 26, Charing Cross Road, London.

**FOLDING CAMERAS.**—No. 11,585, 1905. The invention consists of several movements and methods of design, including (1) A lens board which is supported independently of the panel to which is attached, which panel is the door of the camera, and brings the lens into the correct operating position when it is opened. (2) The combination with a closing door of legs adapted to fold away at the sides of the door. (3) A bracket on the lens board affording points of attachment for the toggle links that support the board, and for a link by which the lens board is connected with the door. There are several other claims requiring

diagrams for their explanation. Kodak Ltd., 57-61, Clerkenwell Road, London, E.C.

**FILM CAMERAS.**—No. 2,300, 1906. The claims are for a construction of film camera in which a system of swinging or movable screens determine the length of film for each successive exposure. The numerous figures are necessary to explain the construction of the apparatus. One of the objects of the invention is to provide such cameras with means for uncovering and presenting for exposure, in the middle of that part of the film which lies between the film-rollers and within the focal plane, more or less of the film according to the length or size of the picture required and for effectively screening or cutting off light from those parts of the film which are not required to be exposed. Another object is to arrange for the operation, control and adjustment of the screening devices directly by motion obtained from the travelling film, as it is being wound on to a take-up roller for removing an exposed portion of film from the field of exposure, and simultaneously winding a successive portion thereof into position for the next exposure, and to provide means for automatically indicating to the operator the length of film which is, at any time uncovered for exposure in the middle of the focal plane of the camera. John Roults Brooks, Finsbury Park, Bromsgrove, Birmingham.

The following Complete Specification is open to public inspection before acceptance under the Patents' Act, 1901:—

**COLOUR SCREENS.**—No. 12,793, 1906. Colour screen for multiple colour photography, and provided with spaces for comparison. Brasseur.

## Exhibitions.

### THE NEW ENGLISH ART CLUB.

USED by the demolition of the Dudley Gallery, the "New" have nested in a low-pitched, glass-roofed, angular (in Dering Yard, 67A, New Bond Street), which, by the of taste, has been made to look quite an inviting gallery. Into this chamber is up a winding stair; but they have pretty things to show you when you're there; fewer than in fact. We warn our readers against visiting this show on day; they will find it a veritable hot-house in more than a figurative sense already known to them. Two or three things out as achievements prompted by a singleness of purpose, most of which are two landscapes—"Richmond, Yorkshire," "Chamond, Surrey"—called "Misty Morning on the Thames." are by Prof. Fredk. Brown, who, so far from subverting art, as do the generality of "New Englishers," seems to dote on the earlier masters, and certainly succeeds in securing the air and nobility, as well as the magic of lighting, that we associate with Turner. We could wish that Prof. Brown would do his teaching, and essay no more of those lugubrious figure studies that leave one untouched: his line is landscape, draughts-like. Mr. Wilson Steer is overweighted with the invitation to his portrait for the Uffizi. Who next? We cry "Ichabod!" to the honour. Of the portraits of Mr. A. E. John, it must be said that they have character. That of Sir John Brunner is a likeness; but his ideas of the colour of flesh point to something wrong either with his eyes or with his motives; they would be near the mark if his subjects were from the mortuary-slab. Mr. J. A. R. A., has a slight sketch—a mere half-hour's work—of a tourist dozing under trees. It has all the charm of a sketch, and is the exact parallel of one in paint. The truth of the light in it is quite remarkable. As a whole, this show is instructive and more highly admonitory. In some of the it is impossible to find any vestige of distinction on any that should admit them to a gallery to which folk are not to be admitted.

## New Materials.

ry" Collodio-chloride Paper. Sold by the Rotary Photographic Co., Ltd., 12, New Union Street, Moorfields, London, C.

placing a collodion paper on the market the Rotary Company truly recognise that there is the opportunity for a greater use of description of print by photographers desirous of offering their customers something better rather than cheaper. A collodion properly made and well-mounted, presents an appearance stamps the photographs as one of distinctive quality, the richness of tone, and fine tones obtainable being responsible for this impression. Hence the wisdom of working collodion in neighbourhoods of extra quality can command an additional price. C.C. paper, orders of our pages should know, requires certain precautions in manipulation which may be disregarded in the case of gelatine paper, whereas, on the other hand, it possesses facilities of which gelatine paper cannot claim possession. The Rotary paper we can be no exception in these respects. Its two varieties, however, matt and glossy—exhibit also certain differences between themselves; for instance, the matt requires considerably more over-printing than the glossy, which latter variety also does not lend itself to black tones in the platinum bath with the readiness of the matt. The paper presents no difficulties if the makers' directions be followed, and we were able to prepare a series of prints, the tones of which, particularly those obtained with gold-platinum, recommended the paper very favourably to us. The Rotary Company give the full and other formulæ in both British and metric measures; the former, we suggest, might be made somewhat easier to prepare by giving round numbers in several cases where an odd number which is very little different has been given. Thus we can imagine that

perceptible difference will be made by employing 100 instead of 96 grains of sodium acetate in the gold toning bath. The results, however, on both the matt and glossy papers, are altogether excellent, and it is worth noting that the makers lay special stress upon the purity of the raw paper bearing the emulsion, the purity of paper, as they point out, entering largely into the production of permanent prints. The paper is put up in packets and boxes at the usual prices (thirty-two quarter-plate sheets for one shilling), and is sold in sheets 24½ by 17 inches at 18s. a quire, a form in which the professional may be glad to purchase it.

## New Apparatus, &c.

"New 'Zambex Skeletons' for Daylight Loading." Made by R. and J. Beck, Ltd., 68, Cornhill, London, E.C.

Despite all that the lay press has done, the technicalities of photography, we are afraid, are not yet so grafted on to the language that any person could explain precisely what a Zambex Skeleton is, or wherein the old form of skeleton differs from the later one which Messrs. Beck have sent us for review. The Zambex system provides for the exposure and loading in daylight of cut films, which may be purchased *in situ* in the skeleton, or inserted in the empty skeleton



FIG. 1.

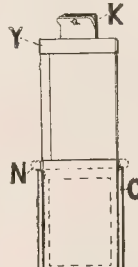


FIG. 2.

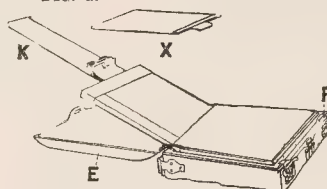


FIG. 3.

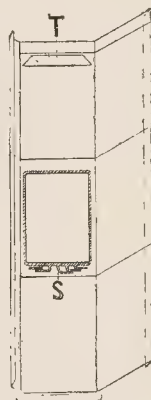


FIG. 4.

by the purchaser. The latter can thus please his fancy as to which make of film he uses, buying the packets as ordinarily placed on the market. Fig. 1 shows the skeleton partly exposed. It consists of a series of black paper sheaths, in each of which a film (F) is placed. These sheaths are enclosed in an envelope with the tags (K) projecting from one end, a metal rim, C, which is attached to the middle part of the envelope, serving to secure the latter to the camera back. To change a film, all that is required is to pull up the foremost of the numbered tags, K, thus drawing the first film from the lower to the upper half of the envelope. The envelope folds double when in the camera, and only need be unfolded to change a film. As fast as the lower end of the envelope is emptied, the upper half is filled, so that the complete thickness of the folded skeleton always remains the same, and a constant pressure is always exerted to press the films up to correct register. Figure 3 shows the attachment of the Zambex Skeleton to the camera, and Figure 4 the skeleton opened out to allow of recharging. The loaded skeletons containing one dozen quarter-plate films are sold at 2s. 9d. per dozen; the used skeletons, as we have already said, serving for the exposure of purchased films. In case of working and reloading and in compactness, the new Zambex is superior to the original pattern. In both the absence of mechanism is a highly commendable feature, and the later issue appears to leave nothing to be desired as regards smoothness of working. Messrs.



Beck have developed the system very thoroughly by preparing a series of Zambex cameras, accompanied by instructions, capable of being followed by those without any previous knowledge of photography.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

June.	Name of Society.	Subject.
30.....	Aberdeen Photographic Assn.	Outing to Culter.
30.....	Bristol Photographic Club	Outing to Pensford.
30.....	Chelsea and District Photo. Soc.	Outing to Strand-on-the-Green.
30.....	Coventry Photo. Club.	Outing to Offchurch.
30.....	Hull Photographic Society	Outing to Little Wighinton.
July.		
2.....	South London Photo. Society..	"Copying." F. W. Brookman.
2.....	Southampton Camera Club	"Floral Photography." A. E. Henley.
3.....	Hackney Photographic Society	Question Box.
3.....	Manchester Amat. Photo. Soc.	Page Croft Gum Process Demonstration
3.....	Sheffield Photographic Society	and Exhibition. S. L. Coulthurst.
4.....	Bristol Photographic Club	Annual Meeting.
4.....	Leeds Camera Club	Technical Night at Headquarters.
5.....	Hull Photographic Society	"Films & Plates."
		General Meeting.

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held June 26, the President, Major-General Waterhouse, in the chair. The Chairman announced that sanction had been obtained for the removal of the partition wall between the meeting and council rooms, and that this alteration in the premises would give the Society a large meeting room, and avoid the overcrowding which had been unavoidable at many meetings. The work would be done during the summer recess.

Mr. C. Welborne Piper then demonstrated the stop-clock designed by him and recently reviewed in our columns on its being placed on the market by Messrs. W. Butcher and Sons.

A paper on "Comparison of Orthochromatic Plates," by A. J. Newton and A. J. Bull was then read by Mr. Newton. The authors gave the results of spectrum tests of commercial plates, classifying these latter as green-sensitive and panchromatic, and giving also results with collodion emulsion and bathed plates. They had tried two commercial samples of alizarine blue without success for red sensitising, but with a sample supplied by Mr. Scooble they had obtained some red-sensitiveness, but with very low speed.

Mr. Newton then read a paper by Mr. Bull and himself on "The Absorption of Ultra-Violet Rays by the Glass and Apparatus used by Photographers," in which they showed that the major portion of the action on a wet plate was due to the ultra-violet rays, and hence the advantage of enclosed arc lamps for wet collodion work. They also showed the advantage of cutting out the ultra-violet when photographing originals bearing pigments which differed greatly in their absorptive or reflective properties towards these rays. The various "process" whites were instanced in this respect.

Mr. J. I. Pigg then exhibited some lantern slides, which he described as examples of three-colour work with 1-12 to 1-20 sec. exposure.

Mr. W. L. F. Wastell then read a short paper on the "Talbot" P.O.P., a brand of printing-out paper which he highly commended for the range of tones obtainable with it, and for its general good quality.

**BOURNEMOUTH Y.M.C.A. PHOTOGRAPHIC CLUB.**—The only photographic society in Bournemouth holds its first outing to Christchurch and Mudeford on Wednesday, July 4, under the leadership of the Rev. H. Gibbons. Ladies and gentlemen interested are invited to join. Arrangements have been made to conduct the party by car and motor-boat at an inclusive cost of 2s. 6d. The hon. secretary, Mr. A. D. Johnston, Cairns Memorial House, will be pleased to furnish any further information, and will be glad to receive the names of intending members of the club, the subscription to non-members of the Y.M.C.A. being 4s. per annum.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—For some years past the

South London Photographic Society have held an annual competition in honour of their first president, F. W. Edwards. A medal is offered for the best monochrome rendering of a colour original, and at a recent meeting Mr. E. J. Wall came down and gave a lecture on "How to Win the Edwards Memorial Competition." After explaining the relationship of colour, the lecturer said an ortho plate sensitive to red and a suitable screen were required, but there was no necessity for an expensive filter. Though he preferred making his own screens, members could find all they needed from the now well-known commercial filter which should be placed in the dark slide with the plate. The increased times of exposure could be quickly found by experiment and might vary from five to ten times the normal, according to the plate chosen. As the plates were practically sensitive to light, they should be handled in darkness. Looking at the plate did no good, and in his own practice he never saw the plate until it came out of the fixing bath. He used either an M.Q. developer which he knew required five minutes to develop the plate, or ordinary adurol developer, which took six minutes. He considered pictures should be copied out of doors, and, as a final tip, advised all competitors to expose a slip of bromide paper in steps of 1, 4, 8, 16, 32, and 64 seconds, develop to form a scale of tones from white to black, and fix to frame of picture when copying. If the resulting negative produced a bromide print in which all the tones of the black and white scale were correctly produced, then the colour tones would also be correct, and the print would be the best the negative would give.

**WEST SURREY PHOTOGRAPHIC SOCIETY.**—On June 20 a lecture "Street Photography," by Mr. A. Lockett, was read. A standard camera was stated to be of little use for this class of work, owing to the notice it invariably attracted and its inconvenience when opportunities have to be seized on the spur of the moment. Holding the camera at a low level was recommended as giving the most picturesque results, and it was noted as a merit of the reflex type of apparatus that it practically compelled the operator to do this. The advantages of an anastigmat lens of large aperture, in conjunction with a focal-plane shutter, were recognised, if many figures or vehicles in rapid motion were to be taken; but for purely pictorial work, in which too many figures or vehicles would be a demerit rather than otherwise, it was said that a rapid rectilinear at f/8 or f/11, and an ordinary diaphragm or bellows lens shutter would give quite satisfactory negatives with extra-rapid plates, except on very dull days.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—Meeting June 21, Mr. Teape in the chair. Mr. A. L. Henderson showed a stereoscope in the form of a book, which was patented in 1856 by Langenheim, and again with improvements in 1856 by V. Lloyd. Either prints or transparencies might be viewed by its aid, and it also acted as a storage box for prints, of which 24 or 36 might be inserted or a less number of transparencies. It was covered in morocco, and titled "Stereoscopic History." It was generally thought that this might be improved and put on the market again with profit to the producer. The following were nominated as officers for the coming financial year, the election taking place at the annual general meeting on Thursday, the 28th. Trustees—T. E. Freshwater and A. Haddon. Committee—Beckett, D. W. Hart, Ernest Human, J. S. Teape, A. E. Smith, J. T. French, A. B. E. Fry, S. C. Mote, Furley Lewis, T. K. Grant, R. J. Kindon, J. E. Ellam, and W. R. Stretton. Hon. recorder—Ernest Human. Lanternist—E. T. Wright. Librarian—W. J. Ferry. Hon. secretary and treasurer—Herbert C. Rapson. Delegates to the R.P.S.—J. S. Teape, Ernest Human, Furley Lewis and H. C. Rapson. Auditors—A. B. E. Fry and W. R. Stretton.

**SOUTHEAST PHOTOGRAPHIC SOCIETY.**—On June 25 there was opened a free exhibition of members' work. Mr. F. J. Mortimer, F.R.P.S. acted as sole judge of 150 entries. The president's silver challenge shield, for the best four pictures that had not previously obtained an award, was won by Mr. L. J. Steele for prints titled respectively "The Incense Bearer," "By the Fireside," "The Garden of Allah," and "Sons of the Desert." Silver medals were also awarded to Mr. S. Dawe for a figure study, to Mr. M. W. Cliffe for a picture of street architecture, and to Mr. F. Cooley-Martin for a landscape by a member who had not previously won any award.

## CATALOGUES AND TRADE NOTICES.

Messrs. Raines and Co. know as much about making and finishing regiments as they do about producing a handsome price list, their printers have cause for mutual congratulations, and as catalogue making is quite incidental to the large Ealing business, and has to be done only once a year, there is good reason to suppose that Messrs. Raines know a good deal less about that than about their business proper. To those who have proved the high standard of the firm's commercial work for the trade, all this no doubt sounds like pure nonsense, but we may, nevertheless, draw the attention of those who without such experience to the fact that the taste and judgment exercised in the supervision of such a list as Messrs. Raines' necessarily means the possession of abilities which are of the greatest importance to a successful enlarging business. The list shows that Messrs. Raines are original, and can appreciate good quality—namely, they are in love with any article which is as good as it can be made. There are one or two new specialties in the list, the prices are set in some instances, and are based throughout on the supply of good creditable work at a reasonable figure. The list is one which professional photographers may obtain free, and they should certainly apply for it.

The firm of Fallowfield, 146, Charing Cross Road, has issued a very useful condensed list of prices of dry plates and papers in all the British and Continental. It is the most complete and handy compilation obtainable, and is sent free.

Messrs. Houghtons, Ltd., have issued a supplement to their 1906 price list, an act of supererogation on their part we were at first inclined to think, but we perceive that the supplement contains revised prices and descriptions of many new articles. In appearance and size (16 pages) it is a testimony to the magnitude of Messrs. Houghtons' operations. The supplement is sent to bona fide dealers. Amateur purchasers may obtain a list of selected apparatus post free on application.

Mr. J. R. CAVE, 52, Nevill Street, Southport, sends us his catalogue of photographic requisites, the size (150 pages) and style of which should gratify residents in Southport from the evidence afforded by the large and representative way in which Mr. Cave holds stock of photographic materials and apparatus.

## News and Notes.

**BRISTOL Photographic Club.**—This Club is energetically pushing on the arrangements for its exhibition next October, and are successfully interesting prominent citizens of Bristol. The patron already includes many notabilities, including the Bishop and odd M.P. or two. The judges will be Messrs. Reginald Craigie, H. Evans, and F. M. Sutcliffe. The hon. exhibition secretary Mr. J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.

The international celebration of the Coal Tar Colour Jubilee, which takes the form of a memorial to Dr. W. H. Perkins, to whom the discovery of the aniline dyes is due, takes place on July 26 and 27, when the following programme will be carried out:—July 26.—11 a.m.: Meeting at the Royal Institution for the presentation to Dr. Perkin of portrait, bust, addresses, etc.; ladies are invited. 7 p.m.: Banquet at the Whitehall Rooms, Hotel Metropole; many distinguished guests are expected to be present. July 27.—2-6 p.m.: Visit to the original works at Greenford where mauve was first manufactured, and garden party at Dr. Perkin's house. Train from Paddington (G.W.R.) at 2.15 p.m. Greenford. Return from Sudbury by G.C.R. at 6 p.m.; ladies are invited. 8.30 p.m.: Soirée at the Leathersellers' Hall, at the invitation of Dr. and Mrs. Perkin; ladies are invited.

The Leeds Photographic Society is opening an exhibition of photographs of Herr R. Dührkoop, as shown at the BRITISH JOURNAL OF PHOTOGRAPHY at the Philosophical Hall, Park Row, Leeds, until July 7. The exhibition, it is hoped, will draw the attention of photo-

graphers in Leeds to the Society, which, though the oldest in the Kingdom, is renewing its youth in a variety of ways.

MR. ARTHUR WHITING, a contributor to the B.J. on retouching matters, and author of Messrs. Dawbarn and Ward's "Retouching," has added a photographic department to his business at 2, Station Road, Bishop's Stortford.

A FIRE broke out last week at 45, Grand Parade, Brighton, premises occupied by Mr. Gascon, photographer. The fire had not obtained a serious hold, and it was quickly extinguished.

MR. GEORGE EASTMAN, of Rochester, N.Y., so we learn from "Science," has subscribed £200 annually for the next three years to enable the continuance of research work in photography at the Yerkes Observatory of the University of Chicago. The investigations will be carried on by Mr. R. James Wallace, photophysicist at the observatory. Mr. Wallace's recent papers on diffraction gratings have appeared in our pages.

DR. W. J. RUSSELL, F.R.S., was down for reading a paper yesterday evening at the Royal Society on "The Action of Plants in a Photographic Plate in the Dark."

**FLUID LENSES.**—Mr. W. A. Rublee, United States Consul-General at Vienna, reports to the Washington Bureau of Manufacturers that a Hungarian chemist has invented a process for producing large and cheap lenses that may be of great value for scientific purposes. It consists essentially in enclosing a fluid substance between hard glass surfaces, similar to watch crystals, in such sort that the glass surfaces correspond with the enclosed liquid as to yield pure transmission of light. Air is, of course, excluded, and evaporation prevented, and it is asserted that the fluid will not suffer by lapse of time or changes of temperature. For astronomical purposes the chief recommendation is that the new lenses, according to this report, can be manufactured of large size and at relatively small cost—a fraction only of what has hitherto been paid for the best telescopic lenses. Experience alone can determine how far these claims are valid.

**PHOTOGRAPHY** is represented this month in the "Magazine of Fine Arts" by a reproduction of Mr. J. C. S. Mummery's "Near Amberley," which is accompanied by some notes on the gum prints of Mr. Mummery, and others by F. C. Tilney. There is also a lengthy appreciation, with a number of reproductions of the exhibition of German artists, at the Grafton Galleries.

MESSRS. GOLD, SMITH, AND CO., Manchester, had their annual picnic on Saturday last to Miller's Dale and Tideswell. The train and catering arrangements were carried out by Messrs. Cook and Son, and the picnic proved most enjoyable. A short toast-list was gone through, and in wishing success to the firm the great business increase during the year was mentioned, as also the continued good feeling between employers and employed. The picnic was a largest on record, and everyone present on the previous occasion a year ago was still in evidence. In response to the toast of the firm, Messrs. Waightuch and Bradshaw suitably replied.

## Commercial & Legal Intelligence.

**EMBEZZLEMENT** by a Canvasser.—William Lacey, photographer, St. John's Wood Road, London, was charged on a warrant, at the Oxford Police Court, last week, for embezzling several sums of money received by him for his employers, Messrs. Gibson and Co. Frank Collins, of North Shields, said prisoner had been employed by the company as a canvasser and collector. He had been instructed to give the moneys he received to witness the same night. Witness had not received certain sums due to Messrs. Gibson and Co. Prisoner's wages were 27s. 6d. per week and railway fares. He was recommended by a woman in London on his engagement. Prisoner pleaded guilty. He said he had had a lot of trouble, and did not take the money with the intention of robbing his employers. He would gladly pay them back. He had a little boy in London who was ill, and he took the money to enable him to go up and



see the boy. Mr. Colcutt said the prosecution did not wish to unduly press the charge. The Mayor said the Bench had considered the circumstances of the case. A fine of 38s., including costs, would be inflicted, or one month's hard labour.

**THE Black Art.**—At the Newtown County Court last week Christopher Jones, sweep and photographer, claimed the balance of an amount due for the supply of photographs of school children from James Shelton, schoolmaster, Llanwnnog. An order for payment was made.

**CARDIFF Bankruptcy.**—Heavy rentals and rates, and competition in business, were the chief causes assigned for the failure of Adolph Joseph Siedle, photographer, Queen Street, Cardiff. The first meeting of his creditors was held at the Cardiff Official Receiver's Office on Saturday, and the statement of affairs showed the gross liabilities were £340 11s. 11d., of which £302 8s. 1d. was expected to rank for dividend, and assets £15 6s. 2d., leaving a deficiency of £287 1s. 11d. Debtor stated that he commenced business in partnership with his brother at Swansea in 1888, and in 1894 they opened a branch at Newport. In 1900 debtor opened a branch business at Cardiff, and five years later he was obliged to close the Newport business in order to reduce his expenses. There were no creditors at the meeting, and the Official Receiver remains the trustee.

**THEFT by a Canvasser.**—A young man named Singleton was charged at the Nottingham Summons Court on June 22 with embezzling two sums of 5s. each, the property of the Brunswick Fine Art Company, Chancery Chambers, St. Peter's Church Walk. The defendant had been in the employ of the prosecuting company for three or four months, his duties being to collect accounts from people who bought enlargements of photographs. A number of sums for which he had given receipts had not been accounted for to his employers. The prosecutors did not wish to press the case, but had brought it as a warning to their many other collectors. Lily Rosenberg, cashier to the company, deposed that the receipts produced were in the defendant's handwriting, but he had not handed over the money to her. Mr. Smith pleaded the defendant's previous good character. He had offered to make up the deficiencies, but the money had been refused. Mr. A. E. Wells, local manager of Messrs. W. H. Smith and Sons' wholesale department, in whose employ Singleton had been for sixteen months, bore testimony to his good character. The defendant was bound over under the First Offenders' Act to come up for judgment if called upon.

**ENLARGEMENT FRAUDS.**—At the Quarter Sessions, Boston, on Monday last, William Nicholls was charged with obtaining various sums of money from different persons at Gosberton, Donington, and elsewhere in the district by offering to make enlargements of photographs. The Chairman, in delivering sentence of the Court, said there had been a bad record against the prisoner for a long time. He mentioned five previous convictions against him for fraud in different parts of the country, and said he was evidently one of a regular "long firm" of fraudulent men, and had been systematically defrauding the public. He was sentenced to twelve months' imprisonment with hard labour.

The increase in the number of these enlargement frauds greatly discourage the employment of any such business methods by photographers who value their reputation. Scarcely a week passes without either the enlargement system or the coupon business turning up in the police courts. We ourselves, by publishing these reports, endeavoured to discourage this branch of the profession.

#### NEW COMPANIES.

**DERBY AND DISTRICT PHOTOGRAPHIC AND GENERAL SUPPLY COMPANY, LIMITED.**—Registered June 19. Capital £3,000, in £1 shares. Objects: to acquire the business carried on by H. J. Blount at 63, London Road, Derby, as the Derby and District Photographic Company, and to carry on the business of photographers, picture-frame dealers, etc. No initial public issue. The first directors (to number not less than three nor more than seven) are: H. J. Blount (chairman), A. H. W. Harrison, S. Gilbert, T. W. Fletcher, and J. Peach. Qualification, 25 shares. Remuneration (except managing director) as fixed by the company. Registered office, 63, London Road, Derby.

## Correspondence.

\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—I notice that the P.P.A. are trying to introduce general assistants' certificate. I presume that the others will follow. I predict the same for this. Why? Because the P.P.A. has not done what was expected of it. I understood, when it commenced, that it was intended for professionals, not amateur professionals. Yet the Association does not enquire into the mode of business of the so-called professional when he wants to join. The result is that every sticky-back man in the country can have an M.P.P.A. after his name by paying a few shillings a year. There are a great number of men who commenced as amateurs who cannot take a photograph right through. The usual range of such men's abilities is to take a negative, print in silver, and tone it. Retouching they know nothing of; the artistic side they ignore. Their chief aim in life is to get a strong, clear negative. They usually work at full time on their work in a small house with a movable studio put up in the yard. The men who cut prices and buy the cheapest materials and apparatus they can buy.

These men are practically ruining the middle-class trade. There are many men who have paid heavy premiums to learn the profession, who take a pride in their work, who are losing their customers by such men. Yet these amateur-professionals can become recognised as bona-fide professionals by the P.P.A. The assistants see behind the scenes—they know what these men are—the work they do. Is it likely they think much of certificates given out by an association which recognises such workers?

If the P.P.A. would issue certificates for professional photographers, and make the gaining of them depend upon an examination there would be better results perhaps.

The first thing for the P.P.A. to do is to enquire into the professional standing of some of its members, and turn off the undesirable. I do not deny that the gentlemen on the committee are first-class workers, but I do deny that the members represent the true professional.

I think what is required is a Photographic Assistants' Trade Union. As a body they are about the poorest paid men in the country, and have about the longest hours; 10½ and 11 hours are very common among these amateur-professionals for assistants; while the usual salary they pay is 25s. per week, which works out about 4½d. per hour.

A bricklayer's labourer gets 6½d.

Let the P.P.A. get down to the foundation of things and they may do good.—Yours,

DISGUSTED ASSISTANT.

[Our correspondent had better consult the list of members of the P.P.A. to see if he can discover a majority of "backyard studio" photographers.—Eds., B.J.P.]

### URANIUM TONED IMAGES.

To the Editors.

Gentlemen,—I regret that pressure of work prevented me from replying last week to Mr. Welborne Piper's courteous letter of the 15th inst.

I am not quite clear as to whether he suggests that a slide should be cut in half and one part treated with the red-tone bath and the other in the brown-tone bath. If this was his idea, it was also mine in suggesting the use of H. and D. strips. If Mr. Welborne Piper cares to carry out some experiments on these lines I can now let him have two or three quarter-plates exposed in an H. and D. machine, which he can develop and cut, and treat as he likes.

With regard to his method of working with equal quantities of

and ferricyanide in such extremely dilute solutions, one must see what would happen. Taking Clerc's figures as correct, substituting uranium nitrate for the acetate, we should require 9,072 parts respectively to form the red and brown com-

Therefore there would not be enough uranium to form the uranium ferrocyanide, but we should have a small quantity of red salt formed with an excess of 0.25 parts of potassium cyanide in 3,000 parts of solvent. This small excess of ferricyanide would not attack to any extent the metallic silver, therefore we should have the red uranium compound precipitated on a black and the result would be brown, because red on black gives us brown.

This exactly coincides with your correspondent's views. As regards his second method wherein he used a much stronger solution: if this was in the same proportions I should argue that he had the same deposit of the red compound with the formation of some ferrocyanide of silver, the former of which would be dissolved, whilst the ferrocyanide of silver might be converted into orange ferricyanide, and with the subsequent slow toning we get practically the same thing, namely, a red deposit on a black image.

Probably I may point out that a sulphocyanide acidulated gradually with hydrocyanic acid. If your correspondent will also use some acetate in his solution he will probably find that he will get the difficulty of keeping his solution. I have no doubt, too, that potassium citrate would act as well.

Probably the term "fading" has been loosely applied, but still I think it is correct even when used in reference to the uniform change of your correspondent's prints, as the academic definition of fading is to grow pale or dull in tint or colour."

I cannot speak as to the prints varnished by the late Mr. Dresser, but certainly can as to one of his prints of "Aylesford Bridge," which was in my possession for some years. This was a rich red print and gradually acquired a metallic sheen towards the edges, darker, and in patches became a clear yellow, and was finally blown into the dust-bin. One or two of his prints were years back in the possession of the R.P.S., and these were all in tone, and if still in existence they might be worth examination; they must be from twelve to fourteen years old.

As regards slide D, this, with the others, was merely toned to disprove the facts in dispute, and they are of no value to me. Yours faithfully,

E. J. WALL.

#### "STIPPLETTE."

To the Editors.

Gentlemen,—Whilst thanking you sincerely for your more than ample notice in last week's issue of my new method of working black and white and colours, I must point out that owing to a printer's error in the first line of the paragraph, your readers may be led to form an entirely incorrect opinion as to the method and its application. The word "stripping" as printed, suggests some special process to the surface; whereas "stippling," the words which should have been employed, at once convey the correct meaning without ambiguity. There is no "stripping" in "Stipplette," but only the artistic imitation or effect of sable brush stippling and shading—from the boldest to the finest—so exact, although quickly done, that experts cannot detect the difference.—I am, Gentlemen, faithfully,

T. S. BRUCE.

I regret the literal error in describing Mr. Bruce's ingenious process. The context, we hope, did not permit of an erroneous impression being retained of the character of the effects produced by it. Mr. Bruce is leaving a specimen of the process with us, and it may be of interest to anyone interested.—Eds., B.J.P.]

ORTHCOMING function deserving of support is the concert in the Town Hall on July 11 in aid of the building fund of the Union Club. Miss Janotha, Court Pianist to the Emperor of Germany, will be assisted by the band of the Royal Engineers.

The Whitstable Photographic Society meets the first Monday in each month, when a day is fixed for a monthly outing. Those in the neighbourhood should communicate with the Hon. Sec., S. J. Wilson, 38, Canterbury Road, Whitstable.

## Answers to Correspondents.

\*<sup>a</sup> All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\*<sup>b</sup> Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\*<sup>c</sup> Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.

\*<sup>d</sup> For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

E. H. Neale, 168, High Street, Lincoln. *Photograph of Afternoon Performance of the Triennial Festival, taken in Lincoln Cathedral. Three Photographs of Dr. King, Bishop of Lincoln.*

W. Jennings, 21, Larkhill, Blackburn. *Four Photographs of the Very Rev. Dean Woods, Rector of St. Anne's R.C. Church, Blackburn.*

H. B. Cooper, 13, Abbey Park Road, Leicester. *Photograph of a Street View at Greetham. Photograph of Cottesmore Hall, Cottesmore, Rutlandshire.*

MAGNESIUM.—Would you kindly say what the exposure would be for a statue in a dark building, using magnesium ribbon as the illuminant, and a plate speed 200 H.D., stop  $f/32$ ? If you could say about how many inches of the ribbons should be burnt for the exposure I should be greatly obliged.—B. A.

We are afraid any data will be of little use, but we should advise you to try 200 to 250 grains of the ribbon:  $f/32$  is a small stop for such work; better use  $f/16$  and one-fourth the magnesium.

MR. STEVENS' PHOTOGRAPHS.—In some remarks of yours on Mr. Stevens' flower photographs, you say "the secret is . . . ample exposure and restraint practised in development." What is meant by the latter remark? Restraint by bromide or weak developer, or what? Kindly say.—CATHAY.

We believe Mr. Stevens uses as pyro soda developer without additional bromide and conducts development tentatively by gradual addition of both alkali and pyro, aiming at detail in the shadows without excessive density in the high-lights. Development may last twenty minutes or half an hour.

ELECTRIC LIGHT.—We have an electric light apparatus fixed in our studio, and we are very anxious to get it into working order before we have the dark evenings on us again. The light is one which we think is in general use in studios, the light being reflected into a large white umbrella, and is then reflected very softly on the sitter. It is between four and five thousand candle power. We enclose a small rough print from one of the negatives, and you will see by it that it is far from successful, as it is quite similar to one that has been taken by flashlight. Do you think any improvement would be made if a head screen were used between light and sitter? Any hints that you can kindly give us, so as to improve our work, we shall be very grateful to you for.—ELECTRIC LIGHT.

The light is evidently too small, or else is too far away from the sitter, which amounts to much the same thing. Though your negative may show detail in the shadows it is under-exposed, the tones not bearing a proper relation to each other. If you use a very translucent diffusing screen between the light and the sitter, you will soften the contrast by lowering the tone of the high lights, and this will not affect the exposure. But by the judicious use of a large reflecting screen you can better illuminate the shadow and so shorten the exposures. In some cases both diffuser and reflecting screen may need to be used.

FOREIGN COPYRIGHTS.—May I trouble you to answer in your next where can I get to know if certain foreign photographs are copyright in this country or otherwise, and what would be the cost?—W. FROST WILSON.

If the photographs are copyrighted in a country of origin which subscribes to the Berne Convention, they are, *ipso facto*, copyright in this country. You will find a full explanation



tion of foreign copyright in the current "Almanac." There is usually no easy way of finding if the photographs have been registered abroad, and in some countries registration is not required.

- A. **BOOK ON WORKING-UP.**—Would you kindly say if there is a book published treating on the finishing of enlargements, that is, working up with the brush? Preferably a book with illustrations showing process of hatching, etc. If so, please say publishers and price of same.—**ENTERKIN.**

"Retouching Negatives and Finishing and Colouring Photographs." By Robert Johnson. Published by Marion and Co. Price 2s.

- W. **A. RENNIE.**—Better sensitise the film with bichromate, print out, develop, and dye (in one bath only), as in the Sanger Shepherd colour process. (See article on another page.)

- W. **B.**—She has no power whatever to restrain you from issuing the photographs.

**TONED BROMIDES.**—I notice in your "Journal" a report on some enlargements shown you by Messrs. Jeffery, Edwards and McLeod. You say that sepia-toned enlargements are supplied in two standard shades of colour. As an amateur making enlargements for exhibition, I should be glad if you could inform me how two shades are obtained. I have always understood that the colour obtained is not a standard one, and varies according to the negative. Any formulae you know will be of interest to me, as I am anxious to experiment in the direction of getting two definite colours.—"**TONED BROMIDE.**"

We are not able to say what formulae are used in supplying the enlargements.

- DEVELOPMENT FACTOR.**—In "B.J." of March 9, 1906, Mr. W. B. Ferguson mentioned a paper on "Constant Development Factor." I should be grateful if you would tell me if it is yet published, and where it can be obtained.—**Q. S.**

The paper was read on April 20, and is briefly reported in our issue of April 13. It is published in the May issue of "The Photographic Journal."

**COATING CELLULOID WITH GELATINE.**—(1) Is there any difficulty in coating celluloid with a solution of plain gelatine, say in sheets 12 x 10 in.? I want to use it for some experimental work in carbon. (2) What sort of celluloid is most suitable? Polished both sides or matt on side to be coated? (3) Is any substratum necessary to cause the gelatine to adhere to the celluloid? (4) I suppose the ordinary formula for carbon tissue (minus the pigment) will be suitable for coating. (5) I should also like to coat some of the sheets for stripping. I presume some form of India-rubber solution is necessary as a substratum. Kindly give particulars.—**KAYBOUGH.**

(1) No; if you fix the celluloid flat on a piece of glass, which should be levelled on a levelling stand. It is easy to fix the celluloid temporarily by squeezegeeing down to the glass if the latter is flooded with plain water or a very weak solution of gelatine. (2) If the gelatine is to be subsequently stripped, polished celluloid must be used; if not, we should advise using celluloid matter on one side and coat the matt side. (3) There is no difficulty in making gelatine adhere to matt celluloid. In the case of polished celluloid it is not, however, so easy. It is advisable to quickly polish the surface with a solution of 1 oz. of ether and 19 ozs. of methylated spirit; this gives a very faint bite to the surface to which gelatine will adhere well. (4) This will entirely depend upon what you require the film for. (5) There is not the slightest necessity to use rubber solution; if you simply polish the surface well with French chalk the film will strip very readily even after sensitising, exposing and developing, but it can be made more sure by treating the celluloid with the usual waxing solution as in double transfer, only in this case there is a chance of the film stripping whilst drying.

- AMIDOL STAINS.**—Would you please tell me the best thing to get amidol stains off finger-nails? Been on some time now.—**CHAS. AMES.**

Try ammonium persulphate, rubbed on wet.

- A. **B. C.**—We should say you can afford to wait at least five years. The new departure is at present on its trial. It has yet to be seen if it can be made to pay.

**ARTIFICIAL LIGHT, ETC.**—1. Can you advise me as to a book on ortho-work, especially with regard to portraiture, etc., by focal light—one giving facts and formulae? 2. I fancy I saw an article in the B.J. or other photographic paper some time ago on taking portraits, etc., by lamp or gas light (not mains), but cannot trace it?—**D. B.**

1. We can only refer you to "Practical Orthochrom Photography," by Arthur Payne (Hilffe, ls.). We have an article on the subject appearing shortly. 2. We cannot say. 3. Probably Mawson and Swan, Mosley Street, Newcastle. Tyne, will supply it.

**COMBINED BATH.**—Will you give me a good formula for a combined bath suitable for postcards?—**BATH.**

Two excellent formulae are given in the "Almanac," 1906, p. 974. The following is also satisfactory:—

Ammonium sulphocyanide .....	30 grs.
Salt .....	60 grs.
Lead acetate .....	10 grs.
Hypo .....	4 ozs.
Water to .....	19 ozs.

Dissolve and add with constant stirring:—

Gold chloride .....	2 grs.
Water .....	1 oz.

Allow 1 oz. of this to every postcard.

**PUZZLED.**—You give no data as to the treatment the card has undergone, but we should say that you have been using a combined bath, and that the yellowness is due to sulphur toning. It can also be caused by the cards carrying acid into the fixing bath.

**GLAZING CARDS.**—Can you explain why the accompanying postcard will not strip in glazing? After the hypo bath, they were immersed in alum, and we have tried both plate glass, ferrotype, and they leave the latter better than the glass, which is cleaned with methylated spirit and then rubbed with French chalk. Can you suggest anything better?—**C. BURNHAM.**

We should say that the glass had been touched by fingers after cleaning. A very good method is to immerse the cards in a 5 per cent. solution of formaline after well washing then into methylated spirit. Clean the glass with a mixture of

White tripoli .....	1 ounce.
Liquid ammonia .....	1 ounce.
Methylated spirit .....	19 ounces.

Rub this over the glass, allow to dry on, and then polish with a wash-leather. Take the cards from the spirit, and at once without draining, squeeze down. Another good plan of cleaning the glass is to use the following:—

Castile soap shaved fine .....	2 ounces.
Oil of rosemary .....	1 drachm.
Water .....	2½ ounces.
Methylated spirit .....	17½ ounces.

Pour a little of this on the glass, rub all over it, and then polish. Also one ounce of ordinary resin ointment, to be obtained from any chemist, can be dissolved in a quarter of a pint of turpentine, and a little of this rubbed over the glass, and then polished will ensure any card stripping, as it leaves a thin film of resin and resin on the glass. It takes, however, rather longer than the others, as the turpentine must evaporate.

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# JOURNAL OF PHOTOGRAPHY.

PRICE TWOPENCE.

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### SUMMARY.

The Photographic Convention.—In connection with the meetings at Southampton next week we include in this issue portraits of those programmed to take part in the proceedings.

An article by Mr. E. W. Foxlee deals with the new ("ozobrome") process of Mr. Manly, in which a bromide is made the stepping-stone to a carbon print. The carbons are obtained from the bromide without exposure to light. The process is to be demonstrated at a Convention Conversazione. (P. 524.)

Mr. Arthur Payne gives a full account of the methods employed by him in using pinachrome-bathed plates for short-exposure photography of theatrical performances. (P. 529.)

We give a formula for a preparation similar to the "etchographates" mentioned last week. (P. 522.)

Cases of fogging from dark-slides with aluminium shutters point the precaution to avoid abrasion of the metal surface. (P. 522.)

The cinematograph is said to be in course of general application in America for popularising the work of the Department of Agriculture. (P. 522.)

Dr. Murray, in his "New English Dictionary," has included 10 "photo" words. (P. 523.)

The attitude of the P.P.A. to assistants' certificates calls forth verbal letters discussing the grounds on which assistants are said to have held aloof from the past and present scheme. (P. 527.)

A correspondent calls attention to the discrepancy in the charges made for photographing in show places to "amateur" (?) and professional photographers. (P. 539.)

A correspondent gives the remedy which he has found effective against catarrh as a result of handling platinum paper. (P. 538.)

Dr. Doelter, of Graz, writes in explanation of his method of making photo-micrographs of molten minerals. (P. 527.)

EX CATHEDRA.

## The Eve of the Convention.

**The Eve of the Convention.** The latest announcements to be made in regard to next week's programme at Southampton are that arrangements have been made for an informal talk on professional topics on Tuesday evening, from 7 to 8, in the secretaries' room. Our correspondence columns this week may provide more than one subject to be brought before this friendly conference of professional photographers attending the Convention. It is to be hoped that this feature of the Convention will be still more in evidence at future meetings. "Ozobrome" (see this week's article) will be demonstrated by Mr. Manly, and examples of Dr. Smith's printing out colour paper are also to be seen on exhibition during the week. Altogether we think the Convention Executive may congratulate itself on being able to make a very strong and representative show of the latest progress in technical photography.

\* \* \*

**Ozobrome.** Mr. Manly's new process, of which the specification was published in our last week's issue, is the subject of some notes in this issue by Mr. E. W. Foxlee whose claim to write on carbon printing and its cognate branches will scarcely be questioned. Mr. Foxlee's article and the extract from a circular of the Ozotype Company will make clear the two ways of "Ozobrome," and our readers should be able to judge for themselves the facilities which the new process puts in the way of those who make carbon prints and enlargements for pleasure or profit. "Ozobrome," we are glad to be able to announce, will be demonstrated by Mr. Manly himself at the Convention-Conversazione at Southampton on Monday evening next.

\* \* \*

**A Society Activity.**

**A Society Activity.** From a Society fixture card:—"The Society subscribes to the chief current photographic publications, and copies for several years past of the 'British Journal of Photography,' 'Amateur Photographer,' 'The Studio,' 'The Photogram,' and other works are preserved for reference." Such a duty, which we have no doubt is discharged by many societies, may be impressed upon others, who must plead guilty to sins of omission, as one which costs very little but is often worth a good deal to the society. Our recollection of several societies is that on occasions when some quoted authority or article was disputed, and reference was made to the file of the periodical in which it was to be found—the discussion invariably assumed an interest which it lacked at other times, when the opportunity for criticism was less definite and ranged over a narrower field. On "open nights," often the most profitable a society can arrange, we have seen the same thing occur, a reference to



a back number of one of the photographic journals provoking an active discussion, and often providing the members with subjects for another evening. A society should certainly preserve its journals for the private use of members, but the usefulness of this portion of its library is all the greater if the volumes are quickly accessible during the meetings.

\* \* \*

### **The Cinematograph in Agriculture.**

If we are to credit reports in the press, very extensive use is to be made of cinematograph pictures by the Department of Agriculture in the United States. The Department on its experimental stations has done a great deal of work on plant breeding, and has accumulated much information in the interest of the farming community. It is now proposed to increase the interest in scientific agriculture by touring the country with lectures, in which, by means of the cinematograph, a very forcible impression can be conveyed of the facilities which the Government holds at disposal. To this end films have been prepared which record on the screen in a few seconds the growth of plants or agricultural operations which occupied months in actual execution. The hourly exposures of the film which are made for this purpose are given automatically in a greenhouse lighted by arcs for exposure throughout the nights. It is anticipated that the pictures, thus obtained with infinite labour, will contribute in no small degree to the adoption of modern methods by the farmers.

\* \* \*

### **Aluminium as a Fogging Agent.**

A contemporary recently published a print sent by a correspondent showing uneven fogging action over almost the whole of the plate, and this was accompanied by a second print showing similar fog on an unexposed plate contained in the same slide. Only one slide of a set fitted with aluminium shutters showed the effect, hence, at first sight, it may not appear probable that the aluminium was responsible. Since attention was drawn to this case we have, however, heard of another. In this instance the plate showed parallel thin lines throughout its length. These occurred only in one slide, and, as the result of careful investigation, it was found that these lines corresponded with similar lines scratched on the inner face of the aluminium shutter. Further search revealed the fact that these scratches were caused by turned up rough edges of metal at the end of the slide, so that every time the shutter was pushed in the lines were re-scratched and fresh metal was exposed. It therefore appears that some emanation from the fresh metal surface attacked the plate. As the effect in each of these cases was confined to one slide, it does not appear that aluminium generally is to be condemned as "radio-active"; but the second case shows clearly that such slides should be made carefully, and that anything likely to abrade the surface of the aluminium should be carefully avoided.

\* \* \*

### **Etchograph Plates.**

The note on the above in our last issue has brought us several letters on the subject from readers who are anxious to try their hand at this class of work, and as one correspondent points out, whilst utterly unable to make an original drawing, he would have no difficulty in tracing from a print. There is, of course, the old method of drawing in waterproof ink over the outlines of a bromide or other silver print, and then dissolving out the silver image, but this obviously does not give a negative that can be duplicated. Somewhat

similar plates, or rather plates for a similar purpose, obtainable from Klimsch and Co. These are yellow white in colour, and after the drawing has been made are exposed to the fumes of ammonia, which blacken them. To make black etching plates the simplest thing to use is, of course, the etching ground as used by ordinary etcher for his metal plates. A good substitute will be found in ordinary Brunswick black diluted with a mixture of chloroform and benzole to a suitable consistency, and then flowed over the glass. For those who wish to make such plates the following method lately given in "Photographische Kunst" will be useful. The ground is 50 parts of Syrian asphalt powder, 10 parts of Venice turpentine, 10 parts of linseed oil varnish, and 10 parts of turpentine. These must be ultimately mixed and heated till the asphalt dissolves, and then more turpentine added till it is of a fluid consistency. This liquid should be poured over warmed glass, and allowed to set thoroughly hard and dry. This plate must now be dabbed all over with solution of gum-arabic, and then rinsed with water, and finally lamp-black mixed with a little glycerine water continually dabbed over the plate, till on looking through it it appears uniformly black. The print to be converted into line is now laid on the plate, and the lines traced with a hard pencil, pen, or other point. The turpentine removes the lamp-black and leaves the semi-transparent brown ground clearly visible in the lines, and etching then be performed in an ordinary retouching desk, or on any support with a mirror or other arrangement underneath to reflect the light through. Ordinary etching needles will of course answer perfectly.

## THE CONVENTION.

THE meeting of the Photographic Convention of the United Kingdom, next week is, as has already been pointed out, the twenty-first, and one may naturally take a glance over the past. In the infancy of the Convention there is no question that the meetings bore a totally different character from those of recent years; but then photography itself has changed during the last two decades. In the early days business meetings and a host of papers, some of great interest and value were read, and the social side was subordinated. But with the greater popularity of photography, and the greater dissemination of photographic literature the character of the meetings underwent an inevitable change. Possibly satiated with knowledge readily acquired, the members certainly paid more attention to the excursions and the social side, and less to the scientific. This is not to be wondered at. It is a change which has befallen nearly every other photographic society and body.

Complaints have been brought against the Convention and charges made that it was not fulfilling its purpose, but so long as the members were satisfied, outsiders had no right to complain. This year, apparently, with its coming of age the Convention has determined to prove that it intends to emphasize its position as a responsible and dignified body in the photographic world. Doubtless some of the members will still shirk the attendance at the evening meetings, and go in for lighter enjoyments, nor can they be blamed. Many make it part of their annual holiday, and look upon it as a pleasant reunion where such distinctions as amateur

professional are dropped, and all meet on the common ground of past friendship, and as members of the Photographic Convention of the United Kingdom.

In its infancy the Convention was not always in a flourishing condition financially, but for some years now it has gradually been accumulating funds, which we hope will be turned to good account. In this year's handbook, No. 47, we see announced that "The Council of the Photographic Convention of the United Kingdom, is prepared to make grants of money in aid of photographic research." The offer is not by any means a new one, as we have seen it was first made some seven or eight years ago, and in rules were framed and adopted, though but little has since been heard of the fact, nor has there been, so far as we can hear, any application made for some years.

We do not consider the rules perfect, but as any application would be considered on its merits by the Research Sub-Committee, they are no doubt elastic enough to permit of a fairly wide reading.

Now that the Convention has attained maturity, with a position to take itself a little more seriously, there are many subjects which it might well take up. It might form for England some of that work which is undertaken by the International Congress of Photography and so on. We advisedly use this term, because but little is known of the results of the latter body in England; nor do we think that the resolutions it adopts are generally applied in this country, and they are indeed open to very considerable criticism.

It may be advanced against these views that the Convention is not sufficiently authoritative to lay down laws and rules which shall bind photographers generally. Yet we think there is little doubt that carefully considered resolutions, adopted after consultation with those chiefly concerned, would carry considerable weight.

The programme for next week's meeting certainly promises well, and is a good earnest that in future the Convention will be still more useful than it has been in the past. There is at least, we are glad to say, no sign that it is losing that distinctive feature which makes it so contentedly supported by many of its oldest members, and attracts so many new friends, namely, a common ground of fraternisation and friendship, where many meet only once in the year. It is to be hoped, too, that the winter union which took place at the beginning of the year will become an annual fixture.

### "PHOTO" WORDS.

Photography wanted a testimonial of its capacity of being applied in all kinds of ways and to all sorts of purposes—the quality which a German editor may express by the one word "ausgestaltungsfähigkeit"—it can find it in the latest part of the "New English Dictionary,"\* which has now reached P in its alphabetical progress. For the compilers confess their surprise that

Vol. VII. (Ph. Piper), edited by Dr. James A. H. Murray. Oxford: The Clarendon Press. 5s.

the group of photo words occupies 15 columns and numbers in all 240. "Such an addition to the vocabulary," writes Dr. Murray, "has the discovery of one physical principle brought about." A fair number of these words, such as "photo-dynamics," "photo-thermic," have nothing to do with photography, expressing the relations of light only to other effects, and Dr. Murray distinguishes between the different uses of the same prefix, one of which denotes light, and the other photography or some photographic process. The latter list of words supplies our proof of the multifarious part played by the camera in the world's work and play. We have photo-ceramics and photo-etching, photo-sculpture and photo-spectroscopy, photo-theodolite and photo-telescope, photo-xylography (photographing on wood) and photo-chromy and photo-chronography, the words embracing the worlds of colour photography and the cinematograph. These examples are culled from a long list, where each represents a process or a whole branch of science owing its existence to the camera: the dictionary is, as we have said, a demonstration of how the photographic process travels along the highways of modern life and industry and penetrates also into its courts and alleys.

We hope that Dr. Murray's clear distinctions in regard to the double and treble work, which is done by certain "photo" words, may be borne in mind by writers at any rate. Thus we have "photo" as a colloquial abbreviation of "photograph," used both as a noun and a verb. The first is bad enough, and we have always set our faces against the degeneration of "photograph" into "photo," but "photoing" and "photo'd" are worse still. Carlyle is found guilty of the first, and Mr. Jerome K. Jerome of the second. Our feeling has been that while "photo" and its conjugated forms may be admissible in speech, they should be reserved for speech alone. "Photos," with its air of cheapness, is best left alone in correspondence, and we can hardly conceive that it is worth while to save words and ink by writing to a client:—"I find that my predecessor photoed you two years ago!"

Dr. Murray's list brings to light the obsolete words which we may perhaps have forgotten, though they were often used in the early days:—"photographist" for the photographer, and "photographees" for the sitters. "Photographize" was surely never used by anybody but Kingsley, from whom it is quoted; and "photogram," despite Mr. Snowden Ward's defence of it, gets a very lukewarm defence from Dr. Murray on etymological grounds, and is marked off "rare."

As to who coined the words "photography," "photograph," and "photographic," Dr. Murray attributes them to Sir John Herschel, by whom they were certainly used for the first known time on March 14, 1839. We have referred to this historical point in past issues, and have had to confess our failure to find the faintest documentary evidence of any use of the words before Herschel's paper on the date we have mentioned. Dr. Murray, it will be remembered, actively concerned himself in the search for a prior use of the words, and his researches, of which, naturally, only the results are embodied in the Dictionary, were sufficient to establish the English origin of the words.

### CONVENTION NOTES.

Hereford has been named as the place of meeting of the Convention in 1907.

We believe that Sir Benjamin Stone will be unable to be present the Tuesday evening, and that his place will be taken by Mr. C. Scamell, the secretary of the National Photographic Record Association.

The "British Journal" may be obtained in Southampton from W. Martin, 112, High Street; W. Bates and Co., 50, Oxford Street, and 147, Above Bar; and Randall and Son, 146, High Street.

Those who visited the exhibition of colour-photography at the "British Journal" offices will be interested in seeing the progress made by several exhibitors, whose work is to be shown by Mr. E. J. Wall at the evening meeting of July 13.



## A NEW CARBON PROCESS.

IN "Ex Cathedra" for June 1 there appeared a brief announcement that Mr. Thomas Manly, the inventor of the "Ozotype" process, had perfected a new method of producing carbon prints, possessing the very distinct claims to notice, namely, first, that prints are obtained indirectly by the exposure of bromide paper to light; in other words, from a bromide print

### ▲ Warnerke's Silver-Pigment Process.

As would be gathered from the previous note the new process is associated with the bromide paper process; an idea, let us say at once, which is by no means a new one. A quarter of a century ago the late Mr. Leon Warnerke discovered that a gelatinous bromide of silver film, developed with pyrogallol and



*Photograph by*

The President of the Photographic Convention of the United Kingdom.

*[the Platinotype Co.]*

or enlargement; and, secondly, that the carbon copies are obtained without exposure to light. Since then, the patent specification of this process, "Ozobrome," as Mr. Manly proposes to call it, has appeared, and the process is thus open for discussion.

Carbon printing, as everybody knows, was invented by Sir J. W. Swan, and published by him in 1864, and it is a little strange, considering the great advance made in the various processes of photography since that time, that the carbon process remains the same and is worked in practically the same way as it was forty years ago. One of the great obstacles to the more universal use of this process is that a double transfer of the picture is necessary, if it is to show the "right way about"—that is as regards right and left. But such is, of course, necessary, unless a laterally reversed negative is used in the printing. Also daylight is absolutely necessary for the exposure of carbon print. Both of these drawbacks are obviated in the new process.

became analogous in character to a carbon one that had been exposed to light—that is the parts acted upon by light had been rendered insoluble in warm water. This formed the subject of a patent, No. 1436, which he obtained in 1881. One of the methods described in the specification is to mix a pigment with the bromide emulsion, spread it on paper, and dry. The exposure under a negative and develop in the usual way for bromides. This done, a piece of single transfer paper is squeezed upon it and then the picture is developed in warm water, as if it were an ordinary carbon print. In this way a carbon picture is obtained on a silver image. The latter could then be got rid of by solution in perchloride of iron, leaving only the carbon one behind. In this way a carbon picture is obtained with only the exposure to light required for a bromide. Warnerke's process has been re-invented more than once, in a modified form, and, within the last couple of years in Germany. The modification in this instance was the immersing of the transfer paper in a solution of the bichromate of potash before

ing it to the bromide picture. Nothing practical, however, some of these processes, and that can readily be understood when the difficulty is considered of developing a bromide to the right depth on a dark surface like carbon tissue.

### The Two Methods of "Ozobrome" Printing.

Mr. Manly's new process, which he has patented, is quite different from the above, and is based upon an entirely different principle. In this process a bromide picture, which may be printed from the negative or an enlargement, is produced in the ordinary way by artificial light. After it has been developed, fixed and washed, it is put into a five per cent. solution of formalin for five minutes to harden the film and render it insoluble in warm water. It is then washed to free it from the formalin. It may then be used at once, or it may be dried and used at any future time. Bromide prints already in existence, if treated with the formalin, may be utilised. The procedure is:—If the picture has been dried it is immersed in cold water and a piece of the pigment plaster—the inventor says the ozotype plaster alone is suitable—is taken and the print is immersed till limp in the patent "pigmenting solution." The plaster is then squeezed together and allowed to rest for an hour or so. The "pigmenting solution" is, according to the specification, of potass bichromate with a mixture of potassium ferricyanide and potassium bromide, to which may be added a small quantity of alum. The print and plaster having remained in contact for the necessary time, there are then two methods of procedure open to us. The first is as follows:—The print, with its adherent plaster, is put into warm water at a temperature of 100 deg. to 110 deg. Fahr. After a short time the pigment will be seen exuding from the edges, when the plaster can be stripped off and the unaltered gelatine washed off, just as in the ordinary carbon process. Here we get a reversed carbon picture on the top of the silver one, the colour of which has been changed from a black to a yellowish-brown by the action of the carbon sensitising solution. The original image, if desired, can then be got rid of by dissolving away with the usual ferricyanide and hypo reducer, or with a solution of perchloride of iron, as suggested by Warnerke. The second method of working, which seems to me to be far more commercially valuable than the first, is slightly more complicated, but possesses very decided advantages. Instead of printing the picture with its adherent plaster direct in warm water it is put into cold water, the plaster stripped off, and at once squeezed on to a piece of single transfer paper. It is then pressed between blotting paper and allowed to rest for ten minutes or so, as in the usual method of working the carbon process by single transfer. It is then developed in warm water in the usual way. Here, again, we get a carbon picture which is not reversed as regards right and left, but without a silver image beneath it. The bromide original, which has been changed from black to a yellowish-brown, is washed to free it from chemicals, and can then be re-developed with any of the ordinary developers for bromide papers, and the print then comes equal in appearance to an original bromide. What more, it can be used again to produce other carbon pictures. Mr. Manly tells us that the same bromide original can continue to serve so long as the paper foundation will hold together.

As to the theory of his process, the inventor states in the patent specification:—"In the process forming the subject of the invention the ferricyanide and haloid salts first bleach or disorganise the silver image, and the reducing action, thereby set up, is taken advantage of to decompose the bichromate salt rendering the gelatine insoluble. The bichromate salt has, therefore, only a secondary action, and is not affected by the silver image. This is shown by the number of prints that can be produced from a single bromide silver print."

### A Cheap and Quick Route to Carbon Enlargements

No doubt many will be curious as to the quality of the carbon pictures produced by this method. All I can say, from my own experiments, is that they are just ordinary carbon pictures, from which they cannot be distinguished. With a good bromide original, the carbon prints I have made have been quite as good as if they had been printed in carbon from the negative itself. If this new process fulfils the expectations of its inventor, and from my limited experiments I see no reason why it should not, it will prove a great acquisition to workers of carbon. Almost everyone is now familiar with the making of direct prints and enlargements on bromide paper by artificial light, and when once a bromide picture is obtained many carbon ones may be made from it without the action of light. In the production of carbon enlargements the process should prove of great value. In the method at present followed a transparency has first to be made from the negative, and from that an enlarged negative. These two operations involve considerable time and there is a certain loss of quality entailed. When the enlarged negative is obtained the prints have to be made from it, which in winter is a long operation, particularly if a number are required. By the new method the bromide, contact print, or enlargement, is made direct from the original negative, and, once obtained, a good number of carbon prints may be made from it without the aid of light.

E. W. FOXLEE.



F. A. Bridge, general secretary of the Photographic Convention.

### Working Instructions for the "Ozobrome" Process.

The following are the instructions issued in a preliminary circular of the "Ozobrome" process, from which, with the inventor's permission, we quote:—

Materials Required.—A Bromide print, a piece of pigment plaster, and patent pigmenting solution. Both bromide and gaslight prints.

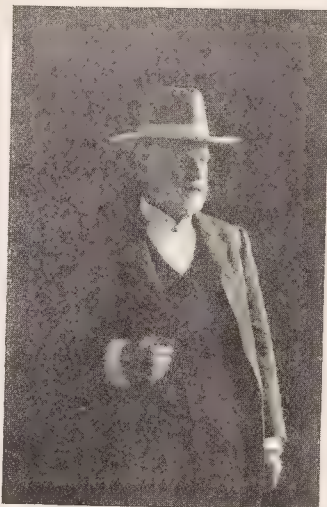


are suitable. Ozotype pigment plasters are alone suitable. Every trace of hypo must have been thoroughly removed from the bromide print.

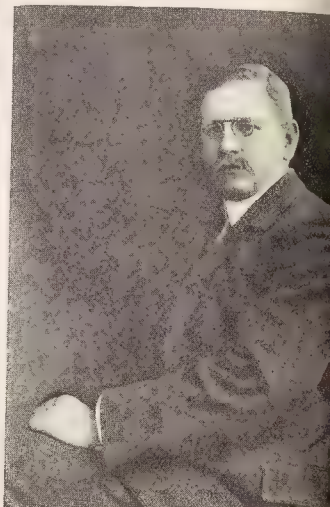
Take the pigment plaster and immerse it in the pigment solution, removing any air-bells. As soon as the pigment plaster becomes limp or saturated, transfer it to the dish of water,



*Photographs by]*  
F. G. Ryder, author of the descriptive notes  
in the Convention handbook.



W. Burrough Hill, F.S.I. chairman of the local  
executive committee and president of Southampton  
Camera Club.



[W. R. Kaye, Southampton]  
S. G. Kimber, hon. local secretary.

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To harden the gelatine surface, soak the print in a 10 per cent. solution of formaline for five minutes, and wash for about ten minutes. Of course, the print may be dried and kept any time

place it face downwards upon the bromide print which is already there; and immediately bring the two papers clinging together of the dish and squeegee them into contact with a roller squeegee.



Harry Thrift, B.A.



*Photograph by]*  
C. H. Bothamley, M.Sc., F.I.C. [Rozby, Leeds.

#### The Photographic Convention of the United Kingdom.



Dr. Walter C. Stevenson.

after hardening. Pour the working pigmenting solution into a porcelain dish somewhat larger than the bromide print, and place another dish containing cold water alongside of it. Take the bromide print and immerse it in the dish of cold water, face upwards, and remove any air-bells.

upon some flat, hard surface, such as glass or zinc. (It is advised that the thinner of the two papers should be uppermost when squeegeeing.) Then either hang the adhering papers up, or place them upon blotting paper till ready for development.

N.B.—The operation of bringing the saturated plaster into contact

t with the print under the water should be done as quickly as possible (say four or five seconds), otherwise some of the pigmentation contained in the gelatine film will be lost by diffusion in water.

The water should be changed after each print has been manipulated. Leave the bromide print with its adhering plaster for about an hour or 40 minutes. At the expiration of the specified time there are two methods which can be adopted to produce pigmented pictures.

#### Ozotype-Ozobrome.

Method I.—This is the non-transfer or ozotype method of pigmentation in which the bromide print itself is made to form the support of the picture, and is recommended for artistic work on the various grades of rough bromide paper on the market. The results by this method may be more easily worked upon with a brush than those by Method II.

Manipulation for Method I.—Immerse the adhering papers in hot water at about 105deg. or 110deg. F. Feel at the corners whether the papers are likely to separate easily. If so, remove the paper backing of the pigment plaster with a steady, unbroken pull, leaving the print in the water and throwing away the plaster backing. After a minute or two place the print upon a sheet of zinc and move all the soluble gelatine by moving the print up and down in the warm water, finishing the development by pouring the hot water upon the print with a small mug. Then wash the print in cold water for a few minutes.

Should any of the black silver deposit remain under the gelatine in the very deep shadows, it may be easily removed by the Howard Farmer reducer, after which wash for 15 minutes.

#### Carbon-Ozobrome.

Method II.—This is the transfer or carbon process in which the image, impressed upon the plaster by contact with the bromide print, is transferred to another support, leaving the original bromide print available for further transfers.



F. Martin Duncan, F.R.P.S.



Photograph by]

A. W. Clayden, M.A.

[Mauil and Fox.



Photograph by]

A. Horsley Hinton.

[Frederick H. Evans.

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Manipulation for Method II.—Instead of placing the adhering papers in hot water, they are plunged into cold water, and after about one minute's soaking the papers can be easily separated by a steady pull from a corner. In this case the pigmented gelatine of the plaster will adhere to its own support, leaving the bromide

print uncovered and changed from black to a light brown colour. As the bromide print may be re-developed and used again, it is well



Photograph by]

Colonel S. C. N. Grant, C.M.G., R.E.

[Dickinson.

The Photographic Convention of the United Kingdom.

to place it in a separate dish of cold water at once, preparatory to washing.

The plaster now represents the exposed tissue in ordinary carbon printing, with the immense advantage that the image is reversed as regards right and left, thus securing an unreversed picture by single transfer.

Keep the plaster in the cold water face downwards, and slide a



piece of single transfer paper, gelatine surface upwards, underneath it.

After about 30 seconds, bring the underlying transfer paper into contact with the pigment plaster, and lift the two papers clinging together out of the water, place them on a sheet of zinc or glass, and squeegee them into contact, exactly as in carbon printing. Place between blotting-paper under slight pressure, and after 15 or 20 minutes develop as in Method I.

After separation from the pigment plaster, wash the print in water for half an hour, when it will be ready for re-development. Place the thoroughly washed print in a porcelain dish and pour over it a bromide developing solution such as amidol, hydroquinone, etc., then again wash thoroughly for half an hour. The bromide print is now restored to its original condition and efficiency, and can be used again for transfer printing. In fact, with care, many carbon prints can be made from one bromide print as long as the strength and substance of the original bromide paper will allow.



W. Friese-Greene.



Photograph by

E. J. Wall, F.R.P.S.

[F. A. Bridge.]



Captain W. Lascelles-Davidson.

The Photographic Convention of the United Kingdom.

**MATTYPES.**—Of recent establishment at 30, New Bond Street, is the studio of the Mattype Company, the aim of which, so we gather



Auguste and Louis Lumiere.

The Photographic Convention of the United Kingdom.

from a brief circular, is to produce portraits which possess character and feeling even though the process involve the subordination of the "photographic" quality of the result. The method adopted to this end includes the use of a screen during the making of the exposure and the printing from the negative; the critical definition of the lens being more or less broken down at these two stages. A considerable amount of brush work may be also done on the finished prints, which are offered to the sitter in sepia on heavy white paper (no mount), and possess, in the case of several examples shown to us, a soft and delicate character, which makes it easy for attention to centre on the face. Simplicity of background and accessories is carried to the extreme in Mattype portraits but the likenesses lose nothing, but gain a good deal, from this wholesome avoidance of a prevailing defect.

THE "Magazine of Fine Arts" has arranged two competitions for photographs illustrating passages of poetry—the first, two stanzas of Tennyson's "Brook," and the second, Mrs. Browning's—

"The new sight, the new wondrous sight!  
The waters round me, turbulent,  
The skies impassive o'er me."

THE death of Mr. Chalkley Gould, of the firm of Messrs. Debenham and Gould, art photographers, of Bournemouth and Southampton, took place last week at Llandudno, where Mr. Gould had been staying for the benefit of his health. He had been in delicate health for a long period, and a few weeks ago he had an attack of pleurisy. His death will be sincerely mourned not only by his wife and family of four sons and one daughter, but by a wider circle of friends.

## THE CAMERA AND THE PLAY,



Miss Zera Verdi and Chorus in "My Irish Molly O."

DAY the ubiquitous camera rules the world. People are pre-  
paring pictures to literature. Practically it is a set-back to those  
historic days when all thought was transmitted by pictorial  
representation, but actually it is a concession to the modern demon  
"haste," for more information may be gleaned from the perusal  
of a picture, and especially a photograph, than from a study of  
much descriptive literature, and, what is to the point, the know-  
ledge is obtained in much less time. The suggestion of novel sub-  
jects, and a description of the methods employed to obtain pictures

graphs with an exposure of less than one second with artificial light.  
The experiments have been conducted at various times, and under  
varied conditions, and successful results have been obtained with  
exposures varying from one-sixtieth of a second in the studio, one-  
tenth of a second in the street, and one-tenth to one-half a second  
in the theatre. Some of the writer's methods of using the camera  
in the theatre during the performance were published in the "British  
Journal Almanac," 1906, under the title of "The Camera at the



Figure under two focussed Arcs—Miss Jennie Albert (Sisters Albert).

under unusual circumstances, is naturally of interest to the photo-  
grapher who caters for the public taste, whether he is interested in  
studio, commercial, or Press work, and the publication of such  
information requires no apology.

During the last two or three years the writer has given some  
attention to a study of the conditions necessary to obtain photo-



Limelight Study—Miss Rose Harvey.

Play," and out of this article arose a private correspondence with  
two or three interested photographers who are working on similar  
lines. They desired further particulars, as it seemed the informa-  
tion in the article was too meagre to enable them to repeat the  
results, which were obtained at a speed to which they had not  
attained.





Miss Phyllis Dare singing "My Little Wooden Hut."

### Press Photography of the Drama.

In this article the explanation of the writer's methods has been elaborated, and additional matter is included about various points which it was thought would be self-evident, but seemingly require elucidation. The conditions are those which apply at the theatre or music-hall, when the photograph is taken during the performance, using the ordinary stage lighting only, and when the exposure must necessarily be of the nature of a snap-shot. The commercial value of this class of theatrical photography is greater than is at first apparent. The Press photographer will be able to visit the theatre on the first presentation of a new play, and obtain photographs which may be published with the essays of the dramatic critics. Photographs of popular actresses and actors may also be obtained whilst they are on the stage, when the presence of the audience, and the excitement of the performance, gives them the nervous energy which it is hopeless to expect in the studio. The postcard publisher will obtain a new class of subject, and may flood the towns with pictures of the popular scenes of the local pantomimes, or successful plays; whilst the commercial photographer will be able to supply the theatrical managers with prints of their productions, both as records, and for advertising purposes, at a minimum of expense, and absolutely no trouble or inconvenience, to the theatrical company—in fact, they need not know anything about the transaction.

### Theatre Tactics.

It will be found that, within reason, the acting managers of the various places of amusement will give the photographer every facility, for the strong light of publicity is the life and soul of their business, provided that he is assured that the work is not of a frivolous nature, for it is not to be expected that any manager will permit his "house" being turned into a photographic playground.

It is advisable to obtain permission to photograph from the acting manager in the first place, and then, having obtained it, to obliterate yourself, and especially the camera, to the utmost extent. As an

experiment, the writer has, however, on several occasions, photographed from the pit of a theatre, with a hand camera, without obtaining the necessary permission, though the nervous excitement engendered by the thoughts of what might happen is conducive to good photography. Fortunately, nothing happened, though the writer was observed using the camera by the attendant.

The theatrical management look most favourably upon the hand camera, as it does not attract attention, nor cause any inconvenience, either to their patrons or their staff, all of whom strongly object to the cumbersome stand-camera with the attached tripod stand, which is so awkward in a narrow gangway, and in the seclusion and darkness of the theatre is such a nuisance, both to the operator and to the audience.

### The Stand Camera in the Theatre.

The stand-camera may occasionally be used for obtaining large sized photographs of spectacular displays upon the stage, and especially when the work is undertaken at a rehearsal, or special "call" for the photograph; but as a rule it will be found that a hand-camera is requisitioned for the theatre. The type of hand-camera may be varied to suit the personal requirements of the operator, and it is immaterial whether it is of the twin lens type, the reflex pattern, or the ordinary box form of camera, as long as it is a workmanlike instrument, thoroughly well built, and of the highest class. It is absolutely necessary that it be fitted with a first-class lens of extreme rapidity, in order to utilise the whole of the available light, and so that a good, sharp negative may be obtained, which will bear enlarging up to three or four diameters for the average size of the pictures will be small—less than a quarter plate in size. The illustrations which accompany this article were taken with a hand camera fitted with a Zeiss Planar lens working at  $f/3.6$ . This lens gives a flat field covering the whole of the plate.



Miss Laura Love in "My Irish Molly O."

at  $f/3.6$ , which is the largest aperture which may, in the writer's opinion, be safely used for this work, on account of the desirability of reserving a little depth of focus, which will be found to be of great value when focussing upon a moving object, or for obtaining two or more planes in the picture of equal definition. For these reasons it would be found to be necessary to stop down the lens to  $f/3.5$ , even if it were capable of working at a larger aperture.

### Focal-Plane Exposures.

On account of the necessity for utilising the whole of the available light, the type of shutter fitted to the camera must be one which allows the whole of the light passed by the lens to act upon the plate, and is, therefore, of the highest efficiency; probably the focal-plane shutter will be used, and it ought to be arranged so that it may be used for fairly long exposures, such as a quarter of a second upwards. The slit in the focal-plane shutter is usually made to open, at its fullest extent, to a width of about one and a half inches, but it is advisable for use in the theatre to have the opening in the shutter cloth made to be of the full width of the plate in use—that is to say, the slit for a quarter-plate ought to be 3 in. wide, for a five by four plate 4 in. wide, and for a half-plate  $\frac{1}{2}$  in. wide; by these means it is quite possible to use the focal-plane shutter for fairly long exposures. The writer has considered the plan of adapting the shutter to work with a time valve, fitted to the tube of a pneumatic release, so as to obtain exposures of two seconds to half a second, when such are required for a badly lit subject, but he has not yet had an opportunity of working with such an arrangement; it ought, however, to work equally as well on the focal-plane shutter as it does on the roller-blind shutter. It is advisable to make the exposure with a pneumatic release in preference to using a trigger, or pressing a button, both of which movements are liable to jerk the camera at the moment of exposure, unless the camera is steadied against some fixed support. This risk of movement may be avoided by placing the india rubber ball of the pneumatic release in the mouth and squeezing it by the teeth when the exposure is required; this method also allows the operator the use of both hands to control the camera.

### Focussing the Subject.

If the hand-camera be of the twin lens, or reflex, type, there will not be any difficulty in focussing the subjects up to the moment of exposure, but if the camera be focussed by means of the usual scale adjustment it will be found useful to have a focussing screen fitted to the camera, so that the lens may be sharply focussed upon some mark upon the stage, on or about the place the person will stand when the photograph is taken; if the whole of the stage is to be photographed it is advisable to focus upon a point about one yard beyond the footlights, in preference to depending upon the use of the focussing scale when using lenses at a very large aperture on account of the lack of depth of focus. This method of focussing demands the addition of some form of view-finder to the camera, and the writer prefers the direct vision type, so that the subject may be accurately centred upon the plate. The remaining items in the specification of this hand-camera may be arranged by the user to suit his convenience, but great care must be exercised in contriving that all the moving portions of the camera, and especially the shutter, should work silently, because a very slight noise in the theatre disturbs the spectators and interferes with their comfort.

Probably one of the most important items in this contribution is that which explains the preparation of the dry plates, which are treated so as to obtain the highest possible sensitiveness to artificial light. Some workers in this branch of photography prefer to use a high-speed ordinary plate. Dr. Grün has advocated the "Monarch" plate for this work, but the writer's experience is that a "ordinary" plate, however fast, can equal for such work by artificial light a plate bathed in orthochrome T solution in the manner about to be described. Practical tests are necessary to convince those who do not believe in more scientific methods. The writer has also measured the speed of the prepared plates, and found that, for candle-light, the speed varied from 500 to 550 H. and D., and when it is remembered that the greater proportion of the illumination in the theatre is of a yellowish nature, which factor is against obtaining the best results with a plate which is not sensitised for the brighter colours, the results are such as might be expected.

### Preparing the Bathed Plates.

The plates which are used by the writer are Mawson's "Electric" plate. Probably other brands may give equally good results, provided that they are a clean-working plate of medium speed, but of this the writer cannot speak from experience. It may be as well to mention that the writer has not been able to obtain greater speed by using a very fast plate—in fact, from his experiments, he came to the conclusion that, within reasonable limits, the actual speed of the plate before bathing did not influence the ultimate speed attained by this treatment, and therefore he is of the opinion that it is best to use a plate of medium speed.

To prepare the plates, a stock solution of orthochrome T dye is made by dissolving 1 gramme of orthochrome T dye in 1,000 c.c. of alcohol 90 per cent., or this stock solution may be purchased ready for use; it is rather expensive, but a small quantity will bathe a considerable number of plates, and will keep for an indefinite period. The bathing solution is made up as follows:—

Orthochrome T dye stock solution .....	4 cc.
Ammonia .880 .....	3 cc.
Distilled water .....	200 cc.

The addition of the ammonia interferes with the keeping quality of the bathed plates, but is necessary in order to obtain the highest sensitiveness. This solution is carefully filtered, and used at a temperature of 60 deg. F. to 65 deg. F. It must be made up as required, and as the solution can only be used once, to obtain the best results, some arrangement for bathing the plates must be contrived which will permit of the economical use of the solution;



Study under two focussed Arcs—Miss Ada Twibell.



probably the best arrangement is to place several plates in a large developing dish, and to flow the solution over the plates exactly similar to the operation of developing. The presence of air bells must be avoided, and the dish rocked for three minutes; at the expiration of this period the solution is poured off the plates, and they are then washed in running water for three minutes. Remembering that these bathed plates are extremely sensitive to yellowish light, great care must be exercised to guard against light fog, and they should be manipulated, as much as possible, in the dark. The prepared plates are dried, as rapidly as possible, in the dark. A drying cupboard will be found a great convenience, and in the absence of other special facilities will be really a necessity. Details of various patterns will be found in several of the photographic text-books, or they may be purchased at the leading supply houses.

It has already been mentioned that as these plates are prepared with an ammoniacal solution they will not keep, and it is the practice of the writer to bathe the required number of plates the day before they are required, and so a constant supply of perfectly fresh plates is obtained.

### The Practice of Theatrical Photography.

In the natural sequence of events the plates are now exposed in the theatre, and therefore it will not be out of place if a slight digression be made in favour of a description of what the writer has found to be the best methods to adopt whilst working in the theatre.

When it is necessary to include the whole of the stage in the photograph the best place to work from is, undoubtedly, the front of the dress circle. During a public performance the stand camera would be entirely out of place in such a position, and it will be futile to ask the manager for the necessary permission, but the writer has photographed on several occasions in this position, when he was using the hand-camera, without abnormally disturbing the audience. It has already been mentioned that it is essential that the photographer should avoid disturbing the audience, and drawing their attention, and probably the best method to adopt in circumventing this ordeal is to wait until the public are settled in the enjoyment of the entertainment, and then, at a suitable moment, walk quietly down one of the gangways, and sit upon the bottom step, where he will be nearly hidden from view. After a brief wait for five minutes, of masterful inactivity, the camera may be quietly lifted upon the ledge which runs round the front of the circle, and the subject focussed upon the screen, which operation is followed by the exposure of the necessary number of plates. It is surprising how comfortable and secluded is this position, and a skilful operator will be able to obtain his negatives without attracting the attention of anyone, except the persons who sit on either side of him.

As a rule, it will be found that those scenes will produce the best prints which only include a few figures, and these should be well distributed over the stage, and not clustered in a group. The theatre management prefer that the photographs be taken with a huge crowd upon the stage, this bearing witness to the expensive character of the production, but as a matter of fact the presence of this crowd hides the scenery, obstructs the light, and casts heavy shadows, which generally mar the picture.

For the portrayal of single figures, or small groups of figures, it is advisable, for two reasons, to work from a position quite close to the stage. Here is obtained a considerable increase in the size of the figure upon the negative, and consequently it may be enlarged to better advantage, and with the production of less grain, than would be the case if the negative were taken from the front of the dress circle. Moreover, the nearer the subject is to the camera the shorter is the exposure when photographing by artificial light. This is, of course, quite contrary to the result obtained under daylight illumination, and is likely to at first somewhat puzzle the novice, but if he cares to experiment in this direction he will find this statement to be correct. For some time the writer was under the impression that the gain in illumination consequent upon the lessened distance between the camera and the subject was compensated by the automatic closing of the diaphragm, consequent upon the lens being racked out beyond its normal focus, but though there must be a loss of light by this rule,

the improved illumination obtained by the nearer approach of the subject was most marked.

For photographing single figures from the front of the house, the writer prefers to stand at the side of the stalls and to rest the camera against some convenient projecting portion of the building. An early opportunity is taken to actually focus the lens upon some particular portion of the stage, for it is never advisable to trust to focussing scales when using extremely rapid lenses, after which the plates may be exposed at pleasure.

### Varieties of Stage Lighting.

For the purposes of photography the stage lighting may be roughly divided into two classes, i.e., diffused lighting, when the whole of the stage is fairly equally flooded with light; and focussed arcs, or limes, when the light is concentrated by means of lenses upon some particular portion of the stage, or, more usually, upon the principal actor in the scene. Both of these effects are used independently and combined. The photographer must, however, be extremely careful to select an opportune moment for his exposure when photographing a subject lit by combined focussed and diffused lighting. This form of lighting gives some beautiful results, but is very liable to produce harsh negatives, in which the contrasts are so extreme as to be unprintable.

On the other hand the strong, bright lighting resulting from the use of focussed arcs only, produces some weirdly pretty effects, which photograph easily and well. The writer has thought that this form of lighting might be profitably employed in the studio by those who are in search of some novel effects in lighting.

Occasionally some pretty effects may be obtained by photographing from the "wings" on the stage, more especially when the figure is lit by focussed arcs. The writer has found that the best position to work from is seated upon a chair, so as to obtain a low point of view, on the O.P. side of the stage—that is, the right-hand side of the stage when the observer is looking at the auditorium. The reason for selecting the O.P. side of the stage is to avoid obstructing the officials in the execution of their duties. At the opposite, or prompt, side of the stage are the electricians, the stage manager, etc.

### A Ready Test for Intensity of Stage Lighting.

It is probably unnecessary to mention that photography ought not to be attempted unless the stage is lit with "white" light only. When the photographer has received a commission from the management, it is advisable, when making the necessary arrangements, to interview the electrician and stage manager, and arrange with them for the stage to be flooded with "all white light" when the photographs are being taken; in this way a considerable increase in the amount of light upon the stage may frequently be obtained. In the darkened theatre it is difficult to judge the amount of light there is upon the stage, for when the observer is watching the stage it appears to be brighter, by contrast with the darkened theatre, than it is actually. The writer overcame this difficulty by discovering that it is extremely easy to judge the volume of light upon the stage by observing the amount of light which is reflected from the stage into the auditorium; in this manner fluctuations in the light may be followed with ease.

It may be accepted as a general rule that the longest possible exposure should be given on all occasions, for it is unlikely that the photographer will ever meet with over-exposure, except under extreme conditions, as stage lighting usually gives heavy shadows.

### Development.

The development of these bathed plates is conducted in the usual manner, except that it is necessary, in order to obtain the best possible results from these negatives—which are usually badly under-exposed—to use the developer at a temperature of about 75 deg. F. It is doubtful whether heating the developer in this manner increases the speed of the plate, but it certainly gives a better result than when the developer is used at the normal temperature, even if development be prolonged so as to compensate for the increase in the velocity of development due to the use of warm materials. The writer is inclined towards the opinion that this phenomenon may be due to the light action being largely confined to the curve of under-exposure, which, according to Mr. Kenneth Mees, under prolonged

development gives an apparent increase in the speed of the plate. It is the practice of the writer to first warm the developing dishes by filling them with water heated to 75 deg. F., which is allowed to remain in the dishes until they are thoroughly warmed. The developer is then emptied out of the dishes, into which are placed the exposed plates, the developer, also heated to 75 deg. F., is poured over the plates, and the dish covered and rocked for five minutes, and sometimes longer: it depends altogether upon the character of the negative. The plates are fixed in the usual way.

Most of the organic developers will probably give equally good results, but it is necessary to use them without the addition of any restrainer, or restrainer, and at their maximum strength, so that when they are used at the stated temperature a slight fog appears over the whole of the plate; by this it is known that the whole effect produced by the action of light upon the plate is utilised. The advantage of using some of the developers at this strength and temperature is that they make the negative extremely "grainy," so much so, in fact, as to practically prohibit their use for enlarging purposes. For instance, the writer formerly used the H. and D. standard pyro-soda formula for developing these plates, and with it a most pronounced grain was obtained. After some experiments the writer found that edinol gave a nice negative, fairly free from grain, which will bear enlarging up to five or six diameters. In such cases the plates were of the same brand, and prepared in the same manner, so that it is quite evident that the size of the grain in some negatives is not entirely due to the lack of quality in the plate, but may be caused by the developer. Mr. S. E. Sheppard has also commented upon this phenomenon.

The formula which the writer is at present using is as follows:—

Sodium sulphite .....	5 oz. avoirdupois.
Edinol .....	96 grains.
Sodium carbonate cryst. ....	2 oz. avoirdupois.
Water .....	20 oz. fluid.

It is a one-solution developer, and is ready for use. The writer has not tested its keeping qualities, but his experience is that it may be used two or three weeks after manufacture.

### Making the Best of the Negative.

The negative will be found to be very thin—in fact, most operators would consider them hopeless, and unworthy of further consideration. Occasionally a fair print may be obtained from the original negative upon Velox or other gaslight paper which is prepared to give contrasty effects, but as a rule it will be found necessary to enlarge the picture out of the negative by making a hard transparency on a photo-mechanical plate in the camera, taking the opportunity to enlarge the picture about two diameters, and from this sensitive produce an enlarged negative in the camera; by exercising the precaution of obtaining as much contrast as is possible in the original negative and printing from it upon gaslight paper, the contrast in the final print will be all, if not more, than is required.

It is rather curious that the original negatives usually possess plenty of detail, though they are woefully deficient in contrast, so that the final print, obtained in the manner described, is not of such poor quality as might be expected. The prints which illustrate this article are produced in the above-described manner, but they have not been worked up by hand, and are only such as have been obtained in the course of experimental work. So that it will readily be seen that an artist, working upon one of the prints as a basis, could speedily produce a capital production, possessing that photographic quality which is demanded by the public.

For "rush" work, undertaken for the illustrated newspapers, probably the best course of procedure will be to make an enlarged half-toned collodion transparency from the original negative, and from this try to make an enlarged half-tone negative, also by the wet collodion process. The half-tone block may thus be produced, from a negative taken in the evening, in time to print for publication in the next morning's newspaper, for the coarse grain of the newspaper block obviates the necessity for retouching the print.

The discovery of means by which much greater sensitiveness than at present obtainable may be conferred upon photographic plates may, at any time, make the production of theatrical negatives a comparatively easy matter, but in the meanwhile it is believed that the

methods herein described will produce the best results obtainable under these trying circumstances.

The writer desires to express his indebtedness and thanks to Mr. F. C. Sutcliffe, of the Tyne Theatre, and Mr. W. Boardman, of the Pavilion Theatre, Newcastle-upon-Tyne, for their courtesy and kindness in providing the opportunity for experimental exposures within their theatres.

ARTHUR PAYNE, F.R.P.S.

### NOTE ON THE ILLUSTRATIONS.

The whole of the reproductions are from negatives taken, upon Mawson's "Electric" plates bathed with orthochrome T solution, during the public performances; only the ordinary stage lighting was used, the exposures being in all cases the same, i.e., about one-tenth second at  $f/3.6$ .

### THE LATE MR. GUARDIA.

OUR brief announcement last week of the death of Mr. Guardia having been made within a few hours of the intelligence reaching us, we may allow ourselves to supplement it with some notes on the deceased gentleman, who either by name or personally was known to large numbers of our readers. Mr. Guardia was a Spaniard by birth, but had been a naturalised Englishman for more than 25 years. His introduction to photography was obtained as an amateur at a time when any form of camera other than that employed on a stand was scoffed at or disparaged in comparison with the more cumbersome and unwieldy instrument. Mr. Guardia's photographic career was marked by his thorough advocacy of the hand camera as capable of everything which might be desired in photography and infinitely the superior of the stand camera, from the tourists' standpoint. His own ideas at that time in camera construction brought him into relations with Mr. A. S. Newman, a mechanic, as everybody now knows, of the highest order, and one, too, able to adapt his grasp of mechanical construction to the many refinements which go to make the perfect camera. The two men associated themselves in partnership about seventeen years ago, since which time connoisseurs of cameras have discovered what their workshops were capable of and how the letters "N and G" were a hall-mark of quality in design and workmanship. While on this topic, we may quote a letter received by ourselves last week as voicing the opinions of many others. Our correspondent, Mr. Horace W. Nicholls, writes from the Royal Colonial Institute, Northumberland Avenue, under date June 29:—

"In the current issue of the 'Sphere,' under a photograph of Boulter's Lock, the editor is good enough to make some kind remarks about the work I did during the South African War. It is gratifying at all times to know that one's work is appreciated, but I cannot pass it at the present juncture without saying that I feel I owed any success to the poor fellow who is to be buried to-morrow. I speak of Mr. J. Guardia, of the firm of Newman and Guardia, who designed and made the instrument I used during the campaign, and in which I was able to place such absolute reliance. All earnest workers in photography know the value of being able to do this, and I feel that the photographic world has suffered a severe loss by the death of one who would have nothing to do with anything that was not of the very best."

Mr. Guardia, who leaves a widow and two children, was buried in the Sheen and Mortlake Cemetery on Saturday last.

THE Berlin Exhibition.—The Preussisches Abgeordnetenhaus, in Berlin, is at present occupied by the photographic exhibition brought together by the Society for the Advancement of Photography (Verein zur Förderung der Photographie). The Royal Photographic Society has sent a collection of examples of pictorial photography.

HAROLD E. BRIGHTMAN, photographer, late of 39, Colston Street, Bristol, appeared for his public examination at the Bristol Bankruptcy Court on Friday before the Registrar. The statement of affairs filed by the debtor disclosed liabilities amounting to £373, and assets estimated to produce £45. Mr. F. Richardson appeared for the debtor. Bad trade in the last two years was the cause of failure. His work was chiefly for trade advertising purposes. The examination was adjourned to July 27.



## Photo-Mechanical Notes.

### Zinc Plates for Collotype.

FRITZ HANSEN points out in the current number of the "Zeitschrift für Reproduktionstechnik" that attempts to use zinc plates instead of glass for collotype are really older than the use of glass itself. The reason why they have not been generally adopted is that the zinc reacts with the bichromate, and renders the whole of the gelatine insoluble. In the earlier experiments, too, the zinc was very impure, which also gave rise to other troubles. In order to use zinc plates they must undergo preliminary treatment, which consists in giving them a thin film of zinc chromate, and isolating this from the sensitised gelatine by a film of plain gelatine. A highly polished zinc plate should be covered with a 4 per cent. solution of chromic acid, and left till a perfectly uniform yellowish film of zinc chromate is formed. The plate should then be well washed and coated with a 5 per cent. solution of gelatine, a levelling stand and drying cupboard being used. The plate is then ready for coating with bichromated gelatine in the usual way.

In the early days of the use of zinc plates it was nearly always found that after two or three days dark spots made their appearance on the printing plates, and that these took the ink. The spots were caused by impurities in the zinc, and it was usual to apply salts of sorrel to remove them, but they appeared in such numbers that this treatment was useless. With the pure zinc as now made these spots are no longer met with, and the author strongly recommends every collotype worker to try the pure zinc plates instead of the fragile glass.

### Grained Photo-Mechanical Transfers.

Robert Sands, of Sydney, has taken out a patent for making transfers. The permanency of the grain is obtained by rolling the grain obtained by inking the surface of the transfer paper, and the rollers may also be covered with a stiff ink which only adheres to the highest parts of the photo-lithographic relief. The regulation of the grain is attained by varying the pressure. For small sizes paper can be used, but for larger sizes, or when accurate register is required, then sheets of celluloid or thin metal can be used.

The transfer gelatine, according to "Freie Künste," is made somewhat as follows:—300 parts of Nelson's gelatine are melted in from 1,500 to 2,000 parts of water; the quantity of water determines the fineness of the grain. To the warm gelatine solution are added 1 to 3 parts of ordinary alum in 300 parts of water, and the mixture filtered. After coating the transfer paper with this solution, sensitising with bichromate and drying, the paper is laid face up on one of the well-known inking-up boards, and rolled up with a cloth roller and stiff transfer ink. This is where the patent comes in, namely, the mechanical action of the pressure rollers on the grain. A hard, smooth printing roller is rolled for about a minute over the sheet till the grain appears matt; light pressure gives a fine grain, and vice versa. The pulls are now made in the ordinary way, each inked up with its own colour, developed under water, dried, and transferred to metal or stone. The process should be of special value for broad work, such as posters, as the high lights keep clean and the lines are sharp.

### "Electro-Printing."

According to "Freie Künste," Max Ullmann, of Zwickau, has discovered a new process to which he has given the above name, by means of which by mere contact of any original with a specially prepared plate, which is later used as the printing plate, any number of identical copies may be obtained. Coloured originals, pen-and-ink or pencil drawings, may by this process be absolutely faithfully reproduced. The prints are said to be staple to light and the atmosphere, and the process ought to be specially valuable for record work if the above statements are true.

## Patent News.

*Process patents—applications and specifications—are treated "Photo Mechanical Notes."*

The following applications have been made for Patents from June 18 to 23.

ROCKING DISHES.—No. 14,002. Improved rocking bath or tray for photographic or other purposes. John Tennant Grundy and Herbert Alban Dolby, 6, Rye Hill, Newcastle-upon-Tyne.

LENSES.—No. 14,168. Improvements in photographic lenses. Stephen Drummond Chalmers and Clara Chalmers, 8, Quality Court, London, E.C.

PIGMENT PRINTS.—No. 14,435. Improvement in photographic pigment paper. A. G. Bloxham, Birkbeck Bank Chambers, London, for the Neue Photographische Gesellschaft, Germany.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

FLASHLIGHTS.—No. 24,875, 1905. The invention relates to Patent No. 27,268, 1904, by the same inventor (B. J. P. Feb. 17, 1900, page 131), in which substances are added to a flashlight mixture to colour the flame suitably for orthochromatic photography; this coloured illumination taking the place of a screen or light filter for the plate. In the present specification two claims are made:—(1) Process for the simplified correction of the chemical effect of the spectrum for photographic purposes by means of coloured illumination of the object to be photographed with the aid of the process, described in the Letters Patent No. 27,268 of 1904, for the manufacture of smokeless, non-explosive slow burning or flashlight powders, characterised especially by the burning of powders producing light of different colour and mixed in the proportion of their various correcting effects. (2) Process characterised in that the powders corresponding to the composite colours are burned in form of sticks in proportion to their single correcting effects and combined in one or several complex cartridges which are consumed wholly by the fire themselves. Dr. Gottlieb Krebs, 120, Sprengelstraße, Offenbach-on-Maine.

THREE-COLOUR SCREENS.—No. 1938, 1906. The invention consists in a modification of the process for the preparation of three-colour screens for colour photography of the kind set forth in British Patent Application No. 19202 of 22nd September, 1905, in which thin transparent sheets of celluloid or other suitable material are prepared in the three principal colours and these sheets are cemented one upon another in uniform sequence of the colour until the accumulation of the single layer gives a sufficiently thick block for transverse sectioning. Robert Krayn, 24, Marien Strasse, Berlin.

## New Books.

THE middle of June seems a little late for the appearance of a magazine dated December, 1905, yet we nevertheless welcome the issue of another number of "The Photo-Minature" (Dawbarn and Ward, 6d.). It is the seventy-fifth of the series, and deals with bromide printing and enlarging. And yet, again, we are disappointed to find that the little volume hardly brings up to date our present practice of bromide, at any rate as far as this country is concerned. We can find only a few lines on modern methods of sepia toning, whilst a considerable space is allotted to the debatable uranium processes. The chiefly interesting chapter is that on the preparation of bromide paper and bromide linen, which comes from the pen of that versatile American worker, Mr. A. J. Jarmann.

A fourth and revised edition of "Chemistry for Photographers" by Chas. F. Townsend, F.C.S., F.R.P.S., has been issued by Messrs. Dawbarn and Ward, in the style of their popular series of still-life

annuals of which "Figures, Facts and Formulae" is one among a dozen well-edited textbooks.

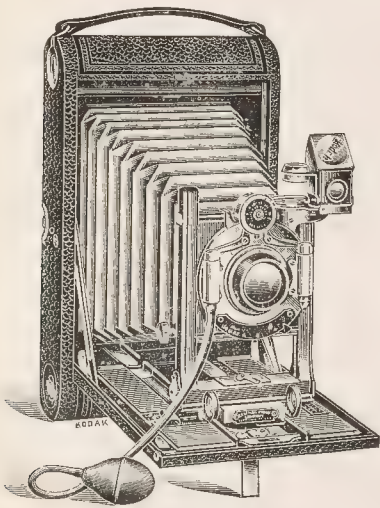
Still another series of beginners' books commences its appearance with the issue of two small handbooks on "Correct Exposure" and "Correct Development" by the Rev. F. C. Lambert, M.A., Nos. 1 and 2 of "The Practical Photographers' Pocket Library," which deal succinctly and with commendable illustration with the elementary problems of the two essential operations in photography. The text-book of development leads the beginner to the "factorial" system, at the onset. These latest and most excellently produced handbooks are obtainable at the price of sixpence each from photographic dealers, and from the publishers, Messrs. G. B. Stoughton.

We have received the first issue of "Science and Technology," a monthly journal for teachers and students, edited by Mr. Oliver Dawson, and published at 254A, High Holborn, W.C. The issue contains an article by Dr. J. H. Smith and Dr. W. Merckens on "Making Photographic Prints in Natural Colours."

New Apparatus, &c.

The No. 4 A Folding Kodak. Sold by Kodak, Limited, 59-61, Clerkenwell Road, London, E.C.

It was to be expected that the Kodak Company would eventually add to their series of folding cameras one taking the popular half-plate size of picture. The No. 3 A (postcard) instrument was a step in the direction; the No. 4 A before us completes the series of folding cameras from the smallest to the largest, for half-plate marks the limit beyond which the practically useful hand-camera may not go. Considerations of depth, when the focal length of the lens is over 8 in. or 9 in., step in to arrest the development of the hand-camera into the larger sizes, even were many users to be found favourably disposed towards such necessarily larger and heavier cameras. In the No. 4 A bulk and weight are such as to withhold the title "pocket camera," yet it is carried very easily by its sling handle, much more so, in fact, than many box cameras

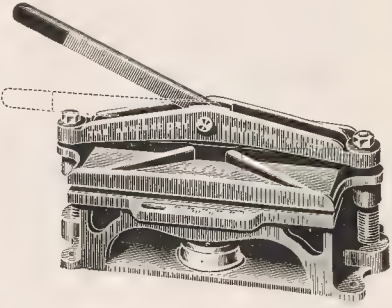


taking a picture one-half the size. In form and fittings it is modelled almost exactly on the No. 3 F.P.K., although it embodies one or two of the later improvements which the Kodak Company have made in their cameras. For example, the rising front has a rack and pinion movement for focussing. In addition to the usual scale there is the automatic device by which the front may be extended instantly to one of seven positions, representing sharp

forms of objects at 8, 10, 15, 20, 25, 50, or 100 feet. The metal parts are aluminium, the covering is fine seal grain leather, and as a whole and in detail the instrument is handsomely and strongly made. Its price is £7 7s.

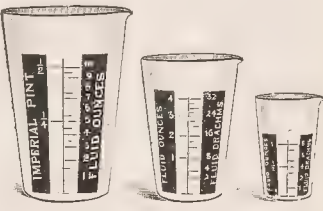
The "Adhero" Dry Mounting Machine. Sold by the Adhesive Dry Mounting Company, Limited, 27-28, Fetter Lane, London, E.C.

This machine is placed on the market for the amateur worker. The company have several machines specially designed with a view to professional work, but in the present machine they offer for 25s. a complete outfit, by which an amateur can dry-mount prints up to whole-plate in size. The set includes the press, thermometer, spirit lamp, fixing-iron, two mounting covers, and a grey mounting board. The machine, as will be seen from the drawing, works by the operation of an eccentric cam, and communicates an open pressure quickly and without any mechanism which can become deranged. Of the process itself it is unnecessary for us to speak in terms of commendation. The method of attaching the print



to its mount by a solid and insulating "tissue" of lac substance is not likely to be improved upon, providing, as it does, the absolute flatness of the print on the thinnest mount, the perfect adherence of the two, and the protection of the print from any deleterious constituents of the mounting board. The only drawback to the process has hitherto been the very considerable outlay for a proper press. This obstacle the company have now removed in the small press before us, and in a larger one, for professionals, sold at £2 10s. These, we understand, are not the only reductions to be made in the execution of the plans which the company are following out, whereby the advantages of dry-mounting may be able to make a forcible appeal to photographers not as a perfectionist's method, but on economic grounds. A circular of the company's, to be obtained at 27, Fetter Lane, will show the very simple and expeditious procedure in employing the press and tissues.

MESSRS. W. BUTCHER AND SONS, Camera House, Farringdon Avenue, E.C., have introduced a very handy form of graduate, in which the lettering is clear glass on a dark ground, and thus very



easily seen in the dark room. The set of these measures (1, 4, and 10 ounces) is sent out, securely packed in cardboard case, at 2s., and the separate measures are obtainable for 6d., 7d., and 11d. respectively.



## New Materials.

The S.D. (Simple Development) Plate. Made by Marion and Co., Limited, 22-23, Soho Square, London, W.

This new plate, with self-contained developer, resembles, so far as its mode of employment is concerned, the "Amauto" plate of Ilford, Limited, reviewed not long ago in these columns. There may be, and probably are, differences in manufacture which sharply distinguish the two products, and, indeed, the sensitometric data which we give below prove that the two plates are quite distinct in their properties. But in general the "S.D." plate is on the lines of the "Amauto." The developing solution, or, rather, the energising solution which brings the developer contained in the plate into action consists of four ounces of carbonate of soda in a pint of water. In this the image appears immediately, almost in such a way as to suggest over-exposure. But on continuing development for from five to ten minutes, the plate builds up density, and proves itself capable of producing an excellent negative. Although prepared for automatic development, the plate may nevertheless be treated to remedy errors in exposure by prolonging the time of development in the case of over-exposures and adopting the same course, but in a much weaker solution of soda carbonate, when the exposure has been undertimed. The former, as with ordinary plates, is a more successful process than the latter, but both may be applied with advantage to the "simple-developing" plates.

The nature of the plates naturally precludes the determination of the full number of factors which sensitometrically describe a plate, but the following figures from determinations by Mr. S. E. Sheppard, B.Sc., may be given:—

Inertia, .25.

$\gamma_{\infty}$  (measuring the maximum contrast obtainable), 1.19.

Opacity to light,  $-4,300 \lambda = 18$ .

The plates are placed on the market by Messrs. Marion and Co. at the price of 2s. per dozen, quarter-plate size.

The Birmingham Photographic Company, Ltd., Stechford, inform us they are issuing a modification of their bromide paper as the result of several improvements in manufacture made during the past year. The present paper, to judge from the sample sent us, is in every way an excellent bromide.

## Correspondence.

\**\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

\**\* We do not undertake responsibility for the opinions expressed by our correspondents*

### "PHOTO-COPY" PROCESSES.

To the Editors.

Gentlemen,—Re the note in "Journal," page 482, "New Photo-Copy Process," some of the statements in the above paragraphs are, I am sorry to say, quite contrary to fact: (1) Ferro-prussiate paper is more largely used than all the other photo-papers put together, and is still coming into more general use. One firm alone in the North coats upwards of five tons weekly. For cheapness there is nothing to touch it—a roll 30in. by 32ft. (110 grammes to square metre) being supplied to engineers (large users) at 10d. to 1s. per roll; thus a 40in. by 27in. print (a single one), costs a shade over 1d. The ferro rapid paper can also be produced at the rate of two every three minutes. This is much quicker than any other process—gallic, or black line, or sepia.

Regarding Mr. Shawcross's claim to the introduction of black line and sepia papers, the following facts speak for themselves:—

Black Line or Ink Process.—M. Poitevin described it in a communication, May, 1860, to the Société Française de Photographie, and later on it was perfected as a commercial article by M. Colas, who published several formulas so good that at the present day they are still the standard ones in some houses. As early as 1864 they were commercially sold in this country. In 1884 Mr. Shaw-

cross took out a patent for treating the above paper by brushing the gallic acid on to it (instead of using a gallic acid bath). Although this was granted a patent (8771), it was at the time as old as the hills. Several years previously there were similar papers sold here by French and German agents manufactured in their countries. I myself saw it manufactured both in France and Germany, and also in the States long previous to his patent, and the fact that several English firms put on the market a similar paper of their own, with any injunction tried for, clearly proved the patent was useless.

As to Mr. Shawcross's claim to sepia paper, this was invented by Arndt and Troost, Frankfort-on-Maine. I have not the number of the German patent, but it is some time previous to the English one. The number of the latter is No. 20,368, June 29, 1895 (BRITISH JOURNAL OF PHOTOGRAPHY, 1895, page 541, August 23).

The "graph" process now being exploited is simply a copy of a French process, which was worked in London some time before the present "inventor" brought his out, and is undoubtedly due to the invention of the Paris firm.—Yours truly,

MARGRAND.

P.S.—Marions made these papers in Paris long before Mr. Shawcross thought of them, and excellent they were.

[We are glad to publish our correspondent's letter, which doubtless describes the practice of large users of "photo-copy" papers. Other users of such papers have adopted the ferro-gallic process in preference to the blue paper, but our correspondent's statements, which we have confirmed in other quarters, fairly represents the present state of the whole trade in heliographic papers. Mr. Shawcross to whom we sent proof of the above letter writes as follows:—Eds. B. J. P.]

Replying to your correspondent's remarks, re black line and sepia process in reference to myself, from whom he would take the credit of having introduced "a process" at all, I would state as follows:—

I do not claim to be the originator of the gallic acid or ink black line process as such. It is true that Poitevin, followed by Colas and others, published formulæ which professed to give these results—but with a liquid developing bath only—before I even thought of them; but I do claim that my invention of the "single water bath process" of obtaining the same end by the mechanical device of the double sensitising of paper: (a) with a photo-sensitive chemical salt—in this case an organic salt of iron; (b) with the developer, gallic acid, so as to require only exposure to light and a bath of a solvent such as water to produce a copy, and for which my patent was granted in 1884, was new and original with me, and probably formed a strong and master patent.

At any rate I may state that never during the term of seven years, down to 1892 when I allowed my rights to lapse, did it ever come to my knowledge that any such paper was produced or offered by any firm in Europe; nor was it necessary for me, as your correspondent suggests, to issue any injunction to stop such infringement! In fact down to that date the "single bath process" was unknown on the market except through agents (Messrs. Poore, of Liverpool) appointed by myself.

Your correspondent states that it was sold in this country in 1864, that it is as old as the hills, that he saw it manufactured on the Continent and in America, all previous to the date of my patent. Is he sure of his facts, and can he name any firms in England who offered or made the article? I have probably as many facilities for knowing as he has, and it never came to my knowledge who probably at the time was much more interested. In 1884 no firm in England, and they were then limited in number, offered such a paper. Nay, right down to '90, when my patent rights lapsed, it was not offered. Shortly afterwards it was marketed here through foreign agents and subsequently manufactured by certain northern firms, who never had the grace, even if they knew, to acknowledge the source of the process which they preferred to call their own.

Again my process was brought under the notice of the Institution of Civil Engineers in a paper on "Heliography," by Mr. B. H. Thwaites, A.M.I.C.E., in 1886, when it was unknown to the profession and received no challenge as to originality and novelty.

Your correspondent is wrong with regard to M. Marion making this paper. I received a personal visit from that gentleman in Liver-

shortly after the date of my patent with a view to his taking it. At that time the process was quite new to him. With regard to my sepia process your correspondent must surely have considered the facts before him. Arndt and Troost, to whom he would give credit of this process, introduced it on the Continent in 1894, and according to your correspondent's statement, tented it in England in 1895. Now if he had taken the trouble to enquire he would have found that my patents for this identical process are dated; 1st in Paris in March 1889; 2nd in London in 1902, or a clear precedence of 5 years and 3 years respectively. These facts speak for themselves."

HENRY SHAWCROSS,  
Bach. Eng.

PHOTO-MICROGRAPHS OF MOLTEN MINERALS, ETC.

To the Editors.

Gentlemen,—In reference to the note on my paper at the Rome Congress I may say that the aim is to be able to determine with photographs the changes which crystals at a certain temperature are subject to, and also the formation of crystals out of molten, or melting, substances. This study is made with a microscope, specially designed for this purpose. It is so constructed that, between the object-holder and the objective—best a Petzval objective with about 55mm. focus, as one does not need any greater enlargement—small electrical oven is placed. The temperature in the oven can be regulated by a resistance apparatus. In the oven the substance to be photographed is placed in a small cup of quartz-glass. The temperature can reach 1,500deg. nearly; the photographic objective is placed in a cooling apparatus, so as not to get heated. The camera is erected over the ocular. Now the question is to be able to repeatedly photograph the molten substance at different temperatures, and not only when the temperature is rising, but also when it is falling. My first experiments with usual light did not succeed, and I have now begun to use plates, which are especially sensitive to red light. This on the advice of Mr. Proboscht. But the success was only partial, as was necessary to use a lighted field. At 1,205deg. nearly, only red light is sent out by the oven, which is easily constituted with an

course inconvenient, as during such a long time changes in the substance can easily take place, which would spoil the photograph. The photographs I have taken between 1,200-1,400deg. have generally succeeded very well, but this has not been the case with the lower temperatures between 1,000-1,100deg. The substance does not limit enough light, and the time of exposure is very long (over 3 minutes). The result is mostly an indistinct photograph.

The photographing itself, the focussing, etc., is, of course, not easy, as the oven sends out heat in all directions, but we can, at any rate at higher temperatures, obtain quite sharp and distinct photographs with usual Perutz plates. The difficulty is to reach as good a result even at 1,000deg.

The photograph here reproduced is taken at 1,250deg., and shows a molten gold-spun powder.—Yours truly,

C. DOELTER.

Graz, Austria.

THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—“Disgusted Assistant” is a bit mistaken in a few points in his letter. The “backyard studio” man may join the P.P.A. for one year; sometimes he does, and then we lead him out from his backyard and shake him cordially by the hand. The next year, however, when he finds that nothing very tangible appears by being a member, he forgets his subscription, and after a few months we mourn him as lost.

If, however, he stays in two years, you will find that there is usually a little grace in him after all. He begins to look up to his superiors for instruction, and opens up his lens to *f*/6 at least. After a member has paid his subscription four or five times there is little doubt but what he is an enlightened man, and one that would be quite able to pass any ordinary assistants' examination with ease.

No, “Disgusted,” the stickyback, the touter, the “3-for-2s. 6d.-cabinet” men, are not often with us. They cannot see that they can get anything out of the job, and so do not join; and I am glad they do not.

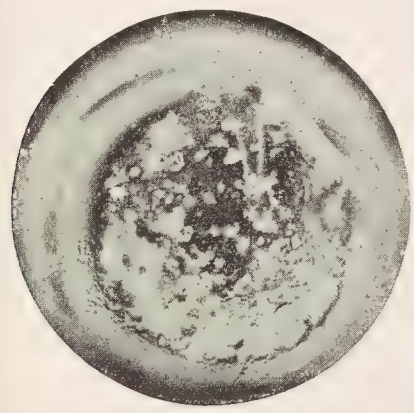
OTHELLO, M.P.P.A.

To the Editors.

Gentlemen,—I notice in your last week's issue a letter from “Disgusted Assistant.” Now, “Disgusted Assistant” throws rather at the P.P.A., which is a body I have due respect for.

The P.P.A., unfortunately, did not take the precaution to exclude from their ranks those who carry on cheap canvassing and cutting businesses, and I presume this is what “Disgusted Assistant” alludes to. Of course everybody who knows anything about the country generally knows that the membership of the P.P.A. includes cheap canvassing firms as well as those who have never been photographers from their youth, but have turned over from other vocations. Now, everyone has the right to do what they like, but what sticks in the assistants' throats is these men becoming members of the P.P.A. without even as much as being questioned as to their abilities. The assistants must go through an examination to prove their abilities, while these men can get through without the slightest trouble. This has always been a thorn in the side of the assistants, and if the P.P.A. altered this state of things I am sure the young men of standing and ability would come forth for the P.P.A. certificates.

It is in the assistants' power to do what the P.P.A. could not possibly do—that is, to help to stop the innumerable frauds which are perpetrated every week, and which are given every publicity by the Editor of our JOURNAL. “Disgusted Assistant,” like myself, often feels somewhat disgusted at things which occur in the profession, especially in the cheaper lines of photography. Ever since the world was set buzzing there have been sharps and flats, so long as the uneducated can be gulled by the tact and persuasive element of certain men travelling as canvassers, who expound with gushing tones that they are going to give something for nothing. These men cannot get a hearing at houses whose education and artistic merit is a little above the average, who at a glance can see that the work which is being pushed under their nose is enough to make the moon turn pale.



the spectral ocular, of course, not recommencing with the ordinary light, which must be cut off. At higher temperature the substance sends out more yellow light. The photographs have, so far, been best with a clear red filter. I have also experimented with yellow filters at these high temperatures, but the photographs did not become clear. On the advice of Prof. Eder I then tried to use orange filters; my experiments with these are not yet finished, but the amount of yellow light increases up to 1,500deg., I think that the orange filters will be found most suitable for the purpose. The disadvantage of the red filter is the long time of exposure; at a temperature over 1,300deg. 1½ minutes is sufficient, but thereunder an exposure of at least 2 minutes is necessary. This is of



Like every other big trade, the photographic profession ought to have an amalgamated society of photographic assistants, to be connected very closely with the P.P.A., and to work in the best of spirit and motives, and then perhaps we should see a change for the better. If the assistants would only take the trouble to warn people of the various travelling photographic frauds, they could help themselves and others to higher positions. I have always fought these various bad systems, with a good deal of success.

After this, I am hoping the P.P.A. will band with them the managers and assistants of every branch, so that they can be quickly in touch with any of these bad systems, which are generally seen first by the assistants.

One more point which I wish to touch upon is colour photography. I have been astounded at the poor reception it has received at the hands of our best and most able photographers; they seem to ignore it, and might advance it great steps, having the time and money. It seems to have been left to a few, who will eventually cage it up and make a company of it. Things have occurred like this before, and then we have had the wailing of the profession over spilt milk.—Yours, etc,

ANOTHER ASSISTANT.

#### To the Editors.

Gentlemen, — Your correspondent, "Disgusted Assistant," although writing rather wildly about the composition of the P.P.A., yet throws out a valuable suggestion which, if made use of, would probably result in much good being done.

It is that the gaining of P.P.A. certificates should depend, not, as heretofore, on the testimony of employers, but upon the passing of an examination. This is what is wanted. The testimony of employers is of a somewhat dubious value, because of the varied modes and standards of work in vogue throughout the country. But on examination, taking, as I presume it would, a very high standard, would offer a stimulus to the present trudging assistant, and be the means of raising his work to the highest possible level. Chemists, draughtsmen, etc., hold certificates obtained by examination. Why not photographers?—Yours faithfully,

1, Granby House, Llandrindod Wells, July 2, 1906.

ALB. PAGE.

#### A REMEDY FOR PLATINUM PRINTERS' CATARRH.

##### To the Editors.

Gentlemen,—Make a strip of book muslin (washed) about 17in. long and 6in. wide, and fold three times lengthways. When using platinotype paper, pass strip under nostrils and over the ears. Soak portion of strip under nostrils with olive oil, and keep well oiled. That is all, and is simple to put on and take off. Having been a great sufferer from "catarrh," I thought other sufferers would like to try this. I can now cut up quires of platinotype paper with my strip, and feel no ill-effects whatever; formerly, only to open tube was sufficient to start me sneezing, etc., for the whole day and evening.—Yours truly,

PLATINO.

[A number of letters on this subject appeared in our pages last year, and the general conclusion then arrived at was that a species of catarrh which is experienced in some few isolated cases on the use of platinum paper—is noticeable chiefly in the cases of persons hyper-sensitive to dust. The filter recommended by our correspondent has doubtless proved necessary and efficacious for himself, but we have no ground for believing that there is a general need for such measures.—Eds. B.J.P.]

#### A NOTE ON THE SENSITOMETRY OF PLATES.

##### To the Editors.

Gentlemen,—The letter from Mr. A. Payne on the determination of the development factor in your issue of June 15 illustrates a misunderstanding which has been brought to my notice before. I think it would be well if I put the crux of the mistake in the forefront of my argument. The constant, K, does not measure the

rapidity of development for different plates, if by this is understood the time taken to reach a definite—the same—factor  $\gamma$  save when the value of  $\gamma_{\infty}$  is the same. May I refer Mr. Payne and others interested in this question to two papers on the development factor ("Phot. Jour.," 1903, February and July), which contain the first exposition of the method of determining a plate's development properties brought forward by Mr. Mees and myself; or to the latter paper on the theory of the process ("Phot. Jour.," 1905), in which the subject is more fully discussed. It may be well to state the physical meaning of the constant, K, obtained by calculation. It is that fraction of the final density, or  $\gamma_{\infty}$ , which would be developed in unit time if all conditions remained the same throughout development—i.e., if the original amount of developable halide remained constant. The (total) rapidity of development depends both on K (the velocity-constant of development) and on  $\gamma_{\infty}$ . Thus, with two plates, one having a high K but low  $\gamma_{\infty}$ , and the other a low K and high  $\gamma_{\infty}$ , the values of the development factor reached in a given time may be much the same at one stage.

That Mr. Payne's experimental results do not clash with the formula given, but rather confirm it, when viewed correctly, the following comparison of the graphic and calculated values will show:—

TABLE 1.

Plate.	$\gamma_2 \gamma_1$	K	$\gamma_{\infty}$
1 .....	1.17 .....	.885 .....	1.31
2 .....	1.79 .....	.112 .....	4.17
3 .....	1.756 .....	.137 .....	3.02
4 .....	1.73 .....	.154 .....	2.72
5 .....	1.67 .....	.202 .....	3.06
6 .....	1.64 .....	.226 .....	3.34
7 .....	1.52 .....	.337 .....	2.76
8 .....	1.69 .....	.202 .....	3.07
9 .....	1.74 .....	.150 .....	4.06
10 .....	1.60 .....	.250 .....	2.46

The next table gives the values for  $t\gamma_s$  and  $t\gamma_{1s}$  obtained graphically by Mr. Payne and calculated from the special equation:—

TABLE 2.

Graphic.	$t\gamma_s$	Calc.	Graphic.	$t\gamma_{1s}$	Calc.
1.40 .....	1.075 .....	4.00	...	Not calculable	
1.90 .....	1.90 .....	3.40	.....	3.31	
2.35 .....	2.25 .....	4.20	.....	4.16	
2.35 .....	2.17 .....	4.20	.....	4.20	
1.60 .....	1.52 .....	2.80	.....	2.78	
1.30 .....	1.20 .....	2.30	.....	2.18	
1.25 .....	1.07 .....	2.00	.....	1.91	
1.60 .....	1.52 .....	2.80	.....	2.74	
1.60 .....	1.39 .....	2.70	.....	2.68	
1.60 .....	1.57 .....	3.00	.....	3.01	

Disregarding the first result, in which the quotient,  $\gamma_2 \gamma_1$ , is too small to make the method of calculation reliable, the coincidences are sufficiently near, especially if it be remembered that the values of the graphic method depend upon interpolation in an exponential curve drawn through two points, a rather uncertain process.

The point is that not only K but the value  $\gamma_{\infty}$ , the ultimate possible factor, must be considered.

In conclusion, it should be pointed out that the limitations involved in the special formula used, as to the quotient  $\gamma_2 \gamma_1$ , must be borne in mind, and also that the formula must not be applied to developers with a Watkins factor greater than 15. I hope Mr. Payne's difficulty is cleared to his satisfaction; if not, I shall be glad to discuss the matter further.—Yours, etc.,

S. E. SHEPPARD.

#### URANIUM-TONED IMAGES.

##### To the Editors.

Gentlemen,—I am much obliged to Mr. Wall for his offer of plates exposed in an H. and D. machine for further tests on the

of various uranium baths. I feel that the uranium processes are rather played out, and I suppose few now use them to recommend them, but, as the relative effects of different for intensification purposes seem still somewhat undecided, be worth while to make comparative tests that will give a result. Therefore, I shall be very pleased to accept Mr. kind offer, and will report results later.

sorry to hear of the fate of "Aylesford Bridge," as I well remember this picture. The clear yellow patches look like the much of "fading," but the metallic sheen could, I think, have been and I should have liked to have made an attempt at remedy. The pictures referred to by Mr. Wall are of the same mine, and a comparison would be interesting.—Yours faithfully,  
C. WELBORNE PIPER.

h Heath, July 1, 1906.

## TEUR" AND PROFESSIONAL—THE QUESTION OF ES FOR PHOTOGRAPHING IN SHOW PLACES.

To the Editors.

lemen,—Whilst operating in various parts of the country I find that the professional photographer is subjected to very treatment as compared with his amateur brother. At many of interest the amateur is allowed to take any photographs y wish to (and to sell them to a publishing firm for a ridiculous, if he be so minded) for a small fee, whereas the professional who is striving hard to earn an honest living, has to pay a fee. Surely he who is earning his daily bread should be d at least facilities equal to those granted to others who are pursuing a hobby.

ford Cathedral, Malvern Priory Church, Tintern Abbey, and Castle are instances in point where the fees to professionals are 10s. 6d. to £1 1s., compared with 6d. to 2s. 6d. to rs. This is manifestly unfair, and should be altered. No my fellow-readers in various parts of the country can corroborate my statements.

ing that you will find space to ventilate this matter.—Yours ally,  
WALTER COATES.

inetre Hill, Kingsdown, Bristol.  
June 30, 1906.

## FACTORIAL DEVELOPMENT.

To the Editors.

lemen,—In an editorial note on this method you speak of ource of error caused by the eye not getting accustomed for minutes to the dim red light of the dark room.

s a matter which certainly requires consideration in many

But the difficulty equally applies to the use of a dark room older plans of judging density by visual means in a dark and to speak of it as an "insurmountable difficulty" is surely strong, seeing that it is so easy to wait the few minutes ed for the eyes to get accustomed to the light, and to occupy ne by setting dishes, solutions, etc., ready to hand.

ay own case I happen to be red colour-blind, and a dark-room nation is to me probably nearer "darkness made visible" s the case with most persons. But this has not prevented me making the long series of experiments which led to the ion of the factorial method of development. I have always an orange and not a ruby illumination. It is twelve years the factorial method was given to the public, and it is being y thousands with success. If the difficulty mentioned is a ar to its use, it is certainly curious that it is now men- in print for the first time.—Yours truly,

ALFRED WATKINS.

eford, June 29, 1906.

a paragraph with which our correspondent is apparently in ment was intended to draw attention to an error which may to those who have to be continuously in and out of the dark The loss of a few minutes every time a plate is developed ly an "insurmountable difficulty" in the commercial sense.—B.J.P.]

## Dews and Notes.

MATT-ALBUMEN Papers.—Messrs. L. Trapp and Co., whose "matt-albumen" papers we were able to speak of in appreciative terms some time ago have done themselves and their customers a good turn by arranging at their premises, 8 and 9, Chiswell Street, E.C., a small exhibition, from which may be seen the great variety and excellent effects obtainable on these papers. The collection includes not only the results of simple toning and fixing, but of blue and other toning agents, the solutions for which are supplied by Messrs. Trapp. In choice of paper alone, however, the user is in the fortunate position of securing very varied results, according to his selection from the "15-kilo rives," cream and white crayon card (smooth and rough), hand-made paper and card (also cream and white) and linen grain paper and card. Those who can do so should certainly pay a visit to Messrs. Trapps' exhibition. It remains open until Saturday, July 21.

A CAUSE of Bad P.O.P.—A letter from Messrs. Barclay, 95, Farringdon Street, E.C., to the "Chemist and Druggist," says: "We recently sent some dozens of packets of sensitised postcards to a customer, and on some of them being opened they were found to be discoloured round the edges and unsaleable. We returned a sample to the makers to ask for their explanation, and they informed us the goods were quite fresh when they left their works, and the papers had evidently been exposed to the action of some strong chemical. In our stock there is no opportunity for sensitive material to come into contact with any chemical, and our customer said the same of his store, but suggested that as the cards had been packed with several pots of phosphor-paste, possibly the phosphorus might be the cause of the deterioration. We accordingly made an experiment by putting a piece of fresh P.O.P. in a box with a pot of phosphor-paste, and the following morning the paper was quite discoloured and unfit for use, although no smell of phosphorus could be detected."

KIRKCALDY Corporation Exhibition, 1906.—The Corporation of Kirkcaldy, acting in conjunction with the following local societies, namely, the Fine Art Association, the Photographic Society, and the Naturalists' Society, have arranged to hold an exhibition in the Corporation Halls, Kirkcaldy, during the coming autumn, opening on Wednesday, September 5, 1906. For the Photographic Section the receiving day is August 27. Mr. W. Crooke, of Edinburgh, will judge. There are three classes. Copies of prospectus and entry forms may be had from J. Rowan Thomson, C.A., 154, High Street, Kirkcaldy.

"CAMERA CRAFT," our San Francisco contemporary, has not been slow in recovering from the effects of the earthquake. Its May number reaches us, containing the story of how its entire April issue, copies, proofs, and MSS. were lost in the fire. Congratulations to Fayette J. Clarke on his speedy return to publication.

"THE World of the Camera."—Mr. Thomas Bedding, F.R.P.S., informs us that the number of applications from secretaries of photographic societies for his lantern lecture bearing this title has been such that early application for dates is advisable. Mr. Bedding should be addressed at 4, Duke Street, Adelphi, W.C.

TESTING of Optical Surfaces.—M. G. Meslin describes a very interesting method of testing optical surfaces (writes C. P. Butler in "Knowledge"), which is more widely applicable than the now well-known method of using Newton's rings and monochromatic light. By employing a grating instead of the parallel test-plate, a new series of interference phenomena are brought into play, and the most important factor from a practical standpoint is that these new bands are very distinct in ordinary white light, so that little special apparatus is needed. The grating is placed over the surface to be tested, either in contact or a few millimetres distant. An interesting distinction of these grating interference bands from Newton's rings is that they are scarcely coloured, being almost achromatic when viewed at an incidence about 45deg.; further, the diameters of the rings diminish when the incidence is increased, whereas Newton's rings increase in diameter under similar conditions. They may be rendered very brilliant by increasing the reflecting power of the surface to be tested, say, by silvering, and hence the method may be applied to the examination of metallic surfaces, and also of liquids, such as mercury.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

July.	Name of Society.	Subject.
7.....	Hackney Photographic Society	Outing to Major Woolmer Williams House Boat, Taggs Island.
7.....	Chelsea and District Photo. Soc.	Outing to Leatherhead.
7.....	Blackburn Camera Club	Outing to Sunnyhurst Woods, Darwen.
7.....	South London Photo. Society	Outing to Shirley Hills.
7.....	Halifax Camera Club	Outing to Kelghley.
7.....	Worthing Camera Club	Outing to Patching and Clapham.
7.....	Aberdeen Photo Art Club	Outing to Stonehaven.
7.....	North Middlesex Photo. Soc.	Outing to Chase Village and Old Scunghate.
7.....	Redhill and District Cam. Club	Outing to Felsay (Holmbury).
9.....	Southampton Camera Club	Photographic Convention of the United Kingdom.
9.....	Bradford Photographic Soc.	"Print Retouching," A. Bracewell.
9.....	Royal Photographic Soc.	Ordinary Meeting. Nomination and Election of Candidates for Election.
10.....	Hackney Photographic Society	Enlarging by Daylight. H. F. Edmonds.
11.....	South Essex Camera Club	Lectures. Members.

THE HOVE CAMERA CLUB were fortunate in having splendid weather for their excursion to Amberley and Bury on 30th ult. Amberley with its castle, church, and old-world village took up the morning, and the afternoon was spent on the riverside between Berry ferry and Houghton, where some beautiful scenery was found. In the evening the party walked to Arundel, the only complaint being lack of more plates. The neighbourhood is an ideal one for the study of Sussex river scenery, and may be commended to all photographers.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Annual General Meeting held June 28, 1906, Mr. A. Haddon in the chair. The hon. sec. and treasurer read the annual report and balance sheet, which were adopted. The following were elected officers for the coming year:—Trustees, Messrs. A. Haddon and T. E. Freshwater; Hon. Lanternist, Mr. E. T. Wright; Hon. Librarian, Mr. E. J. Ferry; Hon. Recorder, Mr. Ernest Human; Hon. Sec. and Treas., Mr. H. C. Rapson; Committee, Messrs. R. Beckett, Hart, Smith, J. S. Teape, French, A. B. E. Fry, Furley Lewis, and W. R. Stretton. Delegates to the R.P.S., Messrs. H. C. Rapson and Ernest Human. It was arranged to hold the Annual Supper in the early part of October, in place of February as previously.

SOUTHAMPTON CAMERA CLUB.—Mr. A. E. Henley, who is the most successful worker in the Southampton Camera Club in floral photography, lectured on that phase of the art to his fellow-members on Monday, July 2. The lecturer claimed that no department of photographic work gave more increasing pleasure to those who specialised in it than does flower work, but he also pointed out that almost infinite patience was needed to ensure success. Among the points of an excellent lecture were the following: The flowers should never be cut immediately before use, since drooping at once begins; they should be cut at least 24 hours beforehand, and should at once be arranged in the desired fashion. They should then be laid in water in a shallow dish, the effect of which would be to set the blooms as much as possible in the narrowest place, and bring them to the time of exposure in fine condition ready for at least an hour's handling. The background should not be too near; 10in. behind a small subject, increasing as the subject was larger. The flowers should never be subject to the front light, but to a side light, and immediately in front should be a white foreground to throw as much light upwards as possible, while a mirror might be used at the side to concentrate light on to either foliage or blossoms, as proved necessary. The most successful studies would be found to result from yellow flowers and green leaves, pure white flowers needing careful treatment by reason of the strong contrasts. Exposure, which should always be made on isochromatic plates, should be full, while the yellow screen should be used the length of exposure with a four times' screen should range from 12 to 20 minutes. The lecturer gave practical demonstration of the method of fixing flowers and fruit on glass by means of pieces of cork fixed to the glass with Prout's cement—the only medium he had found successful, and produced a number of excellent prints illustrating the chief points in his lecture. The usual discussion, which was heartily entered into, followed, and the lecturer was cordially thanked for a most interesting lecture.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & COMPANY, 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, from two unmounted copies of each photograph must be sent with the application.

### PHOTOGRAPHS REGISTERED:—

R. W. Brown, Boulevard Studio, Weston-super-Mare. Photographs of the W. super-Mare Water Polo Teams.  
Isaac Perkoff, 186, Commercial Road, London, E. Photograph of Prof. A. Mische Elman.

A. H. M.—You can sue in the County Court from your town.  
E. B. B.—In our next.

CARBON.—Prove to the trade houses that you are able to bona-fide dealer's business.

BOOKS.—I would esteem it a favour if you would kindly recommend a book on (1) photographing interiors, (2) also one on retouching.—A. R.

(1) The Photo-Miniature, No. 30 (6d.); (2) "Retouching," Arthur Whiting, 1s. Both from Dawbarn and Ward, 6, Farndon Avenue, London, E.C.

RETOUCHING (Reply to C. P.).—Your specimens of retouching are above the average we receive—especially the female studies. Likeness is excellently retained, allowing for a fair and reasonable amount of flattery. Altogether, your methods are good, result in bright and pleasing finish. The male studies are not quite strong, an unnecessary amount of work having been placed on old man's forehead, and the very characteristic wrinkled likeness is left. Be a bit bolder in the grain with the men, differentiate more, and you will soon be capable of much better results.

S. ALSTON.—(1) We should prefer the Unofocal lens by the makers. (2) The cards obviously carried some of the alum the fixing bath with consequent decomposition of the hypo sulphur toning. There is no necessity to use alum at all if you want a hardening bath, formaline should be used.

D. R.—(1) We are not quite clear whether you merely wish to know the name of some commercial paper or formulae for making same. Chas. Zimmermann and Co. supply paper which answers to your requirements; and also a ready-made bath. (2) The paper will give the results you want, if the formulae on p. 10 of the Almanac for 1906 are followed.

CLOUD NEGATIVES.—It would be impossible to print such clouds without blocking out some of the upstanding details. Any orthochromatic plate with a yellow screen would give you such results.

LENS.—You had better select one of the anastigmatic lenses makers' lists in the "Almanac", working at f/6, which is quite rapid enough for portraiture. In a studio 20ft. long, cannot expect to get good perspective of panel portraits, a lens of the class we recommend to you, of about 10in. 10 length, will give you plenty of room for full-length cabinet figures, and, stopped down, will serve as an excellent wide angle lens on the 12 by 10 plate.

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## SUMMARY.

The Photographic Convention.—The earlier proceedings are reted this week. A reproduction of the group taken on Wednesday is presented. The Convention will meet next year at Hereford, under the presidency of Mr. Alfred Watkins. (P. 546.)

Some practical hints on "Copying Pictures" with orthochromatic plates and filters are given by Mr. Harold Baker. (P. 544.)

Some suggestions for the simplification and unification of "Optical nomenclature" are given. (P. 543.)

Simple, effective, and easily performed experiments are described by Dr. Scheffers, and from these a very clear grasp can be obtained of the principal lens aberrations. This might well form the subject of a society meeting. (P. 552.)

"Studio Blinds" and the best methods of hanging them are practically considered by Mr. Foster Brigham. (P. 550.)

Further experiments on the action of aluminium dark-slide shutters are described, also others with wood. (P. 542.)

Suggestions as to the rapid drying of gelatine films and plates are given. (P. 554.)

The correspondence as to the assistants' certificates again continues this week, and obviously there is still considerable interest in it. (P. 557.)

Mr. Comley brings up the subject of the "Proposed Society of Colour Photographers," and proposes to call a meeting in London shortly. (P. 558.)

Mr. Sands, of Oregon, calls attention to his work, noted in our issue of June 8, on "The True Cause of the Formation of the Latent Image," or "The Primordial Energy," as he prefers to call it. (P. 559.)

## EX CATHEDRA.

### Dark Rooms at Public Libraries.

According to an evening paper, the St. Pancras Borough Council is asked for a room at its public library to be used as a dark room for amateur photographers. This is the first time we have heard of such an application being made at any public library, and it will be interesting to see if it is granted in this case. There is very little question that a public dark room would be a great convenience to many amateur photographers who have only a very makeshift one at home, even if a small payment had to be made for its use. Now, a dark room in any public building would require some fitting up to adapt it for its purpose, and the question will arise as to whether the ratepayers' money can legitimately be expended in this way, even if there is a room available. Again, it would require consideration as to how the use of the room is to be granted to the many applicants there would no doubt be for it, and the time they would be allowed to occupy it. Then again, someone would have to be appointed to look after it, and keep it in useable order, for it is well known to those, dealers and others, who have dark rooms for the use of amateurs, the plight they are sometimes left in after an hour or so's occupation by some users. It will, as we have just said, be interesting to see if the application for a dark room at its library will be entertained by the St. Pancras Borough Council. If it is, it will perhaps serve as a precept to other public library authorities.

\* \* \*

### A New Celluloid.

It would be a somewhat difficult matter at the present time to enumerate the different purposes to which celluloid is put, so many are they. Most of our readers are aware of the many uses to which it is put in connection with photography, such as xylonite developing dishes and the like—xylonite being only another name for celluloid. One of the most important uses for celluloid in photography, however, is films for supporting the sensitive gelatino-bromide film, either as rollable or cut films, and films for the cinematograph. The great inconvenience of the material for this latter purpose is its extreme inflammability, and the restrictions that are enforced where it is used in places of public entertainment. With regard to its inflammability when used as a support for negatives, that causes no practical inconvenience, though it is a little expensive as compared with glass, and therefore any substitute for it, with the same advantages, would be welcomed. According to the Vienna correspondent of the "Pall Mall Gazette," such a thing is now promised us. He says that a Bohemian chemist, at Gablonz, is reported to have discovered a perfect substitute for celluloid, much cheaper, and with-



out any of its dangerous properties. He adds that the new substance is very elastic, entirely non-inflammable, and an excellent material for working in. Further, he says that by a simple process articles made from it can be given a high and lasting polish; and it is said to keep its colour alike in sun and in water. If this new material fulfils all that is claimed for it, it would be safe to predict that a fortune awaits its inventor. But we have often read of non-inflammable substitutes for celluloid being invented before, but nothing has come from them. We shall wait with interest, and see what comes from this last one.

\* \* \*

#### Dark Slide Shutters.

In our issue for March 30 we gave an abstract of a note by Dr. Neuhauss on the above, in which he stated that aluminium emitted radiations which would affect a plate and that wood and ebonite were permeable by violet and ultra-violet light. In our last issue, also, on p. 522 there appears a note on the same subject, and now it is reported in one of our German contemporaries that Herr Beckers, who is connected with one of the large camera factories at Dresden, has been experimenting, and the conclusions he comes to are somewhat reassuring, for aluminium, on account of its light weight, is specially suitable for this purpose. A shutter was removed from a slide and one-third of it was brought to a high polish in a lathe, another third was smoothed with emery paper, while the remaining portion was left matt and varnished. The shutter was then at once inserted in the slide, in which had been placed a very rapid plate, and the whole left for thirty-six hours and then developed. Not the slightest trace of any radiation could be detected. To test the permeability of ebonite and wood to the shorter wave lengths, rapid plates were exposed to a 25 ampère arc lamp at a distance of ten inches for ten minutes in the case of the ebonite, which was about one thirty-second of an inch thick, and in the case of mahogany and walnut shutters the exposure was an hour. The experiment was repeated with an hour's exposure to a brilliant mid-day sun, and in neither case was the slightest action detected. Whilst this is decidedly satisfactory, it need hardly be pointed out that there are not many worse places for storing plates than the dark slides, and the old advice of protecting the slides from direct sunlight as much as possible still holds good.

\* \* \*

**Local Views.** The Cardiff Corporation have just announced the awards in their competition for the best ten prints illustrative of the district, and a committee were appointed to select others than the winning prints for illustrative purposes. What the precise lines were on which the awards were made we are not aware, but one can easily see that whilst however commendable such enterprise may be, there are many pitfalls in the road. Assuming that the idea was to obtain as pleasing views as possible of the place and district, it is obvious that one might have a purely pictorial rendering of a certain subject, which might be quite useless from the point of view of attracting visitors. On the other hand it cannot be denied that many local views are distinctly discouraging and possess but very little pictorial merit, if any. It is, in fact, an open question how far one may err in such subjects from the purely topographical standpoint, whether a purely artistic rendering or a mere plan is the better. It will be difficult, of course, to make a pictorial rendering of some subjects which are required for local guide-book purposes, but there is yet room for improvement in the majority of such things. Certainly

the idea of throwing open the subject to competition is more conducive to obtaining good work than when handed over to one person as a contract. On the other hand, we may question whether a prize of five guineas is enough to compensate anyone for ten views of a place, for even if the copyright was retained, the publication of the same in a local guide-book, which would probably be given away, must inevitably reduce the selling value of the prints considerably.

\* \* \*

**The Televue.** Just a year ago in our issues for 7 and 14, 1905, we described Professor Korn's apparatus or system of transmitting photographs by wire, now according to a New York paper, J. B. Fowler of Portland, Oregon, has invented another apparatus, which is said to give even more brilliant results than Korn's and it has been tested with very satisfactory results at 6,000 feet. The description is somewhat vague and unsatisfactory, but we give it for what it is worth. The cabinet embodying the receiving and transmitting apparatus of the televue is in many respects merely an elaboration of the ordinary telephone cabinet, but the switch and hook inside are declared to be wholly dissimilar. There is one extra induction coil and two extra batteries in each machine. The lens employed is similar to a camera lens, and images are transmitted in their natural colours. The disc for transmitting the image—that is, the glass before which is placed the person or object to be reflected at the opposite end of the line—is about 10 inches in diameter, but the receiving plate, where the transmitted image is discernible, is only about one and three-quarter inches in diameter. The two glasses are arranged that a person using the televue can have his eyes upon the lens where is reflected the image of a person at the other end of the line, and at the same time remain in the required position before the larger lens to enable the transmission of the image to the opposite terminal. The telephone transmitter is close by the listening lens where the picture is received, and the telephone receiver is held to the ear in the ordinary manner. The visual image in the seeing telephone is transmitted in the form of a photograph, and the apparatus is said to depend for its working "upon the variations in the electric resistance of a ribbon of selenium produced by variation in the intensity of a beam of light impinging upon it."

\* \* \*

#### The National Portrait Gallery.

It would be interesting to know what proportion of professional photographers and portraitists per annum visit the National Portrait Gallery with a view to obtaining instruction from the pictures there on show, for they might learn much from them. Last week the forty-ninth annual report of the trustees of this gallery was issued as a white paper, and it seems from it that they are heavily handicapped for want of space. In the report it is stated that owing to the congested state of the galleries, the difficulty of finding space on the walls for the recent acquisitions continues to increase, and the attempt to maintain a chronological and historical arrangement of the portraits would soon become unavailing. The report goes on to say that the trustees had been in further correspondence with the War Office with regard to the future disposition of the site now occupied by St. George's Barracks, but up to the time of the report no reply had been received from the military authorities. Not only is more room required in the Portrait Gallery, but, also in the National Gallery, and there is no question that if the site of the Barracks could

had it would be a great acquisition to both institutions. We have before now expressed the idea that a national portrait gallery need not be confined to oil paintings, and that photographs might well be utilised when oil paintings are not available. In a national collection of portraits we take it that it is the portrait, the likeness of the individual, that is the main object. There are many persons who have distinguished themselves in politics, literature, the arts and sciences, etc., during the past few generations whose portraits should figure in a national collection, but no oil paintings of them are, perhaps, in existence, or if they are they are too highly prized by their families to be given to the nation. Still there are good photographic portraits of them existing that would be available. These could be enlarged and artistically finished in monochrome. The cost would not be great, even if it were paid out of the National Exchequer, and if the portraits were reproduced by either the carbon or the platinotype processes they would be as permanent as they were oil paintings. The National Photographic Record Association, through the influence of its President, Mr. Benjamin Stone, M.P., is fully recognised by the authorities of the British Museum, and they have allocated space for its photographs. Why should not the trustees of the National Portrait Gallery do the same for photographic portraits, if space were available? Until that is in prospect, of course, nothing really practical can be done. Still the subject should be kept in view.

\* \* \*

**Portrait of Turner.** While on the subject of national portraits, it may be mentioned that what has been pronounced to be an excellent portrait of the great painter Turner has just been brought to light. Part of the picture is said to be by the great artist's brush, and the remainder by that of another. Those who knew Turner well, Mr. W. P. Frith, R.A., the painter of the famous "Derby Day," amongst the number, pronounce the portrait as an excellent one. It appears that the picture was purchased for a trifling sum at a second-hand shop some years ago, but has only recently been cleaned, when its value was discovered. It seems that only three authentic portraits of Turner are in existence, and that one of them is little more than a caricature, interpreted by a fellow Academician on a "varnishing day." This recently discovered portrait is said to depict the great artist when in the height of his fame. Will the picture find its way to the National Portrait, or the Tate Gallery, where so many of his pictures are shown?

## OPTICAL NOMENCLATURE.

For a little confusion is caused by the free and easy nomenclature adopted by writers on optics, and perhaps this confusion is at its worst in that branch of optics that treats more especially of the action of the photographic lens. A very great deal might be said on this subject, for photographic optics is overloaded with terms that are inexpressive and often quite misleading, and is also deficient in terms that are required, but in this article we propose only to deal with such expressions as relate to distances of foci and separations, etc., of lenses. Much confusion exists here, for such terms as "focal distance" and "separation" are used in a variety of senses. When we come across the first term it is difficult to know whether it is used to describe the distance of a focus from the surface of a lens, or its distance from the lens node, or the lens pupil. Similarly, when we read of the "separation" of two lenses it may mean the distance between the second node of the front lens and the first node of the back, or

it may simply be descriptive of the distance between the two glasses. In our own work we have got over these difficulties by adopting the following very simple system.

The distance of a focus, or of either object or image, is measured differently according to circumstances. Sometimes we want the distance from the lens node, sometimes from the pupil, and very often from the principal focus, while occasionally it is desirable to describe the distance from the surface, or "pole" of the lens, as Prof. Sylvanus P. Thompson has very aptly termed it. In these cases it is easy to secure preciseness of expression by simply defining these various distances as "nodal," "pupilar," "extra-focal," or "polar" distances; the definite term focal distance is dropped completely, but if it had never been used in any other sense it would be very applicable to a distance as an alternative is inadmissible, as it has often to give a new meaning to an old term would, however, only add to confusion, and "extra-focal" is perhaps a better expression. It has been used in the same way for some time, and is therefore no innovation. Principal focal distance as an alternative is inadmissible, as it has often been used in a different sense; moreover it is very clumsy.

The same method may be applied to distinguish the various meanings of "separation" as applied to a doublet of two lenses. The "nodal separation" is the distance between the second node of the first two and the first node of the back one. The "pupilar separation" is the distance between the second pupil of the front lens and the first pupil of the back one. The "focal separation" is the distance between the second principal focus of the front lens and the first principal focus of the back lens. The "polar separation" is the distance between the inner poles of the two lenses, the "poles" being the points at which the principal axis of the system intersects the surfaces of the glasses. Of these terms "pupilar separation" is perhaps the least useful, while all the rest express distances that are frequently employed and are most useful, though in general they are all vaguely styled "separation."

This leads us to note the first example of deficiency in terms. There are many quantities, and even points, relating to lenses that at present have no definite names, and are commonly only referred to in a clumsy descriptive fashion. Occasionally we have to deal with the distances between the outer poles of a lens. This is, of course, the "thickness" in the case of a single lens that has only two poles, but in a doublet it has no definite name. We have found "polar length" to be amply descriptive, and very useful, and we suggest "nodal length" and "pupilar length" as equally suitable to express the distances between the first node or first pupil of the front lens, and the second node, or second pupil of the back lens. These terms are strictly in accord with the system of nomenclature we use and advocate, and no possible confusion can exist between the polar or nodal length and polar or nodal separation of a doublet. It is, however, obvious that the same method cannot be employed for describing the distance from the first principal focus of the front lens to the second principal focus of the back lens. We cannot describe this as the focal length, and so it is fortunate that the distance is one of no practical importance, though the "focal separation" is of very considerable importance, and appears in nearly all formulae relating to a combination of two lenses.

There are yet two more dimensions of importance, and these are the distances between the first and second nodes, and between the first and second pupils of a lens system. For these we suggest "nodal space and pupilar space." We have long used these two terms and find them very convenient. It will be noted that we have throughout this



article used the terms "first" and "second" to distinguish between the two nodes, or the two pupils of a system. This is not an innovation, as many others have employed the same expressions, which we think are distinctly preferable to the older and more clumsy, "node of admission" or "node of emission," and "entrance pupil" or "exit pupil."

As we have touched on errors of omission in nomenclature we must refer to an important one concerning a point, not a dimension. At present there is no recognised term for the central point of a pupil. "Pupil centre" is of course, servicable, but we should like to see the term "Abbe point" generally adopted. The corresponding

to travel in the direction of the arrow, and  $a$  is the focus image of an object point at  $A$ .  $A$  and  $a$  are therefore conjugate foci. In Fig. 1,  $F_1$  and  $F_2$  are the 1st and 2nd principal foci of the objective;  $N_1$  and  $N_2$  are the 1st and 2nd Nodes;  $P_1$  and  $P_2$  are the 1st and 2nd Pupils;  $P_1$  and  $P_2$  are the 1st and 2nd Poles;  $AF_1$  and  $aF_2$  are "Extra focal" distances;  $AN_1$  and  $aN_2$  are conjugate "Nodal distances";  $AP_1$  and  $aP_2$  are "Pupilar distances";  $AP_1$  and  $aP_2$  are "Polar distances";  $N_1N_2$  is the "Nodal space";  $P_1P_2$  is the "Pupil space";  $P_1P_2$  is the "Polar length," or "thickness" if lens is single;  $P_1P_2$  or  $P_2N_2$  is the "Pupil difference."

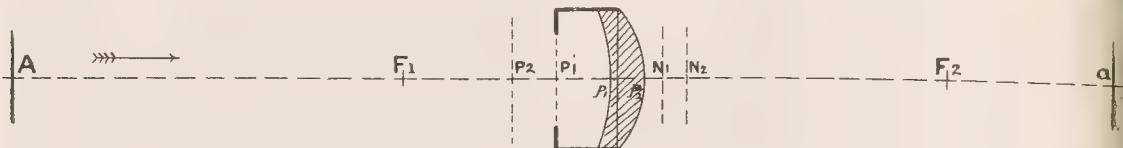


Fig. 1.

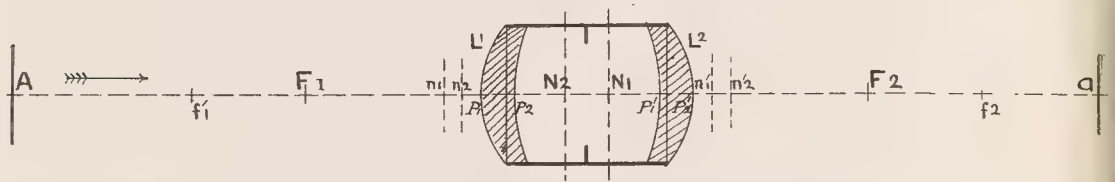


Fig. 2.

point in a principal plane is frequently styled "Gauss point" and this forms a good precedent for reminding people that the theory of pupils is due to Prof. Abbe.

Again if we go carefully into this theory of pupils we soon come across a dimension of considerable importance that has no name, and yet cannot be described verbally in much less than a sentence. That dimension is the distance from an Abbe point to the corresponding Gauss point or node. When the Abbe and Gauss points are separate, as they often are, the distance is one of considerable value. We suggest that "pupil difference" meets the case fairly well, though it is perhaps not quite satisfactory.

To make the proposed system of nomenclature quite clear, we give two diagrams. Fig. 1 illustrates a typical single view lens with separate nodes and pupils. Fig. 2 represents a doublet, and illustrates the terms relating to separation and length. In each diagram the light is supposed

In fig. 2, most letters have the same meaning as in fig. 1 but the pupils coincide with the nodes  $N_1$ ,  $N_2$ , and  $n_1$ ,  $n_2$  are the nodes of lens  $L_1$ , and  $P_1$ ,  $P_2$  are its poles;  $n_1/n_2$  are the nodes of lens  $L_2$ , and  $P_1/P_2$  are its poles;  $P_1/P_2$  are therefore the poles of the complete doublet;  $f_1$  is the first principal focus of lens  $L_2$ ;  $f_2$  is the second principal focus of lens  $L_1$ ;  $AF_1$  and  $aF_2$  are "extra focal distances";  $AN_1$  and  $aN_2$  are conjugate "nodal distances";  $AP_1$  and  $aP_2$  are polar distances;  $N_1N_2$  is the "nodal space," and also the "pupil space";  $n_1n_2$  is the "nodal space" of lens  $L_1$ ;  $n_1/n_2$  is the "nodal space" of lens  $L_2$ ;  $n_2/n_1$  is the "nodal separation" of lenses  $L_1$  and  $L_2$ ;  $P_2/P_1$  is the "polar separation";  $f_1f_2$  is the "focal separation," commonly denoted by the formula  $f_1 - f_2 - d$  when  $f_1$  and  $f_2$  are the focal lengths of the two lenses and  $d$  is their nodal separation;  $P_1P_2$  is the "polar length" of the doublet;  $n_1n_2$  is the "nodal length."

## COPYING PICTURES.

THE copying of pictures in colour is difficult work, and is seldom done properly by the average photographer, who is often content to use an ordinary plate, or possibly an orthochromatic one; and he relies on the colour-sensitiveness of the plate to render correctly the colours of the picture. An orthochromatic plate without a "yellow screen" or "light filter" is scarcely any better than an ordinary plate. When choosing a plate for such work, one should be selected that is sensitive, to some extent, to the red rays of the spectrum. The ordinary orthochromatic plate is very good as far as regards the yellow, and produces very good results in copying water-colour sketches where there is not great range of colour, but where there are strong contrasts, and especially much red (such as a portrait of a man in scarlet robes), a plate that is more sensitive to

red should be used. Some operators use the ordinary orthochromatic plates, sensitive to yellow, and bathe them in a red sensitiser themselves; but the average photographer, who only occasionally has such work to do, would find it much too troublesome and uncertain, as he would have no proper drying cupboard, and the danger of fogging and uneven drying of the film would be very great. It would be better to use one of the commercial red-sensitive plates. It is, of course, advisable to keep to one kind of plate for each light filter used, as the amount of correction of screen and plate can then be fairly gauged, and also the increase of exposure necessitated by each screen, as the increase depends on the degree of colour-sensitiveness of the plate. It will readily be understood that if a deep orange screen is used a greater increase of

sure will be necessary with a plate sensitive to blue and only than would be the case with a red-sensitive plate, or similar conditions.

The depth of the light-filter selected depends on the amount of correction required, as it is quite possible to over-correct, and render reds and yellows too pale and blues too dark. Good lenses are expensive things to buy, but if much work is contemplated it is cheaper to spend ten or fifteen shillings on a really good one than to put up with home-made make-shifts, although it is quite possible to make very serviceable lenses when the photographer knows what he wants. The fiercer forms of screen, thin pieces of optically worked glass of a pale brownish yellow with a suggestion of green, are optically useless for copying pictures; they may answer very well for rendering autumn tints more truly, but are of little value when brilliant colours have to be rendered into monochrome. The most useful for general purposes is of a pale orange, and when laid down on a piece of white paper should show an inclination to red.

#### Purchased and Home-made Filters.

The position of the screen is of no importance—either before or behind the lens, as may be most convenient, but the easiest method of holding it in place is to form a rebate, behind the panel covering the lens, with strips of hard cardboard, or better still, thin "millboard" used by bookbinders. This method of holding the screen necessitates a larger screen than if it were used in front of the lens, but when they are made by the photographer himself the larger size costs practically no more than the smaller one. Several screens should be made of varying depths for different subjects. A method of making the screen at home may be adopted. The pieces of tinted plate glass can be coated with clear gelatine, which is allowed to set on a level surface, to insure an even thickness of film. It must be protected from dust until dry, and then dipped in a solution of aniline dyes until the required colour is obtained. Penny packets of dyes will answer quite well, and an orange dye to which a small quantity of red has been added should be used, and the coated plate dipped in it until it has absorbed the necessary amount of colour; it should then be rinsed and put away to dry, taking due precautions against dust. If a deep screen is desired, two coated pieces of glass can be used and bound up face to face. No other method can be tried, and is perhaps easier than the one just described. A piece of non-curling celluloid film is used, without exposure to light, washed free from hypo, and stained; when it is dry it can be bound up between the pieces of patent plate. A clearer and brighter screen can be made by cementing the finished stained film between the glasses with Canada balsam, in a similar manner to that used for mounting microscopic slides. The glasses are warmed and covered with the balsam, and laid together with the stained film between, half a dozen strong spring clips are placed round the edges, and the superfluous balsam and air-bells squeezed out. The screens should remain under pressure for as long as convenient, several days if possible, in a warm place. The hardened balsam at the edges is scraped off, and the screen cleaned for use.

#### Exposures Under Glass and Out-of-doors

Having secured the screens by making or purchase, they must be tested, to ascertain the amount of correction they give and the exposure they need. An important point must always be remembered, and that is that a screen which increases the exposure ten times when working indoors will need twenty times out of doors, as the glass of windows itself acts as a yellow screen and cuts out some of the blue rays. When the tests are being made an exposure meter which tests the actinic value of the light is necessary. The tests should be made with the kind of plate to be used in the actual work of copying,

and a lithographic print in colour, or a colour chart, can be used as the testing object.

#### Avoiding Reflections and Glitter.

When the actual work is begun, several precautions will be necessary, especially when working away from home. First, a good exposure meter is most valuable, as the subject to be copied may be in a difficult place, and the light may be most misleading as to its actinic power. A large piece of thin black cloth, large enough to cover up the camera, lens, and legs, is most useful, as they may be reflected in the varnish of the picture. If the cloth is large enough to suspend in front of the picture and cut off all other objects, it is possible to secure a good copy through the glass, as in some cases the removal of the glass is impossible. A hole must be provided in the cloth for the lens to peep through. It is possible by this means to photograph a whole group of pictures under glass, but a very large black screen is necessary, especially when a long focus lens is used.

It is often difficult to avoid "glitter" on the surface of the picture, especially if it is an old one and highly varnished. The lighting needs great care to avoid this trouble; a large high side-light is better than top-light, and a slight tilt of the picture downwards will generally get rid of the "glitter" trouble. The camera must be tilted up at exactly the same angle as the picture is leaning forward. Copying out of doors is very troublesome, on account of reflections, and the probability of the object being shaken by wind and damaged by rain.

#### Exposure Maxims.

Exposure is a most important point. Under-exposure is hopeless, it can never be cured; but over-exposure can often be put right. In copying old pictures prolonged exposure and restrained development give the best results. It is quite useless to attempt to photograph an old picture without a deep screen, as otherwise little besides the cracks in the paint will be seen in the print. Some authorities advise focussing with the screen in position. With a dark picture this is well-nigh impossible, and with a proper screen is quite unnecessary, for it should make no difference at all to the focus, even when the lens is used at full aperture.

Better results are obtained by exposing a long time in a dull light than by short exposure in a bright one. In the days when light-filters were not invented good copies of pictures were obtained by this means; and although some operators, at the present time, prefer to do all such work out of doors, we are convinced that the results are not as good as those done under glass in a slow light; the only advantage obtained out of doors is the reduction in exposure. But the gain in this direction is not so great as would appear at first sight, as the light-filter needs twice as long out of doors. And in a dull light indoors a paler screen may be used with equal correction as compared with a deep screen outside.

The development of such exposure needs great care, as the plates used should be decidedly sensitive to red rays, and a very small amount of light must be used, and that of a deep red. The plate should be exposed as little as possible to the dark-room light, and should be kept covered during development as much as possible.

As full exposures are advised, restrained development is necessary, and the factorial method of timing is advisable. But if the exposure has for some reason to be cut shorter than the full one recommended, a rapid developer, such as metol, may be used. It is not always possible to give the exposures that will need restrained development, as they will often extend to hours and not minutes. In the case of dark stained-glass windows, it may become almost days, when working large sizes.

HAROLD BAKER.



# THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

## TWENTY-FIRST MEETING IN SOUTHAMPTON.

THE finest of summer weather marked the opening of the Convention, on Monday last, at Southampton. The headquarters, at the Philharmonic Hall, Above Bar, was the scene, on Monday morning, of the arrival of many figures well known at previous meetings; and, in the afternoon, when the formal proceedings commenced, the hall was crowded by a large company, among whom were Mr. E. J. Humphery (President), Mr. C. H. Bothamley (Taunton), Mr. W. Taylor (Leicester), Mr. and Mrs. F. A. Bridge, Mr. S. G. Kimber, Mr. F. W. Hindley (London), Mr. A. L. Henderson, Mr. and Mrs. R. R. Beard (London), Mr. and Mrs. Snowden Ward (London), Miss Goodwillie (Derby), Mr. A. Horsley Hinton (London), Mr. George E. Brown (London), Mr. A. Seaman (Sheffield), Mr. W. E. Dunmore (London), Mr. W. H. Smith (London), Rev. T. Perkins (Blandford), Mr. P. R. Salmon (London), Mr. Godfrey Bingley (Leeds), Mr. T. Scotton (Derby), Mr. T. Manly (London), Mr. P. Lenthardt-Thornton

(London), Mr. B. Tompkins (Leeds), Mr. H. J. Comley (Frome), Mr. P. Muirhead (Glasgow), Mr. T. K. Grant (London), E. Cliffe (London), Sydney A. Pitcher (Gloucester), Mr. E. Stebbing (Paris), C. L. Burdick (London), Mr. Walter and Mrs. Potter (London), C. Phipps Lucas (London), C. E. Kenneth Mees (Croydon), J. W. Eadie (London), Wilfrid Emery (London), J. H. Baldock (Croydon), C. S. Baynton (Birmingham).

The Conference was welcomed by the Mayor of Southampton (Mr. Henry Cawte), who, in a few appropriate words, expressed his pleasure at the selection of Southampton as the meeting place of the Convention. The President then delivered his address. The meeting then passed to the reading of the papers set down for the afternoon. The first, by Mr. Harry Thrift, B.A., was summarised by Mr. Bothamley; that by Dr. Stevenson was read by Mr. Snowden Ward; and that by Mr. Bothamley was read by the author.

## THE PRESIDENTIAL ADDRESS.

LADIES AND GENTLEMEN,—As you are probably aware this is the twenty-first year of our Convention, our coming of age, so that putting aside the frivolities of our youth, it is our duty to take a more serious view of our future, and while profiting by the lessons and failures of our childhood, determine to use to the utmost of our powers the infinite possibilities of our marvellous helpmate, photography.

The field is so vast, that, like children gazing for the first time on the mighty ocean, we feel our insignificance and realise how feeble are our greatest efforts in comparison with the marvellous powers of nature; yet, by utilising to the utmost of our strength those powers which nature provides, we may do much to guide them to our own use, and render infinite service to our fellow-men.

In the pursuit of photography, whether as an art or a science, there are three gifts which we should especially cultivate, if we are to achieve success.

Imagination—Observation—Industry—without these we can do nothing worthy of our art.

We must cultivate our imagination not only to give us a poetic inspiration for our art, but to suggest the infinite possibilities of the scientific application of photography.

And now let us go back to our childhood and read that fascinating story, which fired our imagination in our earliest days, "Beauty and the Beast."

You will remember that when the Beast had to leave his beloved Beauty behind, he gave her a glass, in which she could see him at any time, however great the distance that separated them. Does not this simple story of a genius of poetic imagination lead us to determine by the study of our art to produce by photographic means the same power of producing on the sensitive plate the pictures which Beauty saw in her mirror.

Let us look forward to the time when photography shall reveal to us the Martians holding their Conventions, and bring Venus to our very doors.

With the marvels of the Röntgen rays before us it is not difficult to conceive the time, when photography shall reveal to us all the hidden treasures of the earth; and the camera shall replace the pick and shovel of the prospector; when the depths of the ocean shall give up their secrets, and even the spiritual world may become visible.

Give your imagination full play and you will realise how infinite are the possibilities which lie within our reach.

And now to consider observation. As imagination will lead you to form your ideals, so observation will teach you the means by which those ideals may be attained.

With your camera as a companion, a new joy will be added to your country rambles; and you will be led to observe the beauties of all animate and inanimate nature; and in the quiet of your study reap

the harvest of knowledge which your camera has provided for you. To the botanist, the entomologist, the lover of birds, or student of Nature generally, photography will open up new worlds, and fire the imagination with the infinite beauties which reward our work. But on this subject I must not dilate now, as in a paper which you will hear on Thursday, Mr. Martin Duncan will lead you through those pleasant paths, and will, I trust, find many ardent followers in that fascinating study.

Whether you are astronomers, geologists, architects, or whatever your special hobby may be, the camera by training your power of observation will do more to help you than all the Education Acts, whether of Conservative or Liberal politician.

Having given free rein to our imagination, and cultivated the faculty of observation, industry will follow of necessity. But it will be the industry which is a labour of love, not the forced task of the hireling. You will become a slave to your work, but your work will be the greatest joy of life, your success will but stimulate you to fresh efforts, and you will never know the misery of an idle and purposeless life. And the joys of the camera may even enable a millionaire to endure existence.

Photography has no limits, and aided by the gifts of imagination, observation and industry can conquer all worlds, and reveal all the hidden mysteries of Nature.

My appeal is not made only to you, gentlemen, but even more to the ladies who add such charm to our meetings.

For to women photography opens up a vast field for scientific research, for which they are even better qualified than men. For though women are but ill-equipped to compete with men in labours which tax the physical powers, in scientific research they possess all the necessary qualifications. Their imagination is greater, their powers of observation more accurate, and their industry as great, if not greater. Science in the past has had few women workers; one brilliant example we have in Madame Curie, the joint discoverer of radium.

Let us hope that photography will lead many of our lady members to emulate her great deeds, and shed a bright lustre on our Convention.

Let us hope that by the next or some subsequent Convention we may have made such progress, that not only the bones and structure of the body shall be revealed to sight, but that every pulsation, every tremor and vibration of the nerves shall be recorded on the sensitive plate or screen, so that every degree of pain or pleasure shall be subject to exact measurement, and the health or sickness of a patient shall no longer be subject to the guess work diagnosis of the physician, but shall be recorded so clearly as to be a matter of mathematical certainty. The mysteries of microbic fermentation shall cease to be mysteries, and our food and drink shall be freed from all impurities, our lives prolonged, and our happiness increased.

will not permit me to dwell on the æsthetic or commercial of photography, its value to the shipbuilder, the investor in rises in distant lands to record the progress of the works, and thousands of kindred applications. Enough if I have led you in small way to realise the vast field of photographic usefulness before you.

may think me a dreamer and a visionary: but remember that

the dreams of yesterday are the realities of to-day; and the visions of to-day the commonplaces of to-morrow.

Imagination will enable you to soar into the realms of the infinite.

Observation will reveal all the hidden beauties of the hitherto unseen.

Industry will level the mountains which impede the path of progress, and open up vistas of undying joy.

## IONISATION OF PHOTOGRAPHIC PLATES ON EXPOSURE TO LIGHT.

By HARRY THRIFT (Fitzgerald Research Scholar, Trinity College, Dublin).

effect of light on a photographic plate is to ionise it, it is a able assumption that there ought to be a difference in the cal resistance of the plate before and after exposure to light. this idea in my mind, I endeavoured to measure the resistance narrow strip of film. I found, however, that the resistance of in the form sold was so high that I could not obtain suffi- accurate measurements of it. Consequently, I obtained of the emulsion from which the plates are prepared, and I that when this was carefully melted its resistance was quite n measurable limits. In the first place, I stretched two um wires on a glass plate, and poured a small pool of the ion over the wires. I then connected up these wires in the ary way in a post office box, and measured the resistance of the ion between them.

ound, firstly, that owing presumably to there being traces of salts as ammonium bromide left in the emulsion it behaved as electrolyte, and that the polarisation was very much too great limit of its resistance being measured in the ordinary way by is of a galvanometer. I overcame this difficulty by using two ar resistances of emulsion in two of the arms of the bridge, and using an alternating current and a telephone. By this means is enabled to measure the resistance of the emulsion, but I could t no change on exposure to light. Suspecting, however, that effect of light would be almost entirely a surface action, I ted a new plan.

### The Apparatus.

sealed two pairs of platinum wires by means of glass at stance of about 2mm. apart and about 3cm. long. Then, on ing these into the emulsion and on carefully withdrawing, I ined two exceedingly thin and fairly stable films.

n obtaining a balance in the bridge, keeping one film in the dark exposing the other to light from an incandescent electric lamp, I led to believe that the resistance of the exposed film diminished. ver, on trying illumination of other kinds this result appeared o means certain, and it occurred to me that perhaps the change ue to change in temperature rather than to the action of light. s was confirmed by finding that a ruby incandescent lamp rod- ed a greater diminution of resistance than an ordinary incan- cent lamp. This change in resistance, owing to temperature nges, is in itself interesting. I found that the ruby lamp, at distance of about three feet, produced a 10 per cent. change he resistance of the film, although the change in tempera- e produced was exceedingly small. In order to get

over this difficulty I tried exposing the film to diffused daylight, taking care to keep the temperature constant. I found that the resistance of the exposed films increased instead of diminishing, and that consequently light and heat had precisely opposite effects on the resistance.

### The Resistance of Gelatine.

The next point was to investigate the effect on pure gelatine, as it is known that light has an effect on a solution of gelatine after remelting. I therefore dissolved some pure gelatine in water in a dark room, and made similar films of the solution. I found that, on exposing one of the films to diffused daylight, in this case, also, the exposed film increased in resistance. This also, as far as I am aware, is not known; but the change in the resistance of the gelatine left the question as to the change in the resistance of the silver bromide in the film on exposure to light still unsettled. I made some experiments in order to try and obtain a film of silver bromide by first forming a film of ammonium bromide, and then dipping this into solution of silver nitrate, but I found that I could not form a film of the silver bromide in this way owing to the nature of the precipitate obtained.

The next step was to try and obtain films by having the silver bromide in collodion. I dissolved some ammonium bromide, ammonium iodide, and cadmium iodide in collodion in the proportions recommended for making plates, and formed a film of this solution. I immersed this film in an alcoholic solution of silver nitrate. The excess of silver nitrate on the film left the resistance too small for any change due to light to be observable, and also the drying of the collodion film introduced uncertainty. Consequently, after the formation of the precipitate, I washed away the excess of silver nitrate, and left the film immersed in distilled water during observations. Although I have not as yet completed my experiments, there seems little doubt that the resistance of this also increases on exposure to light. I intend to obtain a deposit of pure silver on a glass plate by means of Rochelle salts and silver nitrate, and to convert this into silver bromide by exposing to bromine vapour, and then to experiment on the film of silver bromide thus produced.

The increase in resistance on exposure to light, if established, seems very remarkable, and would appear to be evidence against the theory that the effect of light is to deposit free silver. Possibly the explanation may be that aggregation takes place instead of the ionisation that I had originally thought possible, or that perhaps bromine is set free in the film, analogous to the well-known fact that chlorine is given off on exposing silver chloride to light.

## DIFFERENTIATION OF B. TYPHOSUS AND B. COLI COMMUNIS BY MEANS OF THE PHOTOGRAPHIC PLATE.

a following facts which recently formed the subject of a com- munication to the "British Medical Journal," are, I think, of icient interest from the photographic point of view, to merit the sideration of the Photographic Convention.

The gelatino-bromide photographic plate is sensitive to direct lication of the products of certain bacterial cultures in a very arkable manner, and the effect on the plate is variable with the eial nature of the bacteria to a degree which renders easily pos- le, in at least one important case, a discrimination between acteria otherwise difficult to differentiate.

My observations have been mainly confined, so far, to the typhoid illus and the B. coli communis.

Cultures of these bacilli are made in broth, samples of the same th being used for each culture. After, say, twenty-four hours a y drops of each culture are placed upon the sensitive surface of a otographic plate and spread so as to wet an area of any desired

extent—say, 1 cm. or 2 cm. in diameter. (In general, 0.2 c.cm. of the culture has been allowed to spread by itself upon the plate, covering an area of about 1 square cm.) This is done in a red light sufficiently faint to avoid sensible fog upon the plate. An opaque cover—an empty developing dish will do—is now turned over the plate, and it is left thus screened for about forty minutes.

The cover is now lifted and the superfluous fluid upon the wet areas drawn off with a pipette. No change is observed at this stage of the experiment. The plate is then developed in the usual manner, and during development it is best screened from light. It will now be found that the moistened areas develop with very different densities of silver deposit. The coli culture produces a full and marked reduction of the salt. There has progressed over the area wetted by this culture an action similar to the formation of a photogenic material in the film. But where the typhoid culture has acted the result is quite different. Only a very faint deposit is, in general.



obtained. And if the plate has, in fact, been exposed sufficiently to the red light (either wilfully or incidentally) to produce a general fogging, it will be found that its effect is even inhibitive and its presence marked by an area almost free from reduced silver.

The following points are of interest, but can here only be briefly noted:—

(a) The discriminative action is the same, with some variation in degrees of distinctness, when typhoid and coli cultures of the same age are compared at very different periods after inoculation. Thus, cultures of these two organisms in broth compared, after four hours' growth and after thirty-three days, react as above.

(b) The activity of each increases with time up to a certain age which has not been accurately ascertained. This activity possibly varies with the physical conditions attending culture, but may be taken as increasing from shortly after inoculation to four days of growth.

(c) A coli culture of 24-hours age, when compared with a typhoid culture of any age (tested up to thirty-three days) gives the more marked reducing effect.

(d) After a few hours' growth the broths may be boiled and thus sterilised, and the differential effect upon the sensitive surface persists.

(e) This discriminative reaction has been obtained with four cultures of coli from different sources, and with five typhoid cultures from different sources.

(f) It will be found that if the sensitive plate is wetted with tap water and also with sterile broth, and simultaneously applications of

the cultures are made—four separate areas being thus prepared for comparison—the typhoid and sterile broth do not differ markedly in their actions upon the silver bromide, whereas the effect of the water has been intermediate between that of the coli and the typhoid. It is known that water is to some extent a sensitiser.

(g) The time of exposure of the plate to the application of the cultures has varied between 10 and 90 minutes, and the discriminative action of 24-hour cultures found to be best marked with an exposure of 45 minutes. But from at least 10 minutes exposure upwards difference is obtained with any broths in which there is a visible growth.

(h) While in some of the earliest of these observations, and before I had gained experience as to the best methods to employ, a few cases occurred in which the distinctive difference was not so markedly marked, in all my recent observations, twenty-four in number, I have unfailingly obtained the differential effect.

(i) Finally I have observed that if pools of well-grown coli or typhoid broth cultures are poured on a photographic plate exposed to light, a reduction of silver is seen in a few minutes with development. After about thirty minutes the deposit due to the typhoid broth is distinctly darker than that due to the coli broth. If the pools be now poured off the sensitive plate the difference reaches its maximum, but as the gelatine dries the distinction almost completely lost. Tap water has no visible effect, except the swelling of the wetted gelatine of the plate.

WALTER C. STEVENSON, M.D., D.P.H.

## USEFUL NEGATIVES

THE applications of photography as a recording agent have special prominence at this meeting of the Photographic Convention, and it may therefore be useful to call attention to some points in connection with processes which are of value in improving the printing quality of negatives which for some reason or other have not turned out well in the first instance. It is a counsel of perfection to say that in such cases the proper procedure is to make another exposure with a view to making a good negative; everyone with experience of record work knows that this is often impossible, and in the case of pictorial work the particular combination, grouping, and light and shade may never be repeated. We must therefore have at our command trustworthy methods by which unsatisfactory negatives can be made at least capable of giving passable prints. I purpose confining attention to chemical or photo-chemical methods such as may rightly be applied to negatives taken for record purposes.

In the first place, when a negative is of sufficient value to make it worth while to improve it, a diapositive should be made first of all, so that the negative can be reproduced in case of accidents. The writer's procedure is to apply the improving treatment to the diapositive and to reproduced negatives made with its aid, the original negative being left in its original condition.

It is scarcely necessary to point out that in making the diapositive or reproduced negatives there is abundant opportunity for effecting improvement by paying attention to the conditions of exposure and the manner of development, and very often the two processes will yield the desired result, especially if full advantage is taken of the widely different characteristics of the available brands of plates. The range of possibilities is widened in an important degree if the diapositive and the reproduced negative are made in a camera instead of in a printing frame, and I recommend this procedure more particularly in the case of negatives whose main defect is lack of contrast.

Referring briefly to one or two points to which sufficient attention is not always given, I would point out that in making a diapositive in a printing frame from a very thin negative it is worth while to adopt the old practice of exposing with the printing frame at the bottom of a box about 2ft. deep, with blackened sides and internal dimensions not much greater either way than those of the printing frame. This practically means printing with a parallel beam of light, and there is a noteworthy reduction in the amount of scattering. Again, when printing on a plate from a diapositive or negative which has very strong contrasts it is worth while to use a backed plate, whether in the camera or in the printing frame.

Passing now to the application of chemical methods of intensifying

## FROM POOR ONES.

and reduction, I think it may be safely said that many failures are due to the fact that the film operated on was not in a suitable condition, either as a whole or, perhaps, only in parts. When a gelatine film has been dried, it requires prolonged immersion in water to properly soften it again. Personally I should not think of attempting either intensification or reduction unless the plate has been immersed for at least an hour, and I prefer to leave it in water overnight. In the case of gelatine with a repellent surface it is advantageous to add a little ammonia or a little acetic acid to the water.

Plates or films that have been handled are very likely to have unclean surfaces, and after they have been soaked in water it is a good plan to rub the surface of the film with a clean plug of cotton wool dipped in a mixture of about equal parts of absolute (not methylated) alcohol\* and water, to which a little ammonia may be added if much greasiness is suspected. The alcohol should be thoroughly washed away, care being taken that the film is not touched by the fingers.

### Intensification.

Of all the various processes of intensification, I find none quite so satisfactory as the method of bleaching with mercuric chloride, and afterwards treating with the ferrous oxalate developer as recommended by Mr. Chapman Jones. It gives excellent results, the image has a fairly well ascertained composition (which is unusual) and if one treatment has not sufficient effect, the process can be repeated more than once. On the other hand, careful attention must be paid to certain points. The negative and positive must have been thoroughly washed after fixation, the surface of the film must be quite clean, and must not be touched with the fingers during the processes, the mercuric chloride solution must contain a small quantity of hydrochloric acid, and the mercuric chloride must be thoroughly washed out. Lastly, but by no means least, the development with ferrous oxalate must be carried out exactly as Mr. Jones recommends, for, if it is not, there is often difficulty in getting the image developed right through, especially after treating with mercuric chloride, more than once. The points with regard to the developer are: (1) It must be fresh; (2) it must contain a somewhat high proportion of potassium oxalate. Mr. Jones's formula is: Saturated potassium oxalate solution, six parts; saturated ferrous sulphate solution, one part. Negatives intensi-

\* The spirits of wine, which can be obtained from any of Messrs. Gilbey's agents in wine quart bottles at about 4/-, is pure and sufficiently nearly absolute alcohol for ordinary photographic purposes.

by this method, with both single and double treatment, are obtained.

record method of intensification which cannot be repeated, but which can be applied in succession to a diapositive and a negative produced from it, is the well-known uranium intensifier. It gives the printing opacity by reason of the colour of the deposit, or to more correct, of the compound which forms the image after intensification. Usually the process is carried out by mixing solutions of uranium nitrate and potassium ferricyanide (3 or 2 in 1 in each case) and slightly acidifying with acetic acid. It is an initial condition of success that all hypo (sodium thiosulphate) have been washed out of the film, but even with due precaution in this respect there is usually a distinct staining of the film where there has been no deposit of silver. This tendency to staining is lessened by the presence of the acetic acid, but is not altogether prevented.

A modification of the process devised some years ago by J. Le N. is, in my experience, a great improvement, and deserves more mention than it has hitherto received. In this modification the ferricyanide and the uranium compound are applied successively not simultaneously. The properly washed negative is immersed in a 5 per cent. solution of potassium ferricyanide, and allowed to remain therein until the silver image is completely acted on. It is then washed, to remove the excess of ferricyanide, but the washing should not be longer than is necessary for this purpose. The image is then immersed in a dilute solution of the uranium compound. It should be specially noted that it is useless to immerse either uranium nitrate solution or uranium acetate solution. It must be uranium chloride. The latter compound is easily obtained, and if it not at hand the same result can be secured by using a solution of uranium nitrate to which common salt has been added, in amount equal to about half the weight of the uranium compound. By this modification all risk of staining is practically eliminated. The intensified image should be washed for a short time, but prolonged washing must be avoided, especially if the water is hard. It should be borne in mind that the printing opacity of uranium-intensified images is mainly due to their colour, and to secure the maximum possible effect, all printing from such images should be done in light relatively rich in blue rays, such as daylight or the light from the electric arc, or from burning magnesium. To print such images by ordinary gaslight or lamplight is to throw away a large proportion of the benefits that might be gained.

Let us now consider certain processes of reduction which can be applied for removing (1) general fog, (2) reducing the general opacity of a negative, (3) affecting the printing contrasts. The potassium ferricyanide reducer is well known, and it remains on the whole the best for the removal of general fog, and for reducing the general opacity of the negative without lowering the contrasts. Used in a somewhat concentrated form, it to some extent increases the printing contrasts by its relatively more rapid action on the thinner parts of the silver deposit.

Sometimes it is found that this reducer acts irregularly, but the use of such action is obvious and is easily removed. The hypo solution which constitutes the bulk of the reducer is much denser in water, and does not mix uniformly with it. If, therefore, the plate or film is taken out of water and immersed at once in the reducer, rapid and somewhat violent agitation is necessary to cause the reducer and the water in the surface of the film to mix perfectly, and it may quite easily happen, if the solution is concentrated, that it acts on the image before there has been admixture, with the result that the reduction of the image takes place in streaks instead of uniformly. The remedy is simple. The plate, after being thoroughly wetted, should be immersed in a plain hypo solution of the same density as the hypo that is to be used in the reducer. It is then drained for a few seconds, and then immersed in the reducer, almost perfect admixture is obtained at once, and any unevenness in action is prevented.

## CONVERSAZIONE

The official reception was held by the President and Mrs. Humery, in the Philharmonic Hall, on Monday evening, when a large number of ladies and gentlemen were present. The hall provided every facility for the social side of the Convention and for the inspection of the trade and other exhibits. The largest and, perhaps, the

The solution of sulphate of cerium peroxide introduced by Messrs. Lumiere I find to be a very useful reducer. It acts with moderate rapidity, and is not, in my experience, liable to produce stains, though it is better not to handle the plate with the fingers whilst it is in the solution. This reducer tends to reduce the printing contrasts, though not to the same extent as ammonium persulphate.

If this effect is borne in mind, it may be used with success for the removal of general fog, though for this purpose I consider it far less suitable than the ferricyanide reducer. Ammonium persulphate, also introduced by Messrs. Lumiere, is of special value in reducing contrasts, and at present has no rival from this point of view.

It is stated to be very liable to produce stains, and it is commonly asserted that the stains are due to hypo (sodium thiosulphate) left in the film owing to imperfect washing. This latter statement is an example of the guessing which is still far too common in connection with photographic processes. If it had been considered that the persulphate is a powerful oxidising agent and rapidly and completely oxidises any hypo (sodium thiosulphate) with which it comes in contact, it would have been seen how improbable the explanation referred to is. I find, as a matter of fact, that negatives may be taken from the fixing bath, washed for not more than a minute, and immersed in the ammonium persulphate solution without any stains being produced. I do not recommend this as a usual practice, but it seems to dispose of the view that hypo is the common cause of staining with this reducer. Of course, if the hypo, instead of being uniformly diffused through the film in comparatively small quantity, is present in a concentrated form at any particular point, as it would be if hypo solution were dropped on the film, or if the film were touched with fingers to which hypo was adhering, then the conditions would be different, and a local stain might result. Personally I have been somewhat fortunate in avoiding staining when using the persulphate, and when stains have occurred I have almost invariably been able to trace them to handling the plate whilst in the reducer with fingers that were not so clean as they ought to have been. Consequently I always use some form of lifter, and avoid touching the film, even at the edges, whilst it is charged with persulphate solution. Another statement which has been made concerning the persulphate is that it only reduces when the solution is acid. My observations are at variance with this statement. It is quite true that in order to secure fairly rapid action, the solution must be distinctly acid to litmus paper. I find, however, that reduction will take place, though very slowly, even when the solution contains enough free ammonia to give it a distinct smell.

With the precautions indicated, ammonium persulphate is a most valuable agent for reducing the printing contrasts of negatives, and by its aid useful negatives can be obtained when, from under-exposure or other causes, the contrasts in the original negative are so great that it is unserviceable.

One point, in conclusion, when ammonium persulphate or sulphate of cerium peroxide, or, in fact, any other reducer which acts by oxidation is employed, it is important to use water which is quite free from chlorides for diluting the reducer and for the final preliminary soaking of the negative. If chlorides are present, the silver of the image, instead of being dissolved as it should be, is partially converted into the chloride, and the amount of reduction is less than it should be, and may be almost nil. In such cases, the image that is left is nearly white. If, however, it is treated with any ordinary developer, it is again reduced to metallic silver, and the reduction process can be started again.

I have dealt only in this communication with the methods that I have found the most generally useful, and I hope that these notes may help some photographic record workers to improve and render more serviceable some of the unsatisfactory negatives that fall to the lot of all of us.

C. H. BOTHAMLEY, M.Sc., F.I.C.

## AND EXHIBITION.

most interesting exhibit is that of the Platinotype Co., which occupied a large stall and an adjoining apartment which had been converted, by aid of the most tasteful decoration, into a studio and gallery. On the walls the company had brought together a very varied and striking collection of professional portraiture printed in



platinotype. The exhibits must have been of special interest to professional men from the different modes of application of the platinum process by such firms and workers as Lafayette, Sala Abus (photographer to the Czar of Russia), H. Jenkins (Lowestoft), T. C. Turner and Co. (Hull), R. W. Robinson (Redhill), Henry Spink (of Brighton), W. Crooke (Edinburgh), The Stereoscopic Co. (London), Martin Jaolette (Kensington), Fred Hollyer, Benque and Kindermann (Hamburg), Albert Coe and Edwin Hadley (Nottingham). Of these photographers, all showing exceedingly fine work, mention may be made of some of Mr. Jenkins' shipping photographs at Lowestoft, and of the portraits of Mr. Hadley, whose name is not, perhaps, widely known, but whose work is in the front rank. Some very fine professional work in platinotype is shown by the Americans, Garo (of Boston), Steffings, Clarke, Knaff Bros. and Philips (of Philadelphia).

But the great attraction at the Platinotype Co. was a new platinum paper yielding sepia prints of a semi-glossy surface of a kind equal to carton at its best. These so-called "Japine" papers are developed either warm or cold, and the extreme beauty of the rendering (especially of the deepest shadows) evidently qualify them for a large share of the printing where quality is of the highest importance.

Colour photography found one attractive exponent in the firm of Fuerst Bros., at whose stall the pinatype process was demonstrated.

Messrs. J. H. Dallmeyer, Ltd., made a good show of cameras, "Adon" lenses, and other apparatus; and their neighbours, the Lumière N. A. Co. exhibited prints and three-colour results on Lumière products. Messrs. Photolinol, Ltd., brought together a fine

collection of prints on the "Angelo" cold development sepia platinotype paper, showing a number of very delicate vignette effects on this paper, and a good deal of striking work on the "Photolinol" sensitized linen. In the gallery, the firm had erected a complete studio fitted with the Cooper-Hewitt light, demonstrations of which were given by Mr. Adolph Langfrier, of whose work with this light a large collection was shown. The Photolinol Co., it may be stated, are sole sale agents (to photographers) for the Westinghouse Co.

Demonstrations of Mr. Manly's process of "Ozobrome," by the inventor, secured interested audiences, and the general opinion was expressed that the process possesses the very greatest promise for professional and amateur photographers.

The Kodak Co. made a representative show of their manufactures, and conducted frequent demonstrations of machine development and other processes. Though not a large exhibit, the company showed some very fine photography in the shape of bromide enlargements.

Carbon printing in excelsis formed the Autotype Co.'s exhibit, by whom demonstrations were conducted at intervals, not only of ordinary carbon pure and simple, but of three-colour printing by the carbon process.

Messrs. Griffin showed and demonstrated the ease and facilities of "Goldona," and exhibited a number of excellent results tastefully arranged as a panel.

"Mattos" paper was similarly treated by Mr. P. L. Thornton, and by Messrs. Wellington and Ward for their several bromide and printing-out papers.

## PAPERS AND

On Tuesday evening, on the return of Conventioners from the Isle of Wight, Colonel S. C. M. Grant read a paper on the photo-mechanical methods employed in the Ordnance Survey, and a paper, prepared on "Old English Manners and Customs," by Sir Benjamin Stone, was read, in his unavoidable absence, by H. Snowden Ward.

The invitation of the Hereford Photographic Society for 1907 was accepted, and Mr. Alfred Watkins was chosen as president.

On Wednesday, the official group was taken by Mr. Max Mills, to whose kindness and promptitude we owe our ability to present it with this issue of the "British Journal" within twenty-four hours

## EXCURSIONS.

of the exposure being made. The key to the group will be given next week.

The Wednesday afternoon's "At Home" of the President, on board the "Duchess of Kent," down Southampton Water, did not belie the enjoyable anticipations entertained in regard to it, and we must congratulate both Mr. Humphery on originating such a delightful excursion, and those members of the Convention who were able to take part in it.

The remainder of the proceedings will be reported in our issue of next week.

## STUDIO BLINDS.

We presume that no photographer will contradict the statement "that some means of controlling the light in the studio is absolutely necessary if artistic work is aimed at." At the same time, there is a great deal of controversy with regard to the handiest and most effective method of securing this control. It is not for us to make any egotistical statement as to which is the best system, but the photographer can settle that to his own satisfaction. We wish merely to draw notice to what one might almost term obvious conclusions.

Some operators have a fixed form of light and get slightly varying effects by altering the position of the figure. The idea is good, since unnecessary and apparently aimless alteration of numerous blinds is apt to discompose the sitter, though we know this is done in some cheap studios to impress customers that the photographer earns his money. In the hands of incompetent and lazy operators, however, this method meets with much abuse, the blinds being untouched, not out of consideration for the sitter's expression, but because once obtained a standard and undistinctive light that neither spoils nor yet appreciably improves the sitter, reduces ignorant mistakes on the one hand, or undue exertion on the other, to a minimum.

By moving the sitter in a fair-sized studio many different effects can be obtained, but usually success will be more easily gained if some independent method of controlling the intensity, direction, or position of the light is available. If one does not wish to use blinds close to the glass that exclude light from all the studio, or perhaps prefers the control to be obtained without moving far from the sitter, a head screen or side screen can be used. Both these accessories are apparently used more in America than in Great Britain, some American photographers getting very fine effects with the head screen alone, and using it practically exclusively.

This head screen, in its usual form, is a ring of about three feet in diameter covered with some translucent material and fixed to a

stand in such a manner that the screen can be held in a horizontal position and raised or lowered, the stand itself being outside the field of view. Since the head rest is practically obsolete, an old head-rest stand could be used for this screen, it having the necessary adjustments for raising and lowering as well as a grip to hold the iron rod, which should be fixed to the screen itself. The ring may well be a child's hoop covered with tracing paper or butter muslin.

The method of using is obvious. For flat faces with little shadow under the eyes the screen should be well away from the head. Gradually lowering we find the shadows under the eyes grow softer and softer until when within a foot of the head even the eye sockets of the very aged are lustrous and full of detail.

### Side Screens.

The side screen is almost purely an American innovation. The advantage is that the operator has almost entire control of light whilst standing within a yard or so of his sitter, so that he is in a position to note every change.

These screens can be made extremely elaborate, but a good all-round one is made as follows:—There are two uprights, about eight feet high, fitted with bosses and castors. These are separated by four pairs of brass-covered iron rods about eight feet long, and almost equidistant apart, the whole thing much resembling a clothes horse. The pairs being at the same height from the floor, but separated by the width of the uprights from one another. On the four rods on one side are hung eight short curtains of thick opaque material, and of a width an inch or two greater than the distance separating the lower from the higher rods. There are two curtains to each rod, and each curtain should be wide enough to have some fullness when both are drawn out. The four rods on the other side are supplied with exactly similar curtains but of white transparent material. The use of these

tain is obvious; strong light is obtained from any direction by the black curtains only. The light can be softened and diffused by using the other curtains. Of course, smaller screens and different dimensions are very common, but unless one also uses blinds of glass a smaller arrangement than the one described is not to be recommended.

These methods of controlling light have their devotees, but, generally, we think they fail since it is totally impossible to exclude all direct light: some diffused light must find its way round the blinds, and we believe that for really fine lighting the precept of the masters "that light must come from only one source," should be followed.

### System of Fixing Blinds.

Diffusion or softness of lighting as well as strong contrast effects obtained by altering the size and position of this one source of light rather than using reflectors or diffusing the light through different media. To follow this method the studio must be supplied with blinds that will exclude every trace of light but that coming from the necessary position. To do this the blinds must be quite opaque and as close to the glass as is possible.

There are several ways of fixing material in this position. The most usual, though not, we think, the best, is the roller-blind system; long lengths of blind material, usually of the same width as the blinds, being fixed to one of the many makes of spring roller on the market. When the blind is drawn down the turning of the roller tightens a spring, which, when the resistance is removed from the blind, re-rolls it. We do not suppose that now that rollers are so cheap anybody will wish to make their own, but it may be of interest to recollect the late H. P. Robinson's advocacy of blinds worked by weights as being most reliable. The weights being lifted when the blind was pulled down, force of gravity re-rolled the blind. If the weights can be hung out of sight, say, between the wall and a casing, the simplicity of the method may even now recommend it. In an issue of the "Almanac," about 1872, one writer described a roller-blind of a cheap character. In place of the spring he used a sort of bobbin fixed to the end of the roller to which blind is attached, and round this wound some circular elastic about an eighth of an inch in diameter, similar, we believe, to that used by youthful dilettantes for that weapon of annoyance known as a "catty." The rolling of the blind wound the elastic round the bobbin, causing enough tension, to automatically re-roll the material, when released. Intransparent, as well as opaque blinds can, of course, be used in this system.

This system has, however, several disadvantages. There must be a means of controlling the height and position of light is to be adequately controlled, a means of blinds rolling from bottom of light as well as blinds working from the ridge; this introduces great complexity in working, and the numerous cords are very annoying. The blinds will certainly sag if allowed light to enter studio where not required, unless some means of preventing it is devised. The best way is to fix parallel to glass, a few inches below it, two taut wires for each blind. The blind then rests on the wires instead of sagging in the studio.

### Hanging Blinds from Wires.

All this, however, makes for difficulty in working, and there is another system, though very sparsely used, yet more satisfactory in every way.

For this system taut wires are stretched across the studio, and the blinds hang from a ridge to eave. These wires should be a distance apart equal to the width of the material one intends to use, allowing, of course, a little for fullness and hemming. A distance of thirty-six inches is very useful. The lowest wire should be about three inches below the bottom of the glass of skylight. The second will then be thirty-six inches above that and quite close to glass; the third should now be placed rather further from glass than the second, and three or four inches below the second wire. This is to allow the blinds to overlap, the first blind being fixed by rings at its outer edges between the first two wires. The other curtains, as many as required, being fixed between wires also, but with their edges overlapping a few inches their neighbours. As many blinds as will quite cover the glass are required. Sufficient control will not be obtained, however, by having only one long blind on each pair of wires, the necessary length, allow-

ing for a little fullness, should be divided into at least two or preferably three parts. The rings fixing the curtains to wire should be fixed on blinds at a distance of every three inches, say, before the wires are stretched, as this is much more simple than placing a number of rings on wire, and stitching material to them when up. The wire should be of brass. Iron-wire rusts and prevents the rings moving freely, whilst owing to the elastic nature of copper it is impossible to stretch a wire of this material to anything like the



requisite degree of tautness. Some methods of stretching the wire and of tightening it when necessary must be provided. The old key working a drum and ratchet wheel similar to the stretching post of a wire fence are no longer generally used. A better method is to obtain galvanised iron or brass lanyards from a yacht fitter's; those with four-inch screw will be big enough.

To stretch the wire fix in a strong screw eye at one end of studio and fasten one end of wire to this, thread lower edge of curtain on to it, and then pass through the bight of lanyard, placing the hook end of latter in another screw eye. The screw of the stretcher should be almost out of the socket. Enough wire must be left with which to get a good purchase. Get someone to tightly stretch the wire between screw-eye and lanyard by pulling wire through the eye



of the latter. When no further exertion will obtain a greater degree of tautness, with a pair of pliers give the wire a turn to temporarily secure it, cut off superfluous end, and finish off the join. A few turns on the lanyard will further tighten the wire, but this should be kept as a reserve force for use when the wire slackens and sags with use.

To move these blinds from place to place a short bamboo pole of about 6 feet long may be used, and as will be easily seen, an opening for light of any size whatsoever can most easily be obtained by sliding the blinds on these wires much more easily and quickly than by the old method of spring rollers, when, perhaps, eight or more cords would have to be removed from cleats, tightened or released, and again cleated before result could be obtained. With this newer method absolutely any light can be obtained in three or four seconds and with very few movements.

Personally, we believe the need of the bamboo pole has frightened photographers off this method, though really we have used the old method for many years, and the new for three, and under no circumstances whatever would we go back to the old system, the other being so much more rapid, efficient, and easy to work. The pole is quite small and does not get in the way at all.

### Glass for the Studio.

Another question appertaining to the studio light is the kind of glass to be used, whether plain, sheet, ground glass, or ribbed.



This last must, of course, have the ribs inside the studio, and is an extremely good diffuser. It suffers, however, in common with ground glass in that, whilst in the summer the light is properly softened, yet in the dull days of winter the quantity of light admitted cannot be increased. For this reason, and also because of its cheapness and the ease of replacement, we prefer ordinary sheet glass. In summer this is covered with tissue paper, which in the winter months, when the clouds and thick atmosphere act as too effective diffusing agents, we remove, and are thus able to gain an exposure of frequently less than a second at  $f/6$  during the worst winter months. The putting on of the tissue paper which must be of the best quality is a most simple operation, though doubtless those who have not tried the method will think it a dirty and troublesome makeshift.

The simplest way to apply the tissue after cleaning glass is first cut tissue about two inches wider than the distance between sash bars, then beginning at the ridge run a starch brush full of stiff starch down the angle where glass joins sash; this should just starch a strip about half an inch wide of glass and sash. Do the two bars for a depth equal to tissue to be applied, and then lay tissue on to glass, and smooth out to the edges. The light paper will stick to the narrow strip of starch, but a small dab should be placed in centre top and bottom. The next sheet should overlap the upper one about half-an-inch. When the tissue is to be removed very little energy is required, so very little adhesive being used. A damp sponge will do the trick in a few seconds.

W. FOSTER BRIGHAM.

## THE FAULTS OF A LENS.

DR. W. SCHEFFER, in "Photographische Randschau," describes a number of simple experiments which will instruct the beginner in studying the optics of the photographic lens. As a rule photographic optics are unfortunately a sealed book to the average amateur. Most articles and books in which such subjects are treated of, assume some previous knowledge, and the means of obtaining a clear understand-

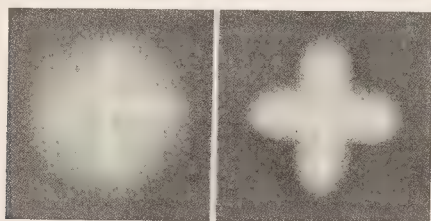


Fig. 1.

Fig. 2.

ing by experiment are wanting as a rule in the amateur's outfit. The following experiments may be performed with very simple and readily obtainable means, and yet give a very clear explanation of some of the important facts of photographic optics.

For the experiments we require a bellows camera, black paper, cobbler's wax, and a single uncorrected lens of the reading glass type. The latter can be very easily obtained. In optical factories many lenses are rejected on account of small faults; for instance, a small

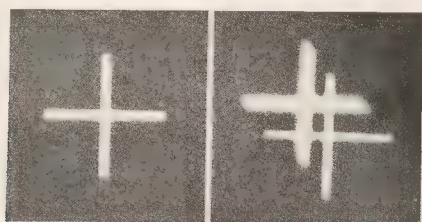


Fig. 3.

Fig. 4.

piece is chipped out of the edge and so on. The focus of this lens should not be too short, from 4 to 8 inches, and the diameter not too small.

The subject to be taken we can make out of a piece of ground glass and some pieces of black paper. The necessary figures are cut out of black paper and stuck on the smooth side of the ground glass. If one has no ground glass, an unexposed dry-plate may be taken or a piece of thin white paper, as free from structure as possible may be put behind a sheet of clear glass. The lens should be fastened with the wax to the front of the camera, and in order to stop out stray light a piece of black paper with a circular aperture of somewhat

smaller diameter than the lens should be placed in front of it. Of course, the lens must be arranged so that its optical axis is at right angles to the ground glass. It should be noted that the cobbler's wax will not injure the camera; it can be easily removed with a dry, warm flannel.

The first test object should be a cross, cut out of black paper, and

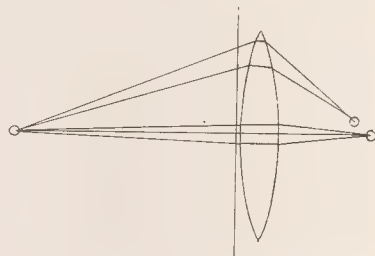


Fig. 5.

attached, as already stated, to the glass. The camera is now set up so that the middle of the cross is as near as possible exactly on the optical axis of the lens. It is advisable to cut the cross quite small and to make its arms as thin as possible; the distance from the lens should be about equal to its focus, and the image should be examined with an eye-piece, or enlargements made from the negatives. The illustrations to this article were made in the latter way.

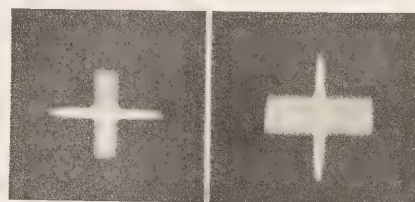


Fig. 6.

Fig. 7.

Behind the ground glass should be placed a light, and then a sharp image should be tried for on the focussing screen. It will be found that this is not possible, for the image appears indistinct and almost unrecognisable; if the aperture of the lens is large enough, as shown in Fig. 1. Obviously, Fig. 1 is obtained by using the full aperture of the lens. Now let us insert a stop or diaphragm by placing in front of the lens a piece of black paper with a circular aperture of about two-fifths of an inch diameter. This stop should be placed exactly over the centre of the lens, so that the optical axis passes through the centre of the stop. The cross should be again focussed sharply, and the image of the cross is distinctly seen in the middle of the figure, surrounded by a bright halo, Fig. 2.

We can now see whether the axis of the lens is at right angles to the focussing screen, and whether the centre of the cross is on the optical axis. Only when these requirements are fulfilled does the bright halo symmetrically surround the brighter cross. If the halo is unsymmetrical, the lens should be shifted and affixed afresh, or the test object shifted to and fro till the image is seen, as in Fig. 2.

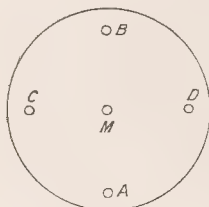


Fig. 8.

Now insert a small stop of about one-twelfth of an inch diameter, as before, in front of our lens. The image of the cross will now be sharp, as in Fig. 3. Thus we have proved that a small part of our lens, in the case in point, the centre can give a sharp image. This image becomes fuzzy when the margins of the lens also act and the full aperture produces the images. Fig. 4 shows why this happens.



Fig. 9.

Now let us make a diaphragm with two apertures, the one central, but the other nearer the edge of the lens. Each aperture should have a diameter of a twelfth to an eighth of an inch. When, with the lens thus stopped down, we try to focus the cross we see on the focussing screen two images of the cross, and by covering the central or marginal aperture easily determine which image is formed by the

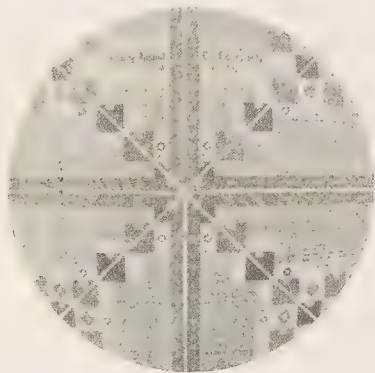


Fig. 10.

central and which by the marginal rays. We shall see that when the former is sharp the latter is not, and vice versa. Each image can be sharply focussed alone, but not the two together. The image thrown by the marginal rays is nearer the lens than that formed by the central rays. Moreover, the two have different positions as regards the optical axis. The image given by the marginal rays does not lie on

the optical axis but to the side of it on which is the aperture in the diaphragm. We thus see why the image given by the full aperture of the lens is fuzzy, and that the different smallest parts of the lens project images, each of which by itself is sharp, but these images lie in different planes. We cannot therefore sharply focus all at once, but we obtain under all conditions a fuzzy image, as shown in Fig. 1. This phenomenon is due to the fact that the lens is bounded by spherical surfaces. After this experiment the diagram in Fig. 5 can be easily grasped without further explanation.

Want of achromatism, or the non-correction for colour, can be also very easily explained by our arrangement. We merely have to take a red and a blue glass, and place first the red and then the blue between the source of light and the ground glass, and focus sharply

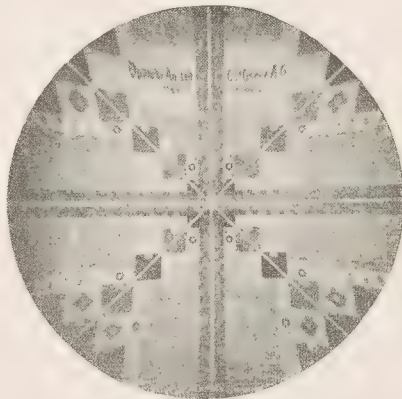


Fig. 11.

with the stop as used for Fig. 5. We shall at once see that the blue image lies nearer the lens than the red.

Now let us displace the test object, and place to one side of the optical axis. Place centrally in front of the lens the small stop, one-twelfth to one-eighth of an inch diameter. When now the two arms of the cross are focussed it will be found that they cannot both be made sharp at the same time; either the vertical or horizontal arms will be sharp. The two planes of sharp focus are situated at different distances from the lens. Figs. 6 and 7 show this phenomenon. Thus the amateur can very easily obtain an idea of what astigmatism is.

By the aid of a circular piece of cardboard and a few threads, these facts can be very easily grasped. Let us cut a circle of cardboard,



Fig. 12.

Fig. 13.

and pierce the same with five small holes, as shown in Fig. 8. In the middle, M, let us place a thread of a distinct colour, white for instance; through A and B let us draw red threads, and through C and D two blue threads. Now let all the threads be brought together to a point, so that the middle thread, M, lies in the plane of C D, but not central with the centre hole, yet at right angles to the cardboard, then obviously the threads passing through C and D are in a different position as regards the lens to those passing through A and B.

If instead of the cross we place on the sheet of ground glass a piece of black paper with a small round hole in it, we shall find on trying to focus this hole, that we obtain a peculiar cruciform image, and, according as the focussing screen is moved to and fro, will the vertical or horizontal arms of this cross be the sharper. This



phenomenon is called astigmatism. Our experiments are better than all drawings, and give a very clear conception of this fault.

We also see that the phenomenon of astigmatism is not affected by stopping down: it appears with very small apertures very distinctly. If the image of our point-like test object is formed with full aperture, we obtain an image as shown in Fig. 9. In order to make the occurrence of this phenomenon quite clear, we must use the two apertured diaphragm as with Fig. 4. We shall see that the different parts of the lens also beyond the axis shown spherical aberration. Each individual small aperture projects an image of the point which lies to one side, which image is accompanied by astigmatism, but is still sharper than that projected by the full aperture of the lens. This phenomenon, the spherical aberration of oblique rays, is known as coma, and is lessened by stopping down, but astigmatism is not.

Distortion can also be made very clear with our arrangement. We merely take an object bounded by straight lines such as a window, first with a small centre stop in front of the lens, and then with the same behind the lens. Fig. 10 shows the barrel shaped distortion,

with the stop in front; Fig. 11 the cushion-shaped distortion with the stop behind.

Figs. 12 and 13 explain this; as the result of the prismatic deviation of the pencil of rays by the marginal portions of the lens the position of the object point of the middle of the image must be reproduced too small, and this fault must be more noticeable the further the object point lies from the middle. Fig. 13 shows that just the opposite occurs with the stop behind.

These simple experiments can be performed by anyone without any previous knowledge. With a little sound and common sense conclusions can be drawn from the experiments, and a clear understanding of the principal points in photographic optics be obtained. Obviously these experiments may be carried still further and made more interesting. Here only a few simple exercises have been described, and only the most obvious conclusions pointed out, it being borne in mind throughout that even these few may be too much for some amateurs, or, at least, ought to be sufficient for a fairly long evening's entertainment.

## METHODS FOR THE RAPID DRYING OF GELATINE FILMS AND NEGATIVES.

The following notes, by Dr. Roenius, in the "Deutsche Photographen Zeitung," are of interest not only in the face of the fact that every photographer occasionally wishes to rapidly dry a negative or print, but more so now that some have adopted the method of colour-sensitising their own plates, and the quality of plates thus sensitised depends to some extent on their rapid drying.

Gelatine in the dry form is a hard, brittle substance, which swells up in water and gradually assumes a pasty form. At about 50deg. F. the swollen gelatine becomes gelatinous, and at about 77deg. F. a thick liquid, which, with increasing temperature, becomes quite fluid. On cooling the gelatine again reverts to a jelly, and then slowly dries. If the gelatine is repeatedly and continuously boiled, it loses some of its original properties and remains fluid for a long time—that is to say, it loses some of the water it has taken up, and is then much heavier than fresh gelatine. This property of a gelatine mass has been used technically, as in the so-called hectograph mixtures, in which a superior kind of glue or inferior gelatine is melted with some glycerine and water, and by continued boiling forms a comparatively stable damp mass. With certain kinds of glue some baryta is added to make the mass insensitive to damp.

Through the action of tanning substances, such as tannin, alum, formaline, etc., the gelatine is submitted to an astringent action—that is to say, its pores contract, and it is reduced in volume.

In order to dry gelatine emulsions on plates and papers, a good current of air should be used to carry away surface moisture, so that that lying underneath may escape to the top, and be carried off until the film is dry. If the film has not been hardened, the temperature should not be raised above 68deg. F., as otherwise the gelatine may run, as has sometimes been experienced by photographers who have placed wet negatives in the sun or near a fire, a phenomenon which is sometimes used with intention to produce the so-called photographic caricatures.

### Drying With Volatile Liquids.

The principle of this method is to mix the water with a liquid which is more volatile and thus hasten the drying. Of all the volatile liquors, pure alcohol can alone be recommended; methylated spirit is less satisfactory, as the fusel oil, etc., which it contains has an unpleasant smell (and the spirit obtainable in this country does not give a clear surface to the negative.—Eds. B.J.P.). Small plates should be bathed in 60 per cent. alcohol, and the latter should be about one-fifth of an inch over the plate; in a short time the alcohol extracts the water from the film. If the plate is now exposed to the air, the semi-spirituous water in the film evaporates more quickly. Obviously for large plates diluted alcohol should be used, otherwise with such large surfaces exposed to the air the alcohol evaporates so rapidly that the process costs more than it is worth.

### The Use of Hygroscopic Substances.

By this is meant the use of exsiccating substances as employed in practical chemistry. The hygroscopic substances are sulphuric acid, calcium chloride, and potassium carbonate. For photographic work fresh fused calcium chloride is the best. A large box should be made of millboard, or, better, sheet zinc, which should be quite airtight; the calcium chloride should be strewn over the bottom of the box either in the form of powder or small lumps. The plates to be dried should be first well drained (their backs also wiped dry), placed a few inches above the calcium chloride in racks, and then the lid shut down; the closer the lid fits the better the exsiccator acts. The dry, freshly-fused calcium chloride extracts the whole of the moisture from the air, and this then rapidly extracts the water from the film. The whole method is very simple, but it is not very rapid in comparison with other processes.

### Drying by Means of Heat.

For more than ten years drying boxes of wood or metal with perforated bottoms and partitions have been in use. Circulation of the air is effected either by means of a spirit lamp burning in a bent pipe or by means of a revolving fan. We have thus a method of heating the air or a mechanically produced draught, to which we shall refer later.

Although such arrangements may be useful in factories, they are not exactly practical for a studio where plates are not commercially manufactured. We have also met with plates which must not be dried at a moderately increased temperature.

If a well-washed negative is bathed, however, in a bath of one part of formaline to eleven parts of water for eight or ten minutes, the gelatine is so hardened that it will stand three times the amount of heat, even up to 120-140deg. F. For such plates any drying oven with heating arrangement may be used. Still even then the plates ought not to be heated too suddenly, but gradually. It is as well not to be too optimistic of this method, as it is neither the best nor shortest.

### Drying by Mechanical Movement.

There are two methods of effecting this: 1. Either the plate to be dried is whirled rapidly round in the air, or (2) the plate remains still, and (a) either the air is driven straight over the surface to be dried by straight-bladed paddles, or (b) rotating propeller fans suck up the air and drive it through a perforated cone on to the plate.

The first arrangement is the older. In this the plate to be dried is fastened by means of adjustable nuts on three or four arms radiating from a central axis round which they rotate. Drying by this method means a saving of time of from 45 to 85 per cent.

the only disadvantage of this process is that for large plates the apparatus is so large and complicated that it is not practicable.

By the second system, in which the object remains still and a strong stream of air is directed over it, any sized plates can be dried, and there is no danger of the plates breaking, which may sometimes happen with the other processes.

Fans rotating at about 230 to 650 revolutions per minute with suitable machine driving are the best, and for hand work a multiplying or transmission wheel is essential. The blades of the fan should be placed diagonally, and at about an angle of 20deg., to obtain the strongest draught. The blades should be of Bessemer steel, and firmly welded to the shaft, or else screwed with four or eight bolts. There is then not much danger of fracture and the blades working loose, as the revolution is not fast enough. Electric power the best, and a small dynamo will suffice, but this taking it out of the hole will not be found to be the cheapest system, but will be the nicest.

[The author's review is evidently intended for those contemplating the adoption of regular means of drying plates. Mention, however, might have been made of a simple and expeditious plan which is often of service in emergencies, and consists only in dabbing the gelatine film of a large proportion of its moisture by the application to it of a piece of fine soft cambric (an old pocket handkerchief), which is pressed into contact with a roller squeegee. The film thus gives up a good deal of its moisture, and on placing in a warm, airy spot will dry in under an hour; or if stood about a foot distant from an electric fan, so that the current of air passes slantwise over it, in a few minutes.—Ebs. B.J.P.]

#### HINTS ON PHOTOGRAPHING CHILDREN.

THERE is no branch of photography that is more interesting or better adapted for the home study of the amateur than the photographing of children. At the same time there are few subjects that are more difficult to handle. The first essential (writes Ruth F. Manly, in the "American Amateur Photographer") is to get on good terms with the subject if it is a stranger, then, if you can keep them interested and let them pose themselves, you will be sure of getting pictures that are natural and do not possess that over-conscious look so general in the portraits of grown-up people. It is usually important to arrange all the accessories before you place your subject. It is annoying even to adults to be shifted and turned and twisted before the camera. A good plan is to focus on some other object in the position the child is to occupy, and when ready to snap up a flow of conversation and induce the little one to occupy the desired position—then watch your opportunity and press the bulb. It is sometimes necessary to do a little posing, but do not weary them by making them hold strained positions for any length of time, and as a rule it is better to let them take their own positions.

Another thing which needs consideration is the matter of dress. Pictures of over-dressed children are seldom satisfactory, and while a mother may like to see it dressed in frills and ribbons, the something which they are accustomed to wear in their play will, as a rule, yield the picture which will be prized the most. A plain background should be chosen, unless they are to be photographed among their toys and in a portion of a room, when any chairs or other objects should be removed. Lower the camera until the lens is as near as possible on a level with the face, and if the attention of the child is directed to any object, that object should also be held or placed on a level with the camera. The reason for this will be apparent if you focus on a person who is looking direct at the camera and then ask them to look at an object a few feet higher, when the change of position of the eyes will give a totally different expression.

Children should not be photographed in a strong direct light, as it tends to harshness. If the sitter is near a window, muslin or tissue paper should be used to diffuse the light and a reflector used to give tone to the shadows. The full opening of the lens should be used and full bulb exposure given according to the strength of the light and the stillness of the subject. For this kind of work only the fastest plates should be used, and when you have a good subject and every-

thing is in working order, do not be stingy with the plates. Use a weak developer, and do not force the development after the high lights show on the glass side, and you will avoid the harshness which is so commonly seen in indoor work.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications have been made for Patents from June 25 to 30:—

STANDS.—No. 14,553. Improvements in stands for photographs, calendars, or the like. Robert Christopher Rogers, 48, Corporation Street, Birmingham.

PRINTING FRAMES.—No. 14,594. Improvements in the production of photographic prints and in printing frames therefor. Peter Wright, 55, Chancery Lane, London.

SQUEEGEES.—No. 14,863. Improvements in squeegees more particularly applicable for photographic purposes. The Thornton-Pickard Manufacturing Company, Ltd., George Arthur Pickard and Frank Slinger, 6, Bank Street, Manchester.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

FILM STORAGE DEVICE.—No. 12,029, 1905. The invention is designed to facilitate the storage of film negatives. A rigid pocket or holder of cardboard, or other suitable material on which a sheet of paper is pasted so as to form, as it were, a flapless envelope, is made. The cardboard projects above the top of the paper flap for the purpose of providing a space for affixing consecutive numbers, and the title and data of contents of the holder. A thumb space is made in the top side of paper flap to enable the film negative to be grasped when removing it from its holder, which can be readily done by separating the cardboard and paper flap by slight pressure on the ends of the holder, thereby causing the said parts to bow outwards. Percy Gerald Reynill Wright and Houghtons, Ltd., 88 and 89, High Holborn, London, W.C.

## New Books.

"The Year Book of Photography." Edited by F. J. Mortimer, F.R.P.S. London: "The Photographic News" Office. 1s.

On its first appearance under Mr. Mortimer's editorship the "Year Book" exhibits certain changes in arrangement, made with the object of constituting this year's issue a convenient guide to the modern printing processes. The contributed articles deal with the processes at present popular, M. Demachy writing on gum, Mr. H. W. Bennett on carbon, and Mr. E. J. Wall on P.O.P., plain salted paper, and albumen. Mr. Walter Benington deals with platinotype, Mr. G. E. H. Rawlins with the oil process, and Mr. Manly with ozotype. The editorial article has bromide and gas-light papers for its subjects. Following each section are the formulæ generally adopted, and those recommended by individual makers for their papers, and the whole of the matter on a given subject is thus found in one sequence of pages. The arrangement is convenient in the present instance, though it may be doubted whether the regular purchasers of an annual publication, to which they have been accustomed to turn when looking up a formulae or table, will welcome any disturbance of the contents plan. Nevertheless, as it stands, the "Year Book" provides a very handy con-



spectus of the present methods of printing as they may be commended to the amateur photographer. The lion's share of the space goes to the editorial compilation on the development papers. The value of the latter in our estimation would have been increased had extracts from other writers been acknowledged. The omission to credit a source of information is an injustice to the reader, as it robs him of the opportunity to pursue his study of the subject, and it appears quite inexcusable when whole passages appear as editorial contributions. The "Year Book" contains an excellent directory of photographic societies, and a number of very good plate illustrations bearing on the articles.

"Natural Colour Photography," by Dr. E. König, translated by E. J. Wall, F.R.P.S. (Dawbarn and Ward.) 2s.

The translator, in his preface, states that never within the last twenty years has there been so much interest displayed by photographers generally in photography in natural colours, as at the present time, a statement which probably will not be denied, and that this is due in a great measure to the most recent advances in colour sensitising must also be accepted. This work is described as "a practical guide to the various colour processes that can be adopted by amateurs and others," and it fairly fulfils its promise. But brief notes are given of the Becquerel and Lippmann, Joly, Lumière starch grain, and the Prof. Wood's diffraction process, the bulk of the book being devoted to the indirect methods, which naturally have more interest for the average worker. After a brief note as to the apparatus and the positions of the filters, the preparation of the latter is most fully described, and the sensitising of the plates with which they should be used. The various methods of printing, both for lantern slides and prints on paper, are fully described, and the latest formulæ are given. Lumière, Sanger-Shepherd, Pinatype, are all treated of at length. Considerable attention is paid to the optical synthesis method by projection, and chromoscope, and working instructions are given for making the latter instrument. The work will be found an excellent practical guide to those processes which may be adopted for making photographs in colours exclusive of photomechanical methods, and there is but little theory or historical data, and it is written in simple language.

"La Photographie des Couleurs" is the title of a new monthly magazine, edited by M. H. Quentin, and published by Chas. Mendel, 118, Rue d'Assas, Paris, which, as its title shows, is to devote its attention solely to the subject of natural-colour photography. The first number promises well, and the illustration is decidedly successful.

## New Materials.

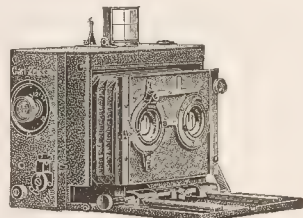
EDWARDS' Iso Plates.—The recent re-establishment of the old firm of B. J. Edwards, now with its founder, Mr. B. J. Edwards, at the head, is a sufficient reason for our receiving some time ago some samples of the firm's present issue of the "Snapshot Iso" plates, a manufacture which becomes particularly noteworthy in these days of colour-correction from the fact that Mr. Edwards was the first maker of isochromatic plates in this country. If for a time the Edwards plates fell, if not into disrepute, at any rate into disuse, their originator could not be held responsible, but on his re-accession to the technical management of the factory, it is evident that the plate—we are speaking now of the "Snapshot Iso,"—shows itself capable of the high favour which has been extended to it by skilled photographers in the past. Sensitometrically, we have not found the plate to run out to a high figure, and we confess, to some astonishment, at the excellent results obtainable on it with rapid exposures in a hand-camera. However, the laboratory test of speed alone does not completely account for the properties of a plate, and in one respect particularly—keeping powers—our experience of the Edwards plate has been altogether excellent, and we believe that has been the general opinion of them. The firm itself have recently come across some examples of good keeping in some Iso films exposed over ten years ago, and productive of excellent negatives. Their finding, as we have said, is not at all exceptional, and for this and other reasons arrived at after some recent considerable experience with the plates as now issued, we may congratulate them on their manufactures.

## New Apparatus, &c.

The Zeiss "Stereo-Palms." Made by Carl Zeiss, Jena. (London, 29, Margaret Street, W.)

When we reviewed the "Universal Palms" hand camera in January last, we commented on the beauty of mechanical construction through which the manipulation acquired an ease and certainty only to be met with in the perfect adjustment of the working parts of any machine. The same may be said of the "Stereo-Palms," which is similarly a folding camera for use on hand or stand. Instead of the four-strut extension of its predecessor, the "Stereo" camera racks out on the baseboard-cover of the front, which latter is provided with two focussing scales permitting the use of the camera for its three purposes of:—

- (1) Stereoscopic work with a pair of lenses of  $3\frac{1}{2}$  in. focal length;
- (2) Panoramic work with a lens of  $3\frac{1}{2}$  in. focal length used to cover the whole  $9 \times 12$  cm. plate after stopping down;



- (3) Instantaneous work at the normal angle represented by a lens of  $5\frac{1}{2}$  in. focal length on the whole  $9 \text{ cm. by } 12 \text{ cm.}$  plate.

The lens panel is mounted so as to be instantly detachable on loosening the clamping bar on the right. One of the lenses is also removable and is transferred to a shelf or panel when panoramic (wide-angle) work is to be done. Similarly, the  $5\frac{1}{2}$  in. lens (Tessar or Wray) is quickly inserted on its panel for work at the normal angle adopted in hand-camera photography. For these three distinct purposes the camera is equally applicable, the stereoscopic partition rolling up like a spring roller, and being then removed from the back of the camera. In miniature, which appeal only to the photographer as distinguished from the constructor, the camera can show a few nice points. For example, when the camera is carried by its sling handle the dark slide is upside down, the slit admitting the shutter, thus unexposed to direct strong light from the sky. The position makes for light-tightness, though Messrs. Zeiss will perhaps allow us to say that it is an unnecessary one in the case of the "Palms" slides.

The focal plane shutter is the one we have already noticed with outside fit adjustment, permitting with the tension of a range from 1-25th of a second to 1-1000th. In all respects the camera impresses us as perfectly designed and made. It is supplied for simple exposures, for stereoscopic and panoramic pictures, or for all three species of work.

### FORTHCOMING EXHIBITIONS.

- August 6: Andover and D. H.S.—Sec., W. I. Gradidge, Jubilee House, Andover.
- September 14 to October 27: The Photographic Salon.—Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.
- September 20 to October 27: Royal Photographic Society.—Sec., J. McIntosh, 66, Russell Square, Bloomsbury, London, W.C.
- October 6 to 13: Bristol Photographic Club.—Sec., J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.
- October 17 to 20: Rotherham Photographic Society.—Sec., H. C. Hemmingway, Tooker Road, Rotherham.
- November 16 to 21: Southsea Amateur Photographic Society.—Hon. Sec., F. S. Hoyte, "Lismire," Stafford Road, Southsea.
- November 20: Sefton Park Photographic Society.—Sec., A. W. Farr, 34, Loudon Grove, Liverpool, S.
- November 27 to 30: Hove Camera Club.—Hon. Sec., W. H. Bone, 32, Sackville Road, Hove.
- December 11 to 15: Southampton Camera Club.—Hon. Sec., S. G. Kimber, "Oakdene," Highfield, Southampton.

News and Notes.

NEWMAN AND GUARDIA.—The question of a correspondent in ference to our paragraph of last week on the death of Mr. Guardia, to the continuance of the firm, has doubtless risen in the minds others, and it may be well, therefore, if we say that, beyond some mporary disarrangement of the business side of the company's airs, Mr. Guardia's death will not affect the output, nor lower e standard of "N. and G." cameras. Mr. Newman, we learn, ill retain his interest in the business, and continue to be respon- sible for the design and production of instruments which have made s name a household word in photography. The "Sybil" pocket mera is expected in a month or two's time from his workshops, prove once more, so we believe, the perfections of camera consti- tion possible to the mechanical craftsman who is also a practical otographer.

THE Longstaff medal of the Chemical Society has been awarded to of. W. N. Hartley, F.R.S., in recognition of his spectrochemical vestigations; the presentation will be made at the first meeting t next session, October 18.

ATTRACTIONS of Cardiff.—The Cardiff Parliamentary Committee et last week to receive the series of photographs of the beauties nd attractions of Cardiff, which had been sent in by the various mpetitors in response to the offer of two prizes of five and three uneas offered by the corporation for the best series of ten pictures lustrative of Cardiff and Llandaf, to be used for the purpose of iversting the attractions of the district in railway carriages and ewhere. The award of the honorary adjudicator, Mr. Samuel llen, was adopted, in accordance with which the first prize was iven to Mr. T. O. Long, 62, Queen Street, and the second to Mr. . R. Taylor, 33, Constellation Street. A sub-committee was ap- ointed to make a selection of the best photos from the whole lot eceived, and to report to the committee.

WINCHESTER Cathedral Fabric Repair Fund.—A lantern lecture ill be given in aid of this fund on Monday, July 16, in St. John's ooms, Winchester, at eight o'clock, entitled "The Pilgrims' Way rom Winchester to Canterbury," by H. Snowden Ward, F.R.P.S., llustrated by lantern pictures prepared especially for this lecture y Mrs. Catharine Weed Ward, F.R.P.S.

THE Barnet Whitsuntide Competition.—Messrs. Elliott and Son, f Barnet, inform us that the following were the successful competi- ors in their Whitsuntide Competition: First, Mr. A. G. Thistleton, f Manchester; second, Mr. Geo. Harley, of Lincoln; third, Mr. larence Ponting, of Scarborough; and fourth, Mr. S. G. Ward, f New Cleethorpes. The average quality of the work was even igher than that entered for their Easter corpetition, and the entries ore. A new competition has also been instituted which will appeal o many who are just now thinking of taking their holidays, for the ubsjects are "Scenes at the Seaside, Views on the Sands or Coast, Seascares, or Children Paddling or Playing on the Sands." One cash prize of two guineas, one cash prize of one guinea, and six prizes f half-a-guinea, for the best prints on any Barnet paper from negatives taken on Barnet, Ortho, or other brand of Barnet Plate or Films, any size, are offered. The latest date for sending in the prints is October 31. In connection with this competition Messrs. Elliott are issuing to dealers an attractive poster and handbills to all dealers, from whom full details may be obtained, or direct from Barnet.

THE Liverpool One Man Shows.—Till the 20th inst. there will be open, at the rooms of the Liverpool Amateur Photographic Associa- tion, an exhibition of the pictorial work of Mr. F. C. Stuart. This will be followed by the work of Mr. Joseph Appleby.

THE Bristol Photographic Club have arranged an exhibition of their Dührkoop's work, as recently shown at the BRITISH JOURNAL OF PHOTOGRAPHY Offices, from July 12 to 19 at the Kensington Government School of Art, Berkeley Square.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

July.	Name of Society.	Subject.
14 .....	Manchester Amat. Photo. Soc.	{ "Photographing Flowers." Demon- strated. Dr. A. T. Lakin.
14 .....	Hackney Photographic Society	Outing to Broxbourne.
14 .....	Aberdeen Photo. Assn. ....	Outing to Black's Dam.
14 .....	Hull Photographic Society ...	Onring to Welton Dale.
14 .....	L.C.C. Staff Camera Club .....	Outing to Oxshott.
16 .....	South London Photo. Society ..	Jumble Sale.
16 .....	Southampton Camera Club .....	{ Print Trimming and Mounting Com- petition.
17 .....	Hackney Photographic Society	{ Excursion Prints Judged and Criticised
17 .....	Manchester Amat. Photo. Soc.	{ Exhibition of Pictures by W. Selfe.
17 .....	Worthing Camera Club .....	"Photographic Lenses." F. W. Parrott.
18 .....	Leeds Camera Club .....	Outing to Burpham, via Arundel.
18 .....	North Middlesex Photo. Soc. ...	Short Papers by Members.
		"Platinotype Printing." E. Salt.

Commercial & Legal Intelligence.

PHOTOGRAPHING Bed Spreads.—Mr. Arthur E. Smith, 8, Farring- don Avenue, sued Messrs. Rheinlander and Co., 141, Rosebery Avenue, for £5 3s. 8d., for photographing bedspreads. The claim was admitted, but the defendants counter-claimed for £2 14s. On the ground that the plaintiff had damaged the bed spreads. The plaintiff said he told the defendants that he did not care about doing the work because it was of such a delicate nature. That was denied. The judge said that if a man accepted a job he must do it properly. He did not think, however, any negligence was proved. It was evidently very difficult. Judgment was entered for the plaintiff on the claim and counter-claim.

AN Obstructionist.—At the Highgate Police Court, on the 5th inst., William Hambley, of Durham Road, Finsbury Park, was ordered to pay 6s. costs on a summons for causing an obstruction at East Finchley with a photographic camera and portable dark-room.

Correspondence.

- \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—My letter has aroused more interest than I expected it would. I am not in the habit of airing my grievances, so long as they are only my own, but this question is one which affects photographic assistants as a body. It is one of the very few professions or trades of which the employees are absolutely unprotected. For skilled labour, the wages usually given are contemptibly low. There is no incentive offered to an assistant to cause him to try to improve himself. He may spend his hard-earned money to acquire extra knowledge, but he knows full well that he will get no extra salary. I am afraid there are many employers who take the man who offers to go for least pay, provided his work is at all passable. We know these employers tell the same old tale—viz., that the prices are cut so fine as to make it impossible to give more. But who is to blame for the low prices? It is the greediness of the employer, who thereby hopes to attract more customers. And the assistant has to pay the piper.

"Othello, M.P.P.A.," in his letter, says, "I am mistaken in my re- marks." I am sorry to contradict "Othello," but I know I am right. I do not say there are a majority of "backyard studio" men in the



P.P.A., but I do know there are several such men who remain in, not for the help of their fellow professionals, but simply because they get a reflected respectability from the association by means of putting M.P.P.A. after their names on their mounts, notepaper, etc. In an artisan community this is a decided acquisition, as it gives the ignorant the idea that the man has passed some examination. I have often been asked what these letters mean, and when I have explained they have said, "Oh! is that all; I thought it was some degree."

These "amateur professionals" know this very well, hence their willingness to pay the 5s. per year. It is worth more than £5 to them. I would like to see the P.P.A. make this title a mark of ability in a similar way to the "Royal." And I would like to see them introduce examinations for assistants and give certificates showing forth that the owner is capable of doing such work as he or she professes to be able to do. This would do away with another bugbear of the assistant's life—viz., specimens. Specimens are a continual bother to everyone. They are a big item to an assistant, as they are continually being kept by even respectable houses. Besides this, specimens are no guarantee that the assistant can do similar work, as, I am sorry to say, there are certain unscrupulous men who make use of others' work. Where is the guarantee that they have done the work?

I would be one of the first to sit for an exam. under such conditions. But I shall certainly not go in for a P.P.A. certificate under the present conditions. It is silly, on the face of it, for the testimonials of past employers have the same effect.

"Another Assistant" says truly that the assistants could do much to put down some of the rogues done under the name of photography. They could also very much improve their employer's business if they were treated rightly. But they are usually treated merely as "hands," hence their indifference.—Yours etc.,

DISGUSTED ASSISTANT.

#### To the Editors.

Gentlemen,—Having read with interest the numerous comments on the assistants' certificates, I should like to know how many of the employers would pass an examination by experts in artistic photography.

In my own sixteen years' experience with about nine or ten employers, I have only been with two that would be called photographers, if photography examinations had to be passed previous to starting business.

I am not speaking of the backyard type, but of the class that mainly employ general assistants or men that can do everything. My present employer pays me 50s. weekly to manage his business, and he has not the remotest idea how the work is produced. If I left he would simply get another managing operator, but is he competent to give me a reference on which to base a certificate? I think not. My case is not isolated, as many assistants can testify.

Hoping you have space for my ramble, I remain, yours, etc.,

A SUBSCRIBER.

#### THE INVENTION OF THE CARBON PROCESS.

##### To the Editors.

Gentlemen,—In reference to your statement that "carbon printing, as everybody knows, was invented by Mr. J. W. Swan, and published by him in 1864," a practical carbon process was invented by Mr. Swan, by his use of collodion as a coating to hold the exposed film together; but Mr. Edwards invented the carbon process, in which the slight soaking of the film proved effectual in holding it on the developing sheet. At that time Mr. Blair, and many others (myself for one), were trying to get rid of the grain caused by the use of paper as a support; and Mr. Swan obtained that end by the use of collodion. That was all, for his process was not worked on a commercial scale. At least, when Mr. Skelton came to Scarborough he used the Edwards process.—Yours, etc.

J. D. COOPER.

36, Clarence Street, Kingston-on-Thames,

[Our correspondent is quite under a misapprehension. Mr. Swan (now Sir J. W. Swan) did invent the carbon process as practically worked to-day. He made the tissue on paper as well as on a collodion film, developed the print on a temporary support, from which

it was afterwards transferred to a permanent one. This process he patented (No. 5031864). Mr. Ernest Edwards did not invent the carbon process. What he did was the invention of a transfer paper coated with gelatine, rendered wholly, or partially, insoluble with chrome alum as a permanent support. This invention he patented in 1868 (No. 2201). This is the paper now in general use. Mr. Swan was working the carbon process (commercially) soon after his patent was secured. We may mention that the presentation print (15 x 11) for 1866, of the old South London Photographic Society, was printed in carbon by Messrs. Mawson and Swan at Newcastle. The prints were made on tissue, as used to-day, and developed on a temporary support, and afterwards transferred to a permanent one.]

#### AN APPEAL FOR HELP.

##### To the Editors.

Gentlemen,—May I beg the favour of a small space in the columns of your valuable paper to make an appeal to all my fellow-workers and readers of your journal on behalf of Mrs. Sargent, a widow lady, and an old worker in the profession, who is in very sore need.

In the "Too late for classification" columns of the B.J.P. issue for April 13 will be found an advertisement very kindly inserted by our esteemed friend, Mr. Snowden Ward, on her behalf, and my object in writing is to call the attention of your readers—both trade workers and professionals—particularly to this, and ask them to bear it in mind, so that if any of them may be called upon by this poor lady they may feel ready to render any little assistance they may be able, however small.

From my conversation with her a few days back I feel confident that hers is one of those cases deserving our attention. Do not let us, therefore, conflict hers with others, only too sadly numerous which do not. Some may say times are bad. They are; but not so bad as they are with her, and to those who argue that they have no concern in such matters and are free from any responsibility, I would respectfully refer them to the second clause of Mr. Pirie MacDonald's masterly article on photographic ethics appearing in your issue of June 22, "Our duty to each other."

Hoping, for the sake of suffering humanity, that some will recognise their duty, and believing that, when opportunity offers, there are many who will not be slow to do it.—I am, yours very truly,

J. HAMILTON CHRISTIAN.

48, Park Road, Peterborough.

#### A NOTE ON THE SENSITOMETRY OF PLATES.

##### To the Editors.

Gentlemen,—I am obliged to Mr. Sheppard for his courteous and interesting letter of July 6, but regret that I still fail to appreciate the value of his factors when they are used in the comparison of the qualities of various brands of plates. For if "the constant  $k$ , does not measure the rapidity of development for different plates," then I will be glad to know in what manner this constant is of use to the plate manufacturer, or user, and why it is quoted as a property possessed by a plate, if it is of no practical value.

It is stated that the constant,  $k$ , must be read in connection with the value  $\gamma\infty$ , but, as I pointed out in my letter of June 15, since  $\gamma\infty$  is calculated from  $k$ , it necessarily follows that if  $k$  is wrong, which it evidently is when using the tables and formulae published in the P.J., Vol. XLIV., p. 282, that the value,  $\gamma\infty$  must also be wrong, and I fail to see how the error may be corrected by using two fallacies.

Emphasis is laid by Mr. Sheppard upon the rather uncertain process of obtaining the values  $t_{\gamma,s}$  and  $t_{\gamma,1,s}$  by the graphic method. I admitted that it had its faults, but in my experience it is the method which gives the most practical and useful results.—Yours truly,

ARTHUR PATNE.

#### PROPOSED SOCIETY OF COLOUR PHOTOGRAPHERS.

##### To the Editors.

Gentlemen,—I think most people are aware that colour-photography has passed its experimental stage, and during the coming summer we shall undoubtedly see a great advancement in the quality of the

ults achieved by many ardent workers in this fascinating development of our art-science. But most of us are working in isolation, scarcely known to each other even by name, and many of us feel that time has arrived when some means should be afforded by which we may have the opportunity of comparing notes one with the other, of seeing and appreciating contemporary work.

It is therefore proposed that a society shall be formed having for its object the advancement of colour-photography, and the development of a fraternal feeling among its workers.

Among other suggestions it is proposed that workers shall be divided into two sections, and portfolios of work circulated in each, on the well-known postal club system. In the section for less skilled workers, helpful criticism and suggestions will be given by advanced workers in various processes; so that all classes of members should necessarily benefit by this and other means of intercourse and cooperation. I propose to call a meeting of members in London as soon as convenient, when the *modus operandi* of the society will be discussed, a committee appointed, and a code of rules submitted for their consideration.

In the meantime I shall be glad if ladies and gentlemen wishing to become members will send me their names and addresses.

I must, however, point out that we can only consider for membership those who have achieved some moderate success in the working of colour-photography in one form or another, and who are willing to submit specimens of their work if required, prior to acceptance as members.—Thanking you in anticipation, I am, yours faithfully,

HENRY J. COMLEY,  
Secretary pro tem.

Curry House, Stroud, Glos.

## THE TRUE CAUSE OF THE FORMATION OF THE LATENT IMAGE.

To the Editors.

Gentlemen,—Please accept my thanks for the notice you gave my article in your magazine of June 8th.

I also permit me to call your attention to some points which in the course of my business you overlooked.

In p. 5, paragraph 6, you will find that I created the latent image by magnetism. An experiment so simple that any one can repeat it, and assure themselves of its correctness.

Placing a sensitised photographic plate before the end of a simple electro-magnet (a spark-coil composed of a laminated iron core surrounded with five layers of cotton-covered copper wire, connected to five dry-cells, whose current was broken about sixty times a minute), the pulses of magnetism radiated from the pole adjacent to the plate, passed through the paste-board box and black paper wrapped around the plate, and made the image shown on the first page of my work.

Proving:—First, that the "latent image" is caused by ozone, which is the product of oxygen plus magnetism, and whose real use was thus shown for the first time;

Second, that the X-rays are a longitudinal propagation of magnetism, since I was able to produce a genuine X-ray picture of the Crookes' wheels shown, without the aid of the celebrated Crookes' tube. I have since built an X-ray apparatus embodying this principle, which will do all that the Crookes' tube accomplishes.

Third, since we can create the ozone image with the Crookes' tube, and electricity, it proves that electricity is the same force, and that electricity is not "ether waves" but magnetic waves. That an electron or "corpuscle" is but a charge of magnetism.

That so few experiments were given in the work sent you was due to the fact that my time for the lecture was limited to less than an hour, and so the details of but one experiment for each fact presented could be given.

I leave this matter with you for the present, as I am at work on a manuscript for a second edition of "The Primordial Energy," and will be soon able to send you a copy, in which many more experiments will be given in proof of the position I have taken.

Trusting that you will give this explanation of my work a place before the readers of your valued magazine.—I am, sincerely yours,  
BENJ. W. SANDS.

Springfield, Mo., U.S.A.

June 25, 1906.

## Answers to Correspondents.

\*.\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\*.\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\*.\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\*.\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

Isaac Perloff, 186, Commercial Road, London, E. Photograph of the Mayor of Stepney, Alderman Rowland Hirst, J.P.

F. de la Coze, Easebourne Road, Easebourne, Midhurst, Sussex. Photograph of the King and Queen at Midhurst on their way to open the King Edward VII. Sanatorium.

W. D. Brown & Co., West Bay Studio, Helensburgh, N.B. Photograph of the Rev. J. Baird.

POWDER COLOUR.—I should be most glad if you can tell me where to get the brown powder used for rubbing in backgrounds in standard brown carbons. I cannot get it at any of the dealers I have tried.—E. B. B.

The Autotype Company supply water colours to match their tissues, but whether they also supply powder colours we do not know. All good artists' colourmen supply powder colours, and we recommend you to get some and mix them to the tint you require. The pigments used in what is called "standard brown" tissue, we are told, are a crimson lake, indigo, and black.

POTTASCHE.—Could you kindly inform me whether "Pottasche" (I believe this is German) is, in English, potassium or potash (potassium hydroxide)?—E. L. LAUSTE.

Pottasche is the colloquial German term for potassium carbonate  $K_2CO_3$ .

RETOUCHING.—(1) I have been told that there was an electric retouching pencil some time ago in the market, which, when guided over part of negative to be retouched, would work in a stippling way, only very fast, and so save much time in retouching. Would you kindly inform me where such a pencil can be obtained? (2) Can you also tell me if there is a weekly or monthly paper published on studio work (operating and lighting)? A paper, I mean, which would be helpful to a young operator—one rather inexperienced.—ANXIOUS.

We have not heard of the pencil of late, but probably you would be able to hear of it from Marion and Co., 22, Soho Square, or Houghton, Ltd., 89, High Holborn. (2) There is no journal entirely devoted to studio work.

A READER FROM THE FIRST.—Matthews and Co., Gough Street, Gray's Inn Road, W.C., would probably buy the lot from you, and allow you for glass and silver.

RETOUCHING.—Your retouching is of very poor quality, but what can you expect after only working at it for such a period as stated in your letter. Your work presents no solidity, gradation, or modelling, and the necessary texture is entirely absent. The best advice we can give you is for you to at once place yourself



in the hands of an expert teacher, and have proper lessons, either personal or postal, instead of trying to teach yourself—always an unwise and hopeless task.

**SITE FOR STUDIO.**—I shall be greatly obliged if you will kindly assist me, through the pages of your valuable journal, with the following studio query, viz.—I contemplate building a small studio on a space of ground at the gable end of my house, which is facing due west. Size of plot I can build on is about six or seven yards square, and I want a show window and door to open on the highway. I should be glad of your advice as to best way of building same to obtain best light. The east is blocked by my house gable, also the north side by big overhanging trees across the road opposite, thus leaving only the south and west light clear.

If the road is wide and the trees not very high, you might build the studio so as to utilise the north light. But if the opposite conditions prevail, the best way will be to build so as to have the west light. In this case we should advise that the studio be erected on the "lean-to" principle, utilising the end of the house for one side; that would economise the cost of construction.

**COPYRIGHT.**—Is it necessary to place either the word "copyright," or the registered number on a registered photograph. A local lawyer says there must be either number or "copyright" on. I understood previously it was not necessary that there need be anything whatever to indicate a photograph being copyright. I have several postcards on the market which are registered and not marked in any way.—**REGISTRATION.**

There is not the slightest necessity to place the word copyright or the registered number on a copyrighted photograph.

**RETOUCHING (Dio. X.).**—Your one specimen of retouching sent shows, from a merely mechanical stipple point of view—as far as touch is concerned—a very excellent and clean effect; but this is not the highest attainment in the art, and something aiming at greater feeling, delicacy, and general respect for the likeness and texture suitable for a man's head of this size should be your object. In a few words, you are too laboured, and sacrifice much to mere stipple. Broaden your touch for such a face, respect the marked and natural hollowiness under the cheek bones, and see that your gradation from the cheek into line from nostril to mouth is a gradation in tone, and that it does not leave off too suddenly, so that this clearly marked feature is not reduced in force to the weak and broadened mark you have left. The forehead has lost in shape, the whole working is too youthful and pretty, and the character, if treated in a bolder manner, would have been more in keeping with the subject. Your friends and the majority of ordinary retouchers would consider this face beautifully worked; but you would not send to us unless you thought there was something lacking, and that something we have endeavoured to point out for your benefit. We have pleasure in answering you fully, for your work is otherwise so good, that if you can only disintegrate yourself from the fetish of stipple, stipple all the way, you will become a very fine retoucher.

**ENLARGING.**—1. I have half-plates I want to enlarge to 12 x 10 or 1-1 plate. I have not an enlarging camera, so I have knocked a box together and put negative at one end and focus by ordinary 1-1 plate or 12 x 10 camera with long extension, covering up with black cloth between box and lens. I have not enlarged before, only from print. Will you please say how I should proceed after I have enlarged from negative to 1-1 plate negative? Should I develop transparency deep? I did so, but could not get good negative from the transparency. Will ordinary plates be best, and should camera be well tilted up to good light, and how long exposure should be given? 2. Can you recommend any book on enlarging as above method? 3. Please give formula for stripping film from negative to enlarge film?—A. K.

1. A medium rapidity plate should be used and a full exposure given, and soft working developer, such as metol or adurol, and the transparency kept thin. The camera may be tilted up or not, just as is found the most convenient; the only point to observe is that even illumination is obtained. It is impossible

to give any idea of the exposure, as this will depend entirely upon the strength of light and other factors which we can possibly know. It is preferable to make a transparency by contact from the negative, and then enlarge this. 2. "Photographic Enlargements," by Geo. Wheeler, price 1s., or "Practical Enlarging," by John A. Hodges, price 1s., should answer your purpose. 3. The old formula for enlarging by stripping to immerse the negative in water till soft, then soak in

Hydrofluoric acid .....	1 oz.
Citric acid .....	1 oz.
Glycerine .....	1 oz.
Acetic acid (not glacial) .....	4 oz.
Water .....	32 oz.

till the film lifts at the edges, then coax off and wash two or three changes of water, and transfer to glass. hydrofluoric acid is not pleasant stuff to handle or stock, it is preferable to soak the negative in

Potassium fluoride .....	15 grs.
Water .....	1 oz.
and then transfer to	
Citric acid .....	15 grs.
Water .....	1 oz.

till it lifts. Or it may be soaked in a 20 per cent. solution carbonate of soda for fifteen minutes, and then transferred without washing into

Hydrochloric acid .....	50 minims.
Glycerine .....	1 oz.
Water .....	10 oz.

and then wash and transfer to new glass. The longer the negative is washed the greater the enlargement.

**CHROMO.**—We are not quite clear whether you want to learn the photo-mechanical side or the ordinary processes. Send us card and we will answer you.

**PHOTOGRAPHIC ETHICS.**—If I take a snapshot of a person in the street without his knowing that I have done so, can I, without his permission, publish them as a postcard for sale? Can I stop the sale of them? Does not the copyright belong to me? The person knows nothing whatever about it until he sees prints for sale.—**OLD GRUFFO.**

Unless the snapshot is a libel on the person he has no means of stopping it, and the copyright belongs to you. It is an open question whether it is wise to publish such a thing without the person's permission.

**S. ALTON.**—The alum was the cause of your trouble; this would decompose the hypo, giving rise to sulphurous acid and other sulphur compounds which would gradually attack the silver giving the characteristic yellow stain you obtained. The strength of the formaline is not of much moment, about 1 to 10 will do.

**LENS.**—1. Look through the advertisements of the almanac or the issue of the journal, and make a numbered list, and then we can help you. 2. You cannot have one with a lens which can be used for all plates up to 12 by 10, because for smaller size plates would naturally become a medium or narrow angle, according to the size of the plate. For the largest size an 8-inch should answer well.

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PHIC CONVENTION OF THE UNITED KINGDOM.

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## SUMMARY.

The Key to the Convention Group is issued with this number as a double-page inset. A reproduction of the group, with notes on the card system of obtaining a key, is also given. (P. 572.)

The account of the Convention proceedings on and after Wednesday mid-day, with the papers read, is continued this week. Full reports of Colonel Grant's paper on "The Ordnance Survey Work" and Mr. Clayden's paper on "Cloud Photography." (P. 567.)

Mr. A. C. Braham gives us some useful hints for printing in tri-colour carbon tissues, a subject which at the present time is attracting a great deal of attention. (P. 566.)

Photography as an art craft forms the subject of our leader this week. The article is a plea for the recognition of photography as an art by itself, and not as a means of servile imitation of other graphic arts. (P. 564.)

"The Action of Alums and Aluminium Salts on Gelatine," the translation of a paper by MM. Lumière, which contains some useful practical information. (P. 573.)

A brief note as to the Printing and Allied Trades Exhibition, now open at the Agricultural Hall. (P. 574.)

We would draw the attention of our readers to the fact that the exhibition of flower photography and animal studies by Mr. Henry Levens at our offices, which has been a great attraction, closes to-morrow, July 21.

## EX CATHEDRA.

### The Convention in 1907 and After.

By the selection of Hereford as the place of meeting for 1907 the Convention is accepting the invitation of the Herefordshire Photographic Society, with whose offer of hospitality is joined a hearty assurance of hospitality from the municipality. In electing to the Presidency Mr. Alfred Watkins, of Hereford, the Council has not merely done the inevitable thing in view of its 1907 venue. It has recognised Mr. Watkins's position in the photographic world as that of one whose name is a household word, and whose writings entitle him to be looked upon as the holder of views formed only after a long series of experiments.

### Convention Meeting Places.

By the adoption of a rule proposed by Mr. E. J. Wall and afterwards modified, on the proposition of Mr. C. H. Bothamley, the Convention finally enunciated the policy that whilst it welcomes invitations from towns where its meetings may be held, it may take the initiative in choosing a place, and that by adopting this course it may hold its meetings at places which are highly desirable from its point of view, and yet cannot be expected to invite the Convention. The discussion which followed the proposition showed that the members were content to leave the matter in the hands of the Council, and the publication of their policy and motives should be to the advantage of the Convention for the future.

**Photography a Fine Art.** The Austrian Reichsrat, which may be compared to our House of Commons, has definitely decided that photography is not a mechanical process, but a fine art. This decision, whilst it may at first sight seem somewhat ludicrous, is of considerable interest to professional photography in Austria, because it frees it from certain stringent laws as regards apprenticeship, etc. This decision will not, of course, affect the opinion of those men like Mr. Joseph Pennell and others, who consider photography but a base and degraded mechanical art; nor will it improve the pictorial quality of the average work, though it may hereafter be quoted as a still further proof, by some writers, that the contentions which they have always somewhat blatantly upheld are correct, and have now received the stamp of the Reichsrat.

### The Muddle of the Spectroscope.

At a recent meeting of the R.P.S. a well-known spectroscopic worker was called to order for showing the spectrum with the red end to the left and not at the right, as has been recently decided by some of the leading scientific societies.



This is somewhat confusing at first, as we have all of us been for so many years in the habit of doing just the reverse, which really seems the most reasonable method after all, for we are still in the habit of talking of the A, B, C, D, and E lines, and it comes but natural that these should run as one reads. Even if we throw over this system and adopt the more universal scientific method of talking of  $H\alpha$ ,  $H\beta$  and  $\gamma$ , we still have the anomaly that these read from left to right, and it is quite possible that  $Na_1$ ,  $Na_2$ , will not be recognised as the familiar  $D_1$  and  $D_2$ . Then again  $D_3$ , the well-known Helium line, wants renaming, and the familiar HK lines in the ultra-violet must be called Ca. Supposing we accept the whole of these revisions, we are then met with the difficulty that the complexity of spectra of such simple elements as calcium is so great that one would have to continuously refer to an index of spectra to know what line was meant. One might also argue that the now accepted method is wrong on the ground that the wave lengths first visible are the extreme red, and as the colours brighten so the wave lengths shorten; therefore the logical way would be to record them, as we now read, from right to left.

\* \* \*

**Dissolving Hydroquinone.** A writer in the "St. Louis and Canadian Photographer" states that if any difficulty is met with in dissolving hydroquinone, or if it crystallises out of solution in cold weather, the remedy is to add a little "wood alcohol" and shake well. The term "wood alcohol" is somewhat vague, and may mean either methyl alcohol or wood naphtha, which latter is sometimes called wood spirit. Neither of these additions prove satisfactory in our hands. Both tend to produce a discoloured, cloudy solution with an unpleasant smell, and the solvent effect of methyl alcohol does not seem to be very great, though the wood naphtha is more effective. On the other hand, ordinary absolute alcohol rapidly dissolves the hydroquinone, and gives a clear solution. Very little is required, but absolute alcohol is expensive, and we do not see why it should be resorted to when plain water is just as effective. Concentrated solutions crystallise out readily when the temperature falls, but if the hydroquinone does not exceed eight grains per ounce of hydroquinone stock solution we find no trouble in keeping the solution through cold weather. Solution in the first instance is greatly assisted by using hot water, and possibly a solution so made is less likely to crystallise out than one made in cold water. It is, however, unwise to use boiling water, as this tends to produce colouration. The best method is to add the hydroquinone to a cold solution of the preservative, and then add hot water in small quantities, and shake well between each addition. When all is dissolved cold water can be added to make the required total bulk of solution. By this method solution is complete in a few minutes, while something like twenty-four hours is required if cold water alone is used.

\* \* \*

#### Loss of Brilliance in Negatives.

There is a tendency for negatives made in the hot weather to lack brilliancy, the shadows being veiled though full of detail. Where this occurs there are several points to look to, any one of which may be causing the trouble. The increased strength of the light may be to some extent unallowed for in exposing, with the result that the plates are over-timed. The temperature of the developing solutions rises above the normal, and as a consequence these solutions are more active. They should, if possible, be cooled either by setting the bottles, or if concentrated stock solutions are used, a jug of water

for mixing the developer, in a mixture of crushed ice and salt. Failing ice a pound of crystals of ammonium nitrate may be added to a pint of water placed in a porcelain or wooden tank, and on solution the temperature will be found to fall many degrees. The developer may be set in this nitrate of ammonia solution to develop in the hot weather and to diminish slightly the amount of alkali, though in modifying the formula should be taken to avoid any prolongation of development which might start frilling, or at all events, a generous softening of the gelatine. The dark-room window may be looked to, for if of ruby fabric the bright light of spring and early summer may have bleached it sufficiently to render it inefficient. Another cause of slight fogging is to be found in the condition of the interior of the camera. If the blackness of the surfaces become impaired, or even if a film of lightish dust settles, sufficient light may be reflected to produce distinct veiling of the shadows of the negatives. Further, a camera left in a hot, dry, studio, particularly if it be a piece of new apparatus, may warp somewhat, or glue attaching the bellows dry excessively and come away with the result that slight leakage of light occurs. The camera should be carefully examined with a view to this and any suspicious points attended to.

\* \* \*

#### Specimens of Orthochromatic Work.

We have frequently advocated the use of orthochromatic plates with light filters for certain classes of work, such as the photography of inland furniture, while for picture copying and a large proportion of landscape and local view work their use has been obvious for many years. Even amongst the ranks of amateur photographers there are thousands who not only do not understand the principles underlying orthochromatic photography, but who do not quite appreciate the gain of a colour-corrected photograph. If this be so amongst those who are users of dry plate or film it will readily be seen that the general public understand still less. It would, we think, be worth the professional worker's while to make a few specimens showing the great advantages accruing from the use of the colour-sensitive plate and to have these displayed in the reception room. A water colour or chromo-lithograph of about eight inches by six might be photographed the same size on an ordinary plate as on an isochromatic plate with a suitable screen, and the original and both reproductions could be framed together. Two or three vases of yellow, orange and blue could be photographed in the same way on both kinds of plate, even a test colour chart could be employed. The original should be selected with a view to the production of striking examples. The advantage of such specimens would be two-fold. They would attract attention and improve one's clients with the fact that the worker understood the higher branches of his profession, and they would in many cases lead to additional work by suggesting visitors to one's establishment the photographing of paintings or objects of art. The preparation of the specimens should not occupy more than a few hours if undertaken systematically, and we should suggest the use of a yellow-green sensitive plate with adjusted filter, increasing exposure about thirty times, unless the worker is accustomed to handling red sensitive ortho-plates.

\* \* \*

#### Portable Light Filters.

Much has been heard from time to time of the necessity of employing specially worked glass for the construction of light filters to

sed with the modern highly corrected lens. The last year or so several of the firms making orthochromatic plates have issued light filters consisting of the stained gelatine or collodion film without any supporting or protecting glass, and such stained films have been supplied with the idea of affording the means of making experimental exposures. We were discussing the matter with a landscape worker the other day, and he admitted that until quite recently he had carried two or three comparatively thick cemented filters about three inches square, but that he now used the stained film mounted on a card, which was clipped to the front of the roller blind shutter held inside the camera. The saving in bulk and weight was a consideration when doing a long day's tramp, and so far he had found no falling off in definition, even when using such apertures as  $f/8$ . We do not see why the film idea should not be taken a step further and films issued mounted on a slip of black cardboard at the cost of a few pence. The filter could then be slipped behind the lens, which is undoubtedly the best position for it, just as received and without the necessity of any trouble in attaching to card. A convenient method of holding the card behind the lens is to cut two small V shaped notches or snips in the opposite ends and to screw into the woodwork two little round headed screws. The card may then be sprung into position and will hold quite firmly yet may be removed in a moment.

\* \* \*

#### Halation in Portrait Negatives.

With the more brilliant lighting usually obtained during the summer season the risk of halation is considerably increased, and the careful portrait worker takes

steps to avoid what is a serious blemish to a good photograph. To back plates when loading them into the slides of a studio camera is so simple a matter that there is no excuse for its not being done in every instance. If the plates are to be developed immediately after exposure it is well to use a slow-drying backing preparation which may be readily removed with a damp sponge as soon as the slide is returned to the dark-room. Where development is left until the end of the day the backing should be, at any rate, nearly dry before the plates are placed in the storage boxes. They will, of course, be placed film to film. It would probably be better to employ ready-backed plates in order to obviate the risk of the backing causing the plates to stick together if not quite dry, and the extra cost is so slight that it is certainly worth while to the "one man" studio-worker in the saving of time. Another point, if the avoidance of halation is sought, is to use an orthochromatic plate. We believe one of our best architectural workers employs them with very satisfactory results for this reason, and only a day or two ago we saw a little interior of an ordinary room taken on such a plate in which two windows were included, the sash-bars and even the details of the muslin curtains being perfectly clear and free from halation. The plate had not been backed, though the result would in many cases be improved if this were done. We are, of course, referring to the use of the orthochromatic plate without a light-filter, for, as is known, halation is more pronounced when using the filter, owing to the diminished latitude, the plate possessing less opacity to the light forming the image. The orthochromatic plate exposed through a light-filter should invariably be backed, preferably with black backing.

\* \* \*

#### Wanted!

The wants of the photographer are numerous, and under this heading we might mention improved specimens of nearly every article that he uses. But the particular want that we have in mind is a com-

paratively humble one, and possibly many photographers do not realise that it is a want. They think that they have it already, and do not realise the ill effects of its absence, which effects are subtle and difficult to detect, though very deleterious. The thing may appear simple, but it is not so in fact, for many brains have puzzled themselves vainly in attempts to supply the want, which is that of a good dead black. Dead black, so-called, "varnishes" are numerous, but none of them are really "dead black," or as efficient as is desirable. Chemical methods of blackening metals are equally unsatisfactory, and, whether chemical methods, varnishes, or stains are used, the method that gives the nearest approach to a dead surface also gives one that either flakes off or becomes glazed on very slight friction. A glance inside a camera will always reveal a quantity of white light reflected from a number of so-called dead black surfaces. The lens mount, the woodwork, and the cloth-lined bellows all contribute their share, and there is no doubt whatever that the image on the plate is materially degraded or "fogged" by this reflected light. It does not appear that this should be one of the problems that can never be solved, but we doubt if it will be solved until lampblack is definitely abandoned as the pigment and is replaced by some other substance that will not polish on rubbing. It appears to us that the solution of the problem depends on this, but we have not found any suitable substance, and cannot make any suggestion beyond one that the need of a good dead black is an urgent one. The inefficiency of the ordinary varieties of dead black varnish is proved by the fact that we habitually use one as a black polish. One or two coats of the varnish and a slight rub with a cloth gives almost exactly the effect of polished ebony.

\* \* \*

#### Keeping the Studio Cool.

Up to the time of writing we have had warm weather but no great heat. It is little use, however, suggesting methods which may reach our readers too late, and precautionary measures must be suggested beforehand. In the first place, those studios in which the sun strikes the glass are almost always the hottest. If, therefore, some form of blind can be erected which will prevent this, an important step has been taken. With a ridge-roof studio glazed on one side only, and that the north, it is a simple matter to run a screen of light boarding attached to a firm framework so that even at midday the sun's rays will not reach the glass, while the light needed for photographic work will be quite uninterfered with. Where the worker is unfortunate enough to have his glass towards the south, south-east, or south-west, it is obviously impossible to so screen the glass, but even then we think a white calico blind, or blinds, might be fitted outside the glass and about a foot away from it, so that the direct rays of the sun were excluded, the intervening air space being heated rather than the air inside the studio. The white calico would also reflect the heat to a great extent, and if it obscured the light too much for rapid exposures it might be drawn up on its roller while sittings were being made. The white painting of wooden studios aids materially in keeping them cool, and it is often worth while painting a slated roof, particularly if the inside ceiling or match-boarding is near to the slates, the air space being slight. Very efficient ventilation must, of course, be arranged, the outlet being as near the ridge as possible, while the inlet should be near the floor. Ice is so readily obtainable, and at such a low price, that in very hot weather its aid in rendering the studio comfortable may always be secured. A block of ice, especially if arranged in a little fernery with a tiny fountain, always makes the studio look delightfully cool.



## PHOTOGRAPHY AS AN ART CRAFT.

MR. HORACE MUMMERY in his lecture on "The Picturesque in Landscape" dealt severely with attempts to produce by photography results that bear a resemblance to those produced by other graphic methods, such as crayon sketches, etc. His point of view was, of course, that taken by all artists, but, unfortunately, it is not the point of view taken by all photographers, many of whom evidently have yet to learn that such resemblances are artistic crimes if produced intentionally, and misfortunes if they occur accidentally.

The methods of every genuine artist are governed by his materials, not as a matter of compulsion, but intentionally, because long experience has shown that no good results can be produced otherwise. This law is well understood by every painter, sculptor, architect, or designer or craftsman of repute in the big world of art, and, in that world, it is ignored only by the cash-at-any-price individual, who lives on "pot-boiling" and "taking in washing," and by "ghosts." Why then should it be ignored as much as it is by photographers? The usual argument, or rather excuse, seems to be, "We don't imitate painter's methods, intentionally, but if a photograph happens to resemble a chalk or a water-colour drawing or sketch, what harm is there in it? If a chalk drawing is pleasing and a photograph that happens to look like a chalk drawing is also pleasing, one should be respected as much as the other." Arguments of this sort only serve to show the want of general art training among photographers, to which want we referred some time ago in an "Ex Cathedra" note on Mr. J. C. Dollman's lecture at the Society of Arts. The answer is simple enough to anyone who has been through that training; and it is this: The only kind of photograph that can be called a work of art must exemplify the beauties of photography which are peculiar to photography. A result that resembles a chalk drawing shows evident want of consideration of these special beauties, and never by any chance does or can resemble anything but a very bad chalk drawing. The contention that imitations are not made cannot be supported, for we have seen many of them.

At various times and various exhibitions we have seen imitations of red chalk sketches, and of charcoal sketches on brown paper. We have seen imitations of engravings and of pencil drawings, and even imitations of pencil line work that must have required a deal of misdirected energy to produce. These things had none of the quality of photographs, while, if they were to be judged as chalk, charcoal, or pencil sketches, only one verdict could be possible, and that would be "bad." Any art student could easily reproduce these efforts in the actual materials that they resembled, but we should feel sorry for him if he were to be so rash as to submit the results as examples of his own work to his master. The value of any artistic method or material depends on those particular qualities in which it differs from others. It is possible to make water-colour drawings and oil paintings that closely resemble one another, but there is no art in so doing, for both results are essentially defective. The one does not show the beauty peculiar to water-colour, nor the other that peculiar to oils. The same thing applies to photographs. The more a photograph resembles the result of a different method the less meritorious is it as a photograph and the less is its artistic value. It is sometimes argued that if a

man cannot use crayons he is justified in getting as near to a crayon result as he can with the aid of photography. But a water-colour painter who cannot use oils and the fore tries to imitate them in his own media, does nothing more than waste time and lose reputation, and the same thing applies to photographers, though, up to the present too many fail to appreciate the fact.

This brings us to the consideration of what are the peculiar beauties of photography that must be exemplified in a photograph that claims to be a work of art. The first is undoubtedly delicacy. Delicacy of drawing, delicacy of detail, delicacy of gradation in light, shade, and shadow. All which *can* be attained in the craft of photography in a manner that cannot be rivalled in any other craft, and all which are often condemned, either separately or *en bloc*, by the untrained artist on the very ground that nothing like these qualities is to be found in the work of other craftsmen. Possibly he imagines that the water-colour painter neglects these particular qualities for choice, but if he will spend, say ten years, in the study and practice of water-colour painting he will find that anything approaching the peculiar delicacy that is possible in a photograph is unattainable with brush and colour. He will learn enough to regret this impossibility, while at the same time he will learn how skill can render the limitations of a craft of small consequence by utilising to the utmost its possibilities. The want of the photographic type of delicacy in a fine water-colour drawing is rendered of no account by bringing out in full force all the beauties peculiar to water-colour and impossible in photography.

The second great quality of photography is the truth attainable. The true delineation of the form of the object in front of the camera is of value and so also the true representation of gradation, which involves the true representation of distance and of perspective. Nothing but practical training will probably convince the average photographer that these things are of any value, and even that training may fail. When acquainted with the hopeless inadequacy of brush, pen, and pencil for purposes of absolutely true delineation he is apt to think that what we may term truth of sentiment (which is the artist's compensation for want of true delineation, and is, in fact, one of his most valuable assets) is the thing to be aimed at in photography, while the other form of truth can be safely neglected. As a matter of fact, this quality we have termed truth of sentiment is more of a subjective than an objective fact. The precise nature of the sentiment differs with the observer, and, while the painter can paint his own impression of the sentiment (which is the truest and highest form of "Impressionism"), the photographer can only represent what is in front of his camera, and if he neglects to represent that truly, he neglects the greater part of the truth that his craft is capable of giving. As a rule he does not consider this kind of truth to be of any value. He thinks it is attained automatically, without his personal control; and, if he belongs to a certain cult, he considers the advertisement of his own valuable personality to be the touchstone of art in any work produced by himself. He is, however, wrong all through. The perfect delineation attainable in the camera is very rarely attained, and very seldom is it seen on the walls of an exhibition. Take for example the representation of distance, which is a most difficult problem to the painter, and such a comparatively easy one to the photographer. How seldom do we see a photographed distance, and often a faked smudge that is supposed to represent it?

The impossibility of absolutely perfect drawing is one of the limitations that guide the painter into the path where the greatest possibilities of his craft are available. The

possibility of representing anything that is not in front of the camera is, or should be, a limitation (*i.e.*, guiding boundary) leading the photographer to understand that he must make the utmost use of the unrivalled facilities of his craft in delicate and accurate rendering. If he neglects these he has practically nothing left of value, and the result will only serve to illustrate the well-known facts that the photographer is dependent on "taking things as they are," and that his craft, minus its most characteristic possibilities, is woefully inferior to that of the painter.

### ALBUMEN VERSUS GELATINE.

ACCORDING to some recent writers it seems to be an admitted fact that prints on albumen paper are more permanent than are those made on gelatine papers. Also that they possess better all-round qualities. The latter may at once be conceded—according to the majority of opinions. But the former may be open to question—or at least so far as the modern method of produced albumen pictures is concerned. It is an undisputed fact that there are hundreds of albumen prints in existence that were made in the fifties and early sixties that, up to the present, show no actual signs of deterioration so far as the image itself bears evidence. The whites in some instances may show some trace of yellowness, but the actual image is as strong and vigorous as ever. These facts are proof that albumen prints have been made that are, to all intents and purposes, permanent pictures. This is very strong evidence, and it is probable that it is on this fact that some writers assume that albumen prints are more stable than gelatine ones, seeing that so many of the latter show unmistakable proof, after a very short life, of material change.

Will, however, the albumen prints of the present day prove of the same stability as those of the earlier days of photography? We question it, as quite different conditions prevail now from those that existed some forty or more years ago, and it may be well to explain to modern workers what they are, although it is not the first time that the subject has been dealt with in these columns. It may be pointed out, at once, that prior to about 1860, all the albumen prints were, of course, made from collodion negatives, and they were toned and fixed in a combined bath, which was an exceedingly strong one and contained only hyposulphite of soda, chloride of gold, and water. The proportion of hyposulphite of soda was usually ten ounces to the pint of water. The toning of the prints was a slow operation, usually taking an hour or more and frequently much longer, so that there was no question then about their being completely fixed long before the desired tones were obtained. Frequently, however, the bath was used long after it was quite exhausted of its gold, as is often obtained by sulphur toning. Yet many of these sulphur-toned prints have withstood the test of time, and though the lights, in many cases, have become yellow, the images themselves are practically intact.

Let us now examine the conditions under which these old photographs were made. In the first place the paper was distinctly different from the albumen paper of to-day. It was but comparatively slightly albumenised, and the albumen was heavily salted—containing about double the

amount of chloride that is used at the present time. This paper was sensitised on very strong solutions of nitrate of silver—usually from eighty to a hundred grains to the ounce of water, and no organic acid whatever was added. Here we see at once some of the differences prevailing then and now. But this only a part and not, perhaps, the most important one. The negatives made up to the time just referred to were developed with pyrogallie acid and were made very dense, and often took a whole day to print. The kind of density then was, again, different from what is termed density in gelatine negatives. Although the high lights were so very strong, the shadows were clear glass, and, as a consequence, when printed, the shadows were strongly bronzed. The bronzing, however, disappeared in the strong toning and fixing bath. When the prints were taken from the printing frame the image usually showed strongly on the back of paper, thus proving that it was largely in the paper itself, and not confined, as at present, only to the albumen on its surface. It necessarily consisted of a large quantity of metallic silver, which required, as a matter of course, a considerable deposition of gold in order to obtain the rich purple tones then in vogue. Hence it will be realised that by reason of the large quantity of metal of which the image was composed it could better resist deleterious influences than would the extremely attenuated ones such as we get on modern lightly salted and lightly sensitised albumen paper when it is printed from weak negatives of the present day. If anyone will take the trouble to unmount one of the very early albumen prints, and examine it by transmitted light, he will at once see how exceedingly strong is the image, and how much it is in the paper as compared with a modern albumen picture.

In the early sixties iron generally superseded pyrogallie acid as a developer, but the negatives were still made very strong and dense. In fact, at that time density was one of the qualities looked for in a good negative. It was about this period that the alkaline method of toning became universally adopted, and the old toning and fixing bath abolished. Few old family albums there are that do not contain some *carte* portraits, taken about that time, that still show no sign of fading. At that time long washing was considered necessary in order to secure stability, and ten or twelve hours were often given. In some cases even the prints were left in water from the Saturday night until the Monday morning. This long washing was, of course, a fallacy which has long since been dispelled, and it obviously had some injurious action on the pictures, yet owing to their robust constitution, they withstood it. But we much doubt if albumen prints of the present day would do so without a considerable loss in tone and vigour.

Apart from the strongly salted and sensitised paper that used to be employed at the period to which we refer, it will be seen from what has just been said that the negatives, by reason of their great vigour, were an important factor in the case, as they caused so much metal—silver and gold—to be reduced in the printing and toning. Weak negatives were of no use with the old albumen paper.

The object of this article is to point out that the old albumen prints made forty or fifty years ago, good as many of them still are, cannot be taken as conclusive evidence, as some writers seem to have done, that present day albumen pictures, made on the modern highly albumenised and lightly-salted and sensitised paper, printed from comparatively feeble negatives, will prove so much superior, as regards permanency, to those made on gelatine ones—all things, as a matter of course, being equal in the care bestowed on their production.



## TRICHROME CARBON PRINTING.

PROBABLY no one cause militates against the adoption of trichrome carbon printing as much as the supposed difficulty of multiple double transfer. The idea of difficulty, however really springs from failure to recognise that the conditions that might cause trouble with the transfer of a print printed deeply in a single tissue (thus giving an image in comparatively high relief, with abrupt steps from light to deep shadows) do not apply to the lightly printed images forming trichrome carbon prints, as the deep shadows in the complete print consist of three thin images separately transferred.

Thin transparent celluloid, is I am convinced, the most convenient temporary support to employ; held upon a piece of opal during development it allows the depth of image to be correctly judged; there is, of course, no stretching and no absorption: a decided advantage in making a number of prints, as time is gained in drying between successive transfers.

### The Sensitising Formula.

Sensitising should preferably be done in a bath of fine recrystallised, or granulated bichromate, without the addition of ammonia as there is a slight tendency to frill with trichrome tissues; two minutes' immersion is desirable, as that time ensures complete diffusion of the sensitising solution through the tissue.

### Timing Exposures.

Approximately correct exposures will be in the ratio of two for the yellow image and one for the red and for the blue; as the needful exposures are very short the use of an actinometer for each exposure is not generally convenient, but a reliable method is to gauge the strength of the light by any actinometer with which one is familiar, that is to say, to measure the time taken to secure a standard tint and to give proportionate time exposures to the three images.

Absolute uniformity and correlation between the three exposures is not likely to be secured, but when a number of prints of slightly varying depths have been developed they can, by superimposing the images on the celluloid, be separated into threes which combine harmoniously together.

### The Temporary Support.

The celluloid temporary support must be waxed each time before use, using as little waxing solution as possible to form a film on the celluloid, which should be at least two inches larger in each dimension than the transfer paper it is intended to use. Support the celluloid on a piece of opal during development; this allows the hot water to be splashed on the celluloid without fear of buckling, and enables the progress of development to be readily judged. When the prints are considered to be correctly developed they should be put into cold water to stop the action, and may then be matched in threes by putting yellow, red and blue images on each other, judging their correctness, any image too deep being put back in the hot water for further development, or employed with other deep images to form a dark print.

### How to Transfer.

Tissue and transfer paper should both be cut in the same direction of the band, the expansion of paper being negligible in the direction of the length of the reel of paper, but appreciable in the width; the image on the celluloid will, of course, be larger than the negative by the degree of the expansion of the tissue; the transfer will, however, have expanded in the same degree, the register will be assured, expansion of the transfer being constant each time of wetting, provided the soaking is sufficient. The yellow image may be transferred without previous drying—the transfer paper, preferably a smooth single transfer, having previously been soaked in cold water for at least half an hour, and then in hot water 130-150 deg. Fah., till the coating of hardened gelatine feels soft and slimy. When this condition arrives, put the transfer back into cold water and then bring into contact with the yellow image on the celluloid and lightly squeegee.

The celluloid and paper should then be laid flat to dry, as hung up there is a risk of the paper, in shrinking during drying, buckling the celluloid and so splitting from the image. If, however, laid flat to dry, the paper in shrinking will cause the celluloid to curl to a slight but regular curve but will not buckle it. Allow to dry spontaneously in a warm room. The print when dry will generally strip itself without assistance.

When stripped it is necessary to remove the waxing compound adhering to the yellow image before applying the red image. This may be done by rubbing the surface with a rag wetted with a mixture of equal parts of benzole and turpentine, and then while still wet, rubbing with a little tripoli on a rag, polishing with a clean rag and the benzole-turpentine mixture. Allow to dry and then put in cold water with the red image on it; celluloid base, allow five minutes for expansion, then put both into a transfer solution made of 1 oz. Nelson's No. 1 cut gelatin to 60 ozs. water. This weak mixture will readily liquefy when warmed and remain fluid at 70 deg. Fahr., which temperature should not be exceeded. Bring the two images into contact avoiding air bells, withdraw from the solution, placing the paper downward on any rigid support; the celluloid image can then be gently shifted until in register, then held in position by one hand while the squeegee is applied lightly.

The adhering images must then be allowed to dry spontaneously as before. When stripped, the compound yellow-red print must be freed from the waxing compound, soaked in cold water with solution, adjusted and squeegeed as before, dried and stripped. If a glossy surface print is desired the print may be left as it is, otherwise it should be rubbed with the benzole-turpentine mixture, the tripoli not being needed as there is no longer any question of securing contact.

The celluloid before rewaxing should be washed in warm water to remove any trace of gelatine adhering from the transfer solution.

A. C. BRAHAM.

THE BRITISH JOURNAL OF PHOTOGRAPHY—the "Times" of the photographic world—says "A.A.O." has been stirring up photographers to impress themselves rather more upon the twentieth century. It thinks that some of them are a little mediæval. It has urged them to consider various ways of advertising their business. Certainly all of us must keep up with the procession if we want to hear the music. If the photographic art needs any helper, we certainly feel as ready to help as any barrister is ready to rush to the defence of injured innocence—for a consideration. Why should not photographers seriously set themselves to supplying photographs of all the topical events which lend themselves to such representation,

and which are suited for reproduction by the engraver. And send them to us to engrave. We put to them the "Hypo"-thesis that there is a good deal to be made in this way.

"A.A.O." with apologies to T. P. O'Connor, M.P., or "All About Ourselves," is the title of the last and first issue of a twelve-page journal, dated July, which has been published by Carl Hentschel, Ltd., which, like the other bright one-issue journals which have emanated from Fleet Street, is good printing, and bright and breezy in matter, though naturally being "all about ourselves," might draw on it the reproach of being egotistical, but in these days a little or lot of this pays.

# THE PHOTOGRAPHIC CONVENTION OF THE UNITED KINGDOM.

## TWENTY-FIRST MEETING IN SOUTHAMPTON.

annual meeting was held in the Philharmonic Hall on Wednesday, president, Mr. E. J. Humphery, in the chair. As reported in our last, the invitation of the Hereford Photographic Society was accepted for 1907, and a letter was also read in the Mayor of Hereford cordially seconding the invitation to the society. The following were then elected on the council for the ensuing five months:—

G. B. Bainbridge, Morpeth.  
Harold Baker, Birmingham.  
Godfrey Bingley, Leeds.  
G. E. Brown, London.  
Henry Coates, Perth.  
C. C. Cook, Southampton.  
W. J. Croall, Edinburgh.  
T. R. Dallmeyer, London.  
W. E. Dunmore, London.  
Alfred Ellis, London.  
S. H. Fry, London.  
T. K. Grant, London.  
C. B. Keene, Derby.  
Sydney Keith, Hounslow.  
Furley Lewis, London.  
C. Phipps Lucas, London.  
F. J. Mortimer, London.  
A. F. Mowll, Liverpool.  
G. W. Norton, Oxford.  
Rev. T. Perkins, M.A.,  
Blandford.

Walter F. Potter, London.  
Ralph Robinson, Redhill.  
J. A. C. Ruthven, Dublin.  
F. G. Ryder, Southampton.  
P. R. Salmon, London.  
F. H. Sanderson, Cambridge.  
T. Scotton, Derby.  
A. Seaman, Chesterfield.  
H. M. Smith, London.  
W. H. Smith, Purley.  
Henry Spink, Brighton.  
W. Taylor, Leicester.  
G. T. Vivian, Southampton.  
J. H. Walker, Leeds.  
E. J. Wall, London.  
H. Snowden Ward, London.  
Maj.-Gen. J. Waterhouse,  
I.S.C., London.  
J. B. B. Wellington, Elstree.  
A. Werner, Dublin.  
S. H. Wratten, Croydon.

Mr. E. J. Wall, who was unable to be present, proposed that no invitation should be accepted for the 1906 meeting, and that a committee of five members be appointed to determine the town for that occasion, and to report to the Council. After considerable discussion and numerous amendments, it was unanimously adopted that: "Whilst the Convention will welcome invitations to hold annual meetings at particular places, they do not bind themselves to accept such invitations, and that it be the duty of the Council to report at each annual meeting as to the place or places which they consider suitable for the following meetings."

Mr. F. A. Bridge, the hon. sec., proposed a hearty vote of thanks to the local committee, and Mr. S. G. Kimber, for their arduous labours, which was duly acknowledged. A hearty vote of thanks was accorded to the hon. sec., and the members paid a visit to the Ordnance Survey Department, and thence to the group, the reproduction of which was given in our last, and the key to the same being issued with this number.

The annual dinner was held at the South-Western Hotel in the evening, the Mayor, Councillor H. Cawte, and Colonel Grant being amongst the visitors.

After the loyal toasts, Mr. C. H. Bothamley proposed "The Photographic Convention of the United Kingdom," which was responded

to by Mr. F. A. Bridge, who said that the future of the Convention was very largely in their own hands—a fact he did not want them to fail to realise. The way to ensure success was to take an even greater interest in its works and doings, and he wanted them to make the Convention a mirror through which could be seen the present and future of photography and photographers. He referred to the splendid welcome they had received at Southampton, and said they were all very much obliged to the local gentlemen who had worked to ensure comfort and success. Southampton possessed an excellent camera club, and the officers were hardworking men, who were doing their best for the advancement of photography. He had great pleasure in proposing "Success to the Southampton Camera Club."

Mr. Burrough Hill (President) was the first to respond on behalf of the local club, and he spoke of the great energy and enthusiasm which had been displayed by their secretary (Mr. Kimber), to whom much of the success of the club was due. He gave up a lot of time to the work of the club, and he deserved their best thanks. Mr. Hill referred to the natural beauties with which Southampton abounded.

Mr. Kimber (the local secretary) also responded, and said he considered it a very great honour to be allowed to reply in conjunction with the President. Mr. Burrough Hill had rendered the club splendid service, and they could not speak too highly of all he had done for them. The Southampton Club had been in existence for ten and a quarter years, and he thought he might say that during that time they had made themselves known in the photographic world. They esteemed it a great privilege to entertain the leading lights of the photographic world, and he was sure the club would benefit by the visit of the Convention. He acknowledged the many kindnesses which had been shown the club by many of the best photographers of the day, and he desired to take the opportunity of thanking Colonel Grant for having conducted them over the Ordnance Office that day.

Mr. Horsley Hinton proposed the toast of "The Visitors," and mentioned that they had representatives present from all parts of the world, including Australia, France, Belgium, and Holland.

The Mayor suitably responded to the toast, and expressed the hope that the Convention would enjoy increased success and prosperity now it had "come of age."

Mr. Rouse (Australia) and Mr. Ernotti also responded. Mr. G. Davison proposed "The Health of the President," which was enthusiastically drunk, and other toasts were "The Press" and "The Ladies."

On Thursday an excursion was made to the New Forest, Lyndhurst being the starting point, and, notwithstanding a brief but sharp thunderstorm, a most enjoyable day was spent.

In the evening a paper by Mr. A. W. Clayden was taken as read, and Mr. Horsley Hinton also spoke on "Combination Printing." Following these was a chat by Mr. F. Martin Duncan explanatory of his extremely fine series of cinematograph pictures of insect life, which, judging from the frequent rounds of applause and the large audience, was most thoroughly appreciated.

## METHODS AND HISTORY OF THE ORDNANCE SURVEY.

COLONEL GRANT delivered an interesting and highly instructive paper dealing with the methods employed at the Ordnance Survey Department. Although, he remarked, in introducing his subject, the programme stated his notes would be in reference to the processes of photography employed at the Ordnance Office for the reproduction of maps, he thought it might be interesting to them if, with the chairman's permission, he prefaced his remarks with a few notes on the history of the Ordnance Survey itself. In the short time at his disposal, it was impossible to give the history properly, and there would be a great deal he would have to leave out which might be of interest to some, but he could not under the circumstances help that. He was, he said, afraid that

survey and the reproduction of maps was a very serious subject, for he had been thinking all day whether there was not some humorous side to the question, and after going back over thirty years he could not think of one single joke in connection with it in all that time, and would be bound to treat the matter seriously. But with reference to survey and map reproduction, he could not do better than quote from a book, which was published thirty years ago, which stated that there was perhaps no great national work in this country which had hitherto been so little appreciated or understood as the Ordnance Survey. Certainly geographers and men of science, both at home and abroad, had learned to estimate it at its true worth, but, except in Ireland and Scotland, where it had made



more progress than in England, and where its uses and advantages were somewhat better known, the general public were by no means fully alive as yet to the great national value of accurate large-scale maps. Thirty years ago that was absolutely true, and it was true to-day. The objects to which national maps might be put were the following—the valuation of property for the equitable adjustment of taxation and assessment, the sale and transfer of land, railway and other civil engineering works, such as the construction of roads and canals, large sanitary and drainage schemes, military engineering works, hydrographical, geological, and mineral surveys, the reclamation and improvement of waste lands and of land from the sea, transactions affecting land as between landlord and tenant, statistical surveys, and the setting out and adjustment of parochial and other public boundaries. He mentioned them, he said, just to set them thinking and to help them to realise the usefulness of the work. After the Paris Exhibition of 1867, the French Government had a committee of officers to go into the whole question of the survey of foreign countries. They did so, and of the Ordnance Survey they said it was “a work without precedent and should be taken as a model by all civilised nations.” Speaking of the history of the Ordnance Survey he said it was now under the Board of Agriculture, previously it was under the Office of Works, before that under the War Office and under the Master General of Ordnance, from which it derived its name.

The first State survey that was made was probably after 1745 in Scotland, when it was found necessary, in order to follow the Scotch into the Highlands, to have a survey, and a map of one inch to the mile was made; this was not a trigonometrical survey. To get to the trigonometrical survey they must go on to the year 1784. It was then found desirable by astronomers to measure exactly the distance between the observatories, on the meridian, of London and Paris, and that was accomplished, the English doing the English side and the French doing the French side. The base line was measured on Hounslow Heath. This was finished in 1786, and then having got that triangulation the Government decided to go on and have a general survey. The new triangulation was begun from a base on Salisbury Plain, and so the survey progressed on a scale of one inch to the mile till 1824. In that year Ireland wanted a survey for the re-assessment of income tax, and it was decided to survey Ireland for that purpose, and as the small scale was considered inadequate, a scale of six inches to the mile was agreed to. Ireland was then surveyed at that scale, whilst England up to York had been only done at one inch to the mile. For once the sister island was satisfied that she had got the Government to do what she wanted, but he did not think she thought so long, for the income tax was raised by £50,000 a year. That survey in 1840 was finished, and the surveying parties came back to England, and the country having now got a six-inch survey saw the usefulness of it. Some people saw the advantage of a big survey, and twenty-five inches to the mile was the scale proposed and discussed generally, and between the years 1851 and 1860, Parliament could not make up its mind what to do. Then began that long controversy which has been well termed the “battle of the scales,” and which for eleven or twelve years seriously retarded the progress of the survey, and led to a large waste of public money. Between 1851 and 1862 no fewer than three select committees and one Royal Commission deliberated on the scale for the survey, and fourteen bluebooks were presented to Parliament. In 1851 the six-inch scale was stopped, and the one-inch reverted to; in 1852 the six-inch was ordered again. In 1853-4 the Director of the Survey was for fifteen months without orders for any scale at all. In 1854 the scale of one inch to the mile was partially adopted, and in 1856 Parliament sanctioned the prosecution of the work on this scale, whilst in the following year they refused the money for carrying it out. For twelve years the controversy went on, and £30,000 was lost. Now, the survey was made on the twenty-five inch scale, on which was, and is, based the smaller scales of the survey. The beginning of the survey was a triangulation, and he wished to put some force into the statement. It seemed perfectly simple, but there were undoubtedly a number of people who think they could make a survey without a triangulation. It would be difficult to go deeply into the question, and there was not time for him to explain why they could not make a survey of three or four places and put them together and make maps. They

must take his word for it, it could not be done. In a national survey the truest economy was to grudge no expenditure required to make the triangulation as accurate as possible, as it could be made with the instruments available. It was, of course, not accurate as it was now, the chief instrument being a 36-inch theodolite, made by Ramsden about the beginning of the last century and the work done with this instrument was, as the French said, quite a record of accuracy at the time; but modern instruments had enabled triangulation to be done with still greater accuracy, and the instruments of modern make and much smaller size would do equally good, if not better, work. The principal triangulation of the British Isles was begun in 1784 and finished in 1852, and by means of it the positions of about 250 trigonometrical points were determined. Two principal base-lines and four bases of verification were measured in the course of the triangulation. The former was situated on Salisbury Plain, and on the border of Lough Foyle in Ireland, and some idea of the excellence of the work might be obtained from the fact that on a subsequent occasion, when a portion of the Lough Foyle base was re-measured, it was stated that the only difference in the measurements was only one-third of the finest dot that could be made with the point of a needle. He had, he said, no time to enter into any detailed explanation of the other scientific works which were carried on side by side with the large triangulation, such as the astronomical observations, pendulum, levelling, tidal, and magnetic observations, by means of which triangulation, besides being useful for the survey of merely a smaller area of ground, was extended into a means of determining the figure of the earth and the density of the earth, and, again, to assist in the solution of astronomical and geometrical problems of the greatest magnitude.

They must now proceed, he said, with the question of the reproduction of the maps themselves. This was done at the Ordnance Survey Office at Soton, and the process was a most interesting one. In the library of the office they could see specimens of the maps of the various types, from the biggest scale, which was drawn upon a scale of ten feet to the mile, down to the smallest, and the former, ten feet to a mile or 1-500, was shown every lamp post and every gate, and every step to their houses. The maps were drawn to this scale at one time for every town of 4,000 inhabitants, but it became such a great business that when the question of revision of the survey came to be considered, the Government came to the conclusion that the municipal bodies ought to look after it themselves, and the Ordnance Survey did not revise them unless the corporation asked them to do so, in which case they would have to pay the difference in cost between the revision under the big scale and the Government scale of 25 inches to the mile. The general survey of the whole of the country, which was done at the scale of 25 inches, contained the area of every field, but it did not show the undulations. All the survey maps were done at the 25-inch scale, and the smaller ones were reduced by photography. On the six-inch maps they gave the contours, which showed the relief of the country. Next to the six-inch they had the one-inch, and they showed the contours, and were published in various styles, and in both black and in black and colours. These were the new coloured editions. The one-inch scale was, ten or twenty years ago, considered to be quite a small one, but since the increase in popularity of motoring and bicycling there had been a demand for maps on smaller scales. In the library there was also to be seen one of Ramsden's theodolites, which he had alluded to, and which was the first one used for a grand national triangulation. He then proceeded to explain the two processes used at the Ordnance Office for the reproduction of maps, which were not engraved on copper plates. One was called Heliozincography and the other Vandyke. Both processes depended upon the principle that a bichromated colloid substance became insoluble in water on exposure to the light. The first was the process of making the drawing on the zinc plate itself, then making a tracing on paper in lithographic ink, and transferring that bodily to the zinc. Then photography stepped in, and instead of making a drawing by hand in 1859 the process of Heliozincography was invented at the Ordnance Office. By this means, instead of making a drawing by hand, the original drawing was photographed and a negative obtained. From this negative was made a bichromated gelatine print, and the print was laid down on the plate. The great

advantage of this process to map making was that the gelatine print, having to be developed in water, all accurate scale of the map was consequently lost, due to the shrinking of the paper print. The improved process of Heliozincography by which the negative was printed direct on to the zinc plates without the intervention of any paper print at all guaranteed the fixture of the scale, for this impression of zinc plate was bound to be the same scale as that on the negative. This process was worked out and introduced into the Ordnance Survey Office in 1893. But it was, he said, only just to say that the process had been foreshadowed in theory some years before by General Waterhouse, although it had not been put into practice by him. To obtain the best results of Heliozincography it was always arranged to make the original transfers on enlarged scale, so as to reduce them in the camera. If that was done he felt confident that the process of Heliozincography was the best process at present existing for reproduction of maps which were not too crowded with very small detail. He would remind them that in Heliozincography the zinc plate was made by printing through

a negative. About three years ago a process, now called the Vandyke process, after the name of its inventor, was introduced, by means of which the photographic camera and negative were dispensed with altogether. The zinc plate was prepared by printing through the positive drawing itself, and therefore the subsequent operations were removed. He would not go into further details, because they would see the operations in working order during their visit to the Ordnance Office the next day. He would only wish to point out to their attention that this Vandyke process gave no trouble in the case of reproductions from tracing paper, but they had brought it to such a state of perfection that all their large plans were reproduced by that method, although they were drawn on paper as thick and heavy as Whatman's hand-made paper, weighing 216 lbs. to the double elephant ream. The size of the glass plates used at the office measured 45 by 30 inches, and it would be interesting to any photographer who had a knowledge of the old wet plate process to see the velocity with which practice enabled the operator to coat such large plates with the collodion merely by hand.

### SOME NOTES ON CLOUD PHOTOGRAPHY.

PERHAPS the most remarkable feature of modern photography is the way in which the camera is rapidly replacing the eye of the skilled observer for all sorts of scientific investigations. The record is permanent, the fact it establishes cannot be easily explained away, and deductions based upon it can be reviewed and checked in a manner which was quite impossible when the sole evidence was a sentence or so in an observer's notebook.

Nor is this all. There are ways in which the sensitive film surpasses the retina and renders possible innumerable discoveries which, without it, would have been beyond our reach. I need only mention the marvellous revelations which the camera has made in the realm of astronomy and astrophysics. The camera, by prolonged exposure, can see things which no telescope, such as we can imagine can ever render visible to the eye. Photographic action is cumulative, but if an object is not bright enough to affect the nerve endings in the retina within the tenth part of a second it will never be visible at all.

In other branches of science the camera has rendered invaluable help by enabling us to record events which are so brief or so rapid that the eye cannot follow them, such as the analysis of the gallop of a horse, the study of the waves of air before a flying bullet, and even the movements of the waves of sound.

The cinematograph has given us yet another power, which has not been much used, but which might yield most instructive results. That is, to employ it for the movements and changes which are too slow to be adequately realised. For instance, if a plant, such as a sweet pea, were photographed from the same point of view at suitable intervals, and the photographs were then combined and projected on the screen in rapid sequence, we might watch the growth and development of the flower, the processes by which the leaves unfold, and see the tendrils twisting round the supporting sticks. The same method might be applied to the growth of a man, by combining a series of portraits taken under similar conditions, and, if the object were to point a moral, the actual debasement of the drunkard, or the restoration of the invalid to health and vigour by the use, let us say, of a patent food, might be witnessed by an audience in the time taken by the exhibition of a single film.

All these properties of the photographic film meet with applications in the realm of meteorological science, and the opportunity of reaching photographers by addressing this convention is too valuable to be missed. It is not necessary to ask that whenever any extraordinary event occurs a record shall be taken. Cameras are so numerous nowadays that some one who uses one is almost certain to take pictures of any extraordinary flood, any remarkable hailstones, or damage by wind and storm. But those who take them do not often send copies where they may be most useful, which is to the secretary of the Royal Meteorological Society, 70, Victoria Street, Westminster. There are, however, two branches of meteorological inquiry in which there is much to be done, and much that cannot be done without a considerable increase in the number of observers who will use their photographic apparatus for that end.

The phenomena of a lightning discharge have been studied photographically for about fifteen years, but there are still several points

upon which agreement is by no means general; while certain forms of lightning, such as the rare phenomenon called ball lightning, have been repeatedly described, but have not yet been photographed. Lightning is, of course, photographed at night. Rapid plates should be used, and the largest aperture the lens will bear. The camera should not be held in the hand, but should be fixed to its stand, or to some firm inanimate support. After adjusting the camera in focus for a distant object, exposure should be made in the direction in which the flashes are frequent, and as soon as a flash comes in the field of view the plate should be changed. This last is important. If a flash prints its image on the plate, and the diffused light of a subsequent flash, or from any other source, is allowed to fall on the same place, the image of the first flash is liable to be reversed, in accordance with the curious photographic phenomenon which I described to the Physical Society of London in 1889. Sometimes it happens that the flash is not reversed, but simply obliterated, but reversal is the rule if the diffused light falls on the plate subsequently to the impression of the flash image.

With reasonable care and luck, lightning photography is quite a simple thing, and the resulting picture may be most interesting and valuable from a scientific point of view, and a print should be sent to the Royal Meteorological Society. It is not possible here to even mention the numerous points which might be cleared up by a large number of photographs, but, to give an instance, if the camera is firmly fixed and the time of each flash is noted, it might well happen that two or more pictures of the same flash from different points of view could be identified, and its whole form in space could be then determined.

The camera must not be exposed through a closed window, but from the shelter of a verandah, or an open window. Probably all people feel a little nervous when there is a heavy storm, and the feeling is excusable, for every flash which strikes the ground has its billet somewhere, and a certain type of discharge pays no attention to conductors or to the relative heights of buildings and so forth. But the interest of trying to catch the portraits of the flashes has a wonderfully soothing effect. If it is possible to conduct the observations from the inside of a galvanised iron building the operator may be undisturbed, for it is probable that the inside of such a structure would be absolutely safe.

The second direction in which the co-operation of photographers might yield valuable results is in the study of the rapid changes of the thinner and higher types of cloud. It is not an easy investigation to embark upon, but is much easier than is generally supposed.

A good many years ago, I wanted a series of typical lantern slides of cirrus in order to illustrate a course of lectures, and as there were no such things in the market, determined to get them. I tried in turn rapid plates, ordinary plates, small apertures, and coloured screens. Sometimes I was lucky enough to get a printable result, but the plates were generally wasted. Over-exposure was the rule, and over-exposure of so pronounced a type that I was led to try the slowest plates I could obtain—namely, those sold as photo-mechanical. With these a short exposure and small aperture gene-



rally gives a result which may be carefully developed into a useful image. But the actinic conditions vary immensely with the time of day, the season, and the weather conditions, so that no rule can be given except that which comes by practice. A deep clear blue sky as background, allows a much longer exposure than one in which everything is a glittering silvery grey. Again, much depends on the position of the sun relative to the cloud, the longest exposure being allowable when the sun is at right angles to the cloud.

Since it is practically impossible to be sure of the exposure, I have found it necessary to adopt a tentative method of development, using the old fashioned pyro and ammonia. The plate is first soaked in pyro, with about one quarter of the normal quantity of ammonia, and rocked for about three-quarters of a minute. If nothing shows in that time, a further quarter of ammonia is added to the developer and the plate again rocked, and so on, until the highest lights appear. When this happens they are allowed to gather density, and the plate is watched so that more ammonia can be added if there seems danger of a hard negative, such as would give a chalky print. With very thin gossamer clouds it may be necessary to resort to intensification.

It is thus fairly easy to get richly detailed pictures of very thin cirrus and cirro-cumulus clouds, but the whole process becomes much easier, and, therefore far more certain if the light is reflected into the camera from a black mirror placed so as to make an angle of about 33 degrees with the optic axis of the lens. This more than quadruples the exposure, and the result is denser and richer negatives.

Now, there are two distinct purposes for which cloud negatives may be wanted. To show their forms and changes of form; and for pictorial effect, such as for printing skies to land and seascapes.

We are at once confronted with a difficulty. If nature were reduced to monochrome, as it must be in a photograph, the extremes of light and shade are far wider apart than they can possibly be in any print. Indeed, this difficulty is not restricted to pictures in monochrome. Even in works by the greatest landscape artists the contrast between the highest light and deepest shadow is vastly less than it is in the scene he attempts to delineate. It is like trying to reproduce a tune within a quarter of the compass of the original.

To represent the form of a piece of sculpture in such a way as to give a correct idea of its modelling we need to use a large part of the available scale of light and shade. Similarly, if we would record the full shape of a cloud, we also need a gradation of light and shade which leaves us only a narrow margin of shadow for the less luminous landscape. The difficulty is increased by the substitution of a monochromatic picture. We have no means of contrasting the shining white cloud, every bit of which is brighter than a corresponding part of the full moon, with a clear blue background, except by representing the sky as dark.

If, then, our object is meteorological, we must use our scale freely, and be patient when the uninitiated suggest that the pictures were taken by moonlight. For pictorial effect, to be used in combination with landscapes, we need thinner and flatter negatives, and must be content to lose many of the finer details of the sky in order to get the nearest possible approach to a satisfactory whole. Fortunately, the two things are not incapable of being simultaneously done. Negatives which are failures from a meteorological point of view, are often exactly right for combination work, and other negatives which can give vigorous prints full of detail often serve excellently for landscape work if lightly printed.

There is, however, another difference. To get isolated studies of clouds the camera should generally be tilted up at a more or less high angle. Such negatives cannot be properly used for printing a landscape, which would be taken with the camera looking horizontally. The perspective would be totally different, and the result of a combination in many cases ridiculous. For printing into a picture, the cloud negative ought to be taken with the same lens, and with the camera, at the same inclination. The only difference strictly allowable is that the rising front may be raised to its limit, but the level of the horizon should be marked on the negative at one side, and in using it for printing-in care should be taken that this mark coincides with the landscape horizon.

A picture of an open landscape, such as a rolling moor, becomes an entirely different thing when a suitable sky is printed in, but it must be a suitable sky. I remember once seeing in a photo-

grapher's window a fine large picture with bold cumulus cloud but unfortunately the sunlight fell from the left upon the landscape and from the right upon the clouds, and the sky horizon was about level with the bottom of the whole picture. The effect was eminently unreal, even to the most thoughtless.

High clouds of the cirrus type might be introduced into any small picture, and even more beautiful results may be produced by using some of the exquisite alto clouds, but if heavy cumulus should be introduced their shadows have to be reckoned with.

There is no need to say more on the pictorial aspects of cloud photography for printing on paper, or into landscapes. But if the object in view is a series of lantern slides, then it may be interesting to some to give details of a simple device whereby the white cloud can be shown with a background of blue sky. Cirrus and some of the alto clouds have no grey shadows on them. They are white threads and flecks, showing more or less of the blue background through.

Some years ago it occurred to me to try the ferro-prussiate process for such clouds. I had in stock a quantity of quarter-plate lantern plates and photo-mechanical plates which had been left in a damp loft for several years, and gave stained negatives. I took some of these, dissolved out all the silver salts with a strong hypos bath, washed the gelatine films for about twenty-four hours, and then resensitised them by soaking for half an hour in a ferro-prussiate mixture, such as would be used for paper. They were then rinsed under a tap to remove iron salts from the surface, and dried in the dark. Some of them showed crystalline figures, due to an excess of iron. These were rejected. But the greater number were freed from this defect. When apparently dry, they were heated to about 100 deg. Fah. over a closed stove to ensure perfect dryness, and after cooling, were exposed under ordinary negatives. After exposure they were fixed by washing, and the density adjusted by the use of exceedingly dilute hydrochloric acid. As thus obtained, the colouring matter was, of course, Prussian blue, which has rather a greener tinge than true sky blue. But on washing in water containing a trace of caustic alkali, part of the blue pigment is changed into a violet substance, and part even into the red hydroxide of iron, the effect of which is to neutralise the greenish tinge. It is necessary, however, to print the slide so that the sky is too deep a blue to begin with, as the toning is also a powerful reducing process. For this reason also the alkali must be excessively dilute. The finished slide should look a little strong, or the detail will be lost when it is projected on the screen.

The final heating of the plate is very necessary, as the iron compounds are deliquescent, and are liable to soften the gelatine, and cause it to stick to the negative, with disastrous results. Much better effects could probably be produced by the use of carbon tissue coloured with cobalt blue, but no such material seems to be obtainable.

So much, then, for the pictorial side of cloud photography. What is there to be done from a scientific point of view? No easy task, for it is nothing less than the taking of series of photographs of some of the higher clouds so that their changes of form can be traced step by step. If we look up at a patch of cirro-cumulus, and then after a few minutes look again, the detail is often utterly different. Most of all is this the case with the beautiful wave and ripple clouds.

In any such event, a series of a dozen or so of pictures, taken at intervals of one or two minutes, would show the processes by which the changes are effected, and would be likely to prove of the greatest interest and value. Storm clouds, the clouds attending a whirlwind or a waterspout, should be similarly traced. Even the cinematograph might be pressed into service to take a series. In some cases, such as a whirlwind cloud or waterspout, the exposures should follow one another at intervals of, say, a second, or half a second; while for tracing the movements of wave clouds the intervals should be much longer.

A print from such a film would be shown at the usual rate, with the result of quickening the movements of nature, so that they would be easily realised and understood, and the series of views when studied separately would tell more of the mechanics of these atmospheric disturbances than years of thought and observation without the aid of the camera.

Photography is too often regarded merely as a pleasant pastime,

the camera as a costly toy, and it is the object of this brief note point out some few directions in which, without straying from pursuit of what is strange or beautiful, its marvellous powers as a scientific tool may be pleasantly exercised.

The seekers after knowledge have passed through the age of the microscope and telescope, followed by the age of the spectroscope,

but the present becomes, year by year, more and more the age of the photographic camera. No laboratory, no observatory is complete without it. With it, and particularly with its more elaborate and costly forms, there are many avenues of research, by following which important discoveries may be made, and meteorological photography is but one.

ARTHUR W. CLAYDEN, M.A.

### COMBINATION PRINTING.

PRESIDENT, LADIES, AND GENTLEMEN.—Far from seeking the hour of addressing the members of the Photographic Convention, I tried hard to persuade the powers that it was an ill-advised thing to do, more especially as the subject upon which it was proposed should address you is one upon which I have nothing new to say; that the subject of combination printing should have been set out and given to me is of itself a somewhat gratifying fact. I have been connected with photography sufficiently long to have possessed an almost entirely reversed feeling with regard to that particular phase or application of photography which we commonly call the "pictorial." Time was, and not so very long ago, that the aims and intentions of the pictorialist were, by the majority of photographers, so much misunderstood that if a photograph did not illustrate the maximum qualities possible by the particular process, its character was set down to the inefficiency of its author. It mattered not that the producer of the print claimed that, as the picture was, so he intended it to be; it mattered not that he asked to be allowed to employ just as much or as little contrast as he thought best; it mattered not that he definitely and deliberately departed to the image just the degree of definition which he thought it; it was constantly said that an example of anything less than maximum contrast, maximum definition, maximum brilliance, was merely evidence that the author of the print could do no better on if he would. In those days—comparatively a few years ago—was with the application of photography to pictorial ends—though a man walked leisurely for enjoyment, and were ridiculed and condemned as being incapable of running even if he wished.

All this, which was due to misunderstanding, is now, happily, changed, and simultaneously with the development of a more tolerant and broad-minded view in other things besides art, greater liberty has, by common consent, been granted to the photographer; and whilst those who in former times had to bear the ridicule and the mortification of being misunderstood, naturally feel gratification at now being recognised and appreciated, they may do well to remember that they and workers of their class have, perhaps unconsciously, made such better recognition possible.

I submit that in the early days of the new pictorial movement, much of the misunderstanding on the part of the unsympathetic, was very largely due to the fact that so much of the work put forth tried to justify itself, however good the intention of its authors may have been, but as greater executive skill has been acquired, and a better acquaintance with the appearance of nature has been acquired, the productions of the aspiring pictorialist has been in less need of an apologist and an interpreter, and so has won toleration, if not absolute approval. This applies as much to what is understood by the term combination printing as it does to the deliberate suppression of excessive detail or to unnaturally strong contrast.

I suppose that to everyone the term combination printing at once conveys the idea of employing two or more negatives for the production of one result, and often when such combination has been effected the principle has been condemned on account of the ineffectual nature of the result. It was pointed out that the relative tones of the various parts were not true to nature, that the joins of the various parts showed and betrayed the method employed. Even the simplest application of combination printing—namely, printing a sky from one negative and a landscape from another, thus producing a single combined picture, was condemned—and why? Most often because it was said that an unnatural effect was almost certain to result.

Given a case in which cloud and landscape from separate negatives have been so skilfully brought together that no suspicion of the composite nature of the picture is awakened, then unless special information be volunteered it is difficult to see how objection can be made.

This may sound contrary to the code of ethics by which every good citizen directs his life, because it is equivalent to saying that the condemnation of an act contrary to established law exists only in its being found out. In the present case, however, I would

suggest that there is no law, and therefore the condemnation of combination printing is in its being done badly, and then it not only betrays itself (that is not an important matter), but it produces an unpleasing effect, because the moment anything in a picture sets us thinking of *how* it is done, the æsthetic pleasure in that picture is interrupted, if not, indeed, wholly destroyed. I think the whole idea of principle being involved, the resentment arising from the feeling that in combination printing a deception is being practised, arises from the fact that in earlier days every piece of photographic work was shown with a view to demonstrating what photography can do, and in such case it is obvious that to borrow a piece from one negative and add it to another would have been equivalent to making a false declaration; but the case to-day is this, that if by combining parts of several negatives one can get more nearly a representation of one's personal impression, and yet one could not do it so well by any other means than photography, it shows that photography has been employed deliberately by one who had a desire to express himself of the manner in which things impressed him personally, and, having no means at his disposal, no method within his power of doing so, he has employed just so much of the photographic process as he needed, and no more, because the desire to express himself, and not an exposition of a process or personal skill, was paramount.

But perhaps you may say that such arguments as I am advancing are unnecessary because you are already quite willing to grant the legitimacy of combination printing, and indeed of many other methods which the photographic purist of a few years ago would have utterly condemned. Well, then, I should like to utter a caution against our too readily consenting to practices which in themselves may be quite justifiable, because they may involve a degree of personal knowledge which few, if any, possess.

Having seasoned ourselves into admitting the legality of combination printing, there is a danger of our forthwith piecing together a portion of this and a portion of that, and the result seems good to us; besides, we are proud of our cunning and skill. Thus shall we be falling into the same error that an earlier generation of painters fell into who painted always in the studio according to tradition, until the Gospel of Naturalism taught them to seek fresh inspiration for every fresh picture by painting it out-of-doors, and painting it direct, thus having opportunity of corroborating the ideas which previous observation had engendered.

Where is the photographer who has had even as much training in the observation of nature as the art student receives within the first few months of his novitiate. How, then, can the photographer trust to his own knowledge, his own ideas, as to whether this or that portion suits another portion.

It is because I feel that so few photographers have the requisite intimacy with nature to enable them to avoid the pitfalls in which the practice abounds that I should hesitate to advise any to resort to it. It is because I feel so uncertain myself, because I can see how great are the possibilities of error, and how easy to commit them unwittingly, that of late I have myself entirely ceased to use combination printing.

Few photographers have sufficiently keen perceptions, few can discern a discrepancy when the camera has given them a representation sufficiently like to be recognisable. How many of us here can be quite sure how much darker or how much lighter a shadow should be when compared with the dark side of the object which casts the shadow, and for want of that knowledge, and because even in skilful hands the photographic plate does play us false in the matter of relative tones. Such intimate knowledge of physical facts is eminently important, and when possessed it would prevent the public display of many a photograph which has brought discredit upon its producer, and contumely on the craft to which all here are so interested.

Still, despite the danger, no doubt some intrepid one will desire to



know how the combination of parts of several negatives can be brought about, but in this connection I am afraid I may incur your displeasure.

It is not very long ago that I demonstrated somewhat fully the two methods which I have myself employed before the London Camera Club, many of the members of which are present at the Convention, whilst still more recently I have had something to say of the matter before the Southampton Camera Club and other societies; and whilst I have nothing new to add, still I felt you might expect something of a practical demonstration; but when I saw this hall I realised that it would be impossible to show an audience anything like actual manipulations; furthermore, such a thing would occupy a very considerable time, so not because I would spare myself trouble, but because I deem it more advisable to omit anything like practical examples.

Whatever means one resorts to for combining parts of several

negatives, there are but two main rules to observe. Firstly, there must be a system whereby such accurate registration of the successive parts to be printed that it will not be possible for anyone to criticise the principle because ineffectually carried out; and, secondly, the practice must be founded upon such ample knowledge of nature and such fastidious care that it must appear as though it could have been otherwise in nature, and if you realise how difficult this is I am not sure that you will not come to the conclusion that combination printing is only for the very few.

Ladies and Gentlemen, I would fain win your approval, if not your applause, and fearful that the matter of my very brief discourse may fail to interest, as I am conscious of an inefficient manner of delivering, I at least hope to meet with your favour by complying with the words of the program and burdening you with only a short paper.

A. HORSLEY HINTON

On Friday the excursion to Winchester and St. Cross was very largely attended, but photographic work was somewhat marred by continuous rain during the afternoon, and in the cathedral by the very considerable portion of the structure undergoing repair.

In the evening a paper was read by E. J. Wall on "The Present Status of Colour Photography" (which will appear in our next), and examples of work shown by triple projection by the kindness of Sir Wm. Abney, who was unable to be present, and the ordinary three-colour slides by the Lumière A. Company, Messrs. Sanger

Shepherd, Dr. Albert Norman, Miss Acland, Messrs. E. T. Butler, Pfenninger, Alfred Watkins, Captain Lascelles Davidson, together with Lippmann results by Mr. Alfred Senior, Wood's diffracting colour photographs lent by Messrs. Newton and Co., the colour carbons by the Rotary Photographic Company, Kromske by Messrs. A. J. Newton and C. Phipps Lucas.

Subsequently a brief show of "cinematography in colours" was given, with a few explanatory remarks by Captain Lascelles Davidson and Mr. W. Friese Greene.

### THE KEY TO THE CONVENTION GROUP.



With this issue of the "British Journal," we give the key to the Convention Group reproduced last week. The short time between exposure and publication last week—less than twenty-four hours—did not permit of the key being prepared in a form convenient for reference, although it would have been possible to present a key made by the photographic method, which was adopted to secure the names of those present. As the method may be of use to others having to take large groups, we herewith reproduce the print, showing how the names were obtained. A glance at the reproduction will explain matters. Each member of the group was provided with a card seven inches square, one side of which was the request to (1) sign the name, and (2) hold the card before the face for a second exposure. On the other side of the card was a large number, and the

whole of the names are thus obtained at once. To avoid increasing the size of the card the numbers are kept to two figures, and a large group; then one of ninety-nine provided with a second series of cards from one to ninety-nine, but distinguished by stars, as seen in some of the figures. The only drawback to the plan is the time needed to distribute the cards, which may be such as to cause one or two people to leave before the second exposure is made. Also the cost of getting the cards is altogether too high to make it worth while for a photographer to get them printed for one or two groups only. But we should think that one of the large houses might very well place a series of, say, 1-99 and 1\*-99\* on the market in 7-inch squares, the blank side being available for the photographer's printed directions.

# THE ACTION OF ALUMS AND ALUMINIUM SALTS ON GELATINE.

Alums possess the property, as is well known, of hardening gelatine and raising the setting point of aqueous solutions. This phenomenon does not appear to have been precisely studied, and it is summed to be analogous to the insolubility produced by chromium salts. We decided to examine the question, and to study especially the following points.

1. The influence of the nature of the aluminium compounds employed to raise the temperature of the setting point of gelatine solutions.
  2. The influence of the quantity of these compounds and the concentration of the gelatine solution on the setting point.
  - 3 and 4. The constitution and properties of the alumed gelatine.
- The Influence of the Nature of the Aluminium Compounds on the

## Setting Point.

Besides aluminium sulphate and the potash and ammonia alums, the effects of which are already known, we have studied the action exercised by the chloride, bromide, and nitrate of aluminium on aqueous solutions of gelatine.

We have been able to prove that these salts practically raise the setting point with the same proportion of aluminium.

The setting point of solutions of gelatine with the addition of aluminium salts is more difficult to determine than without the same. For the latter pass practically from the liquid to the solid state in about one degree, as the mass in cooling arrives at a pasty stage very near the setting point. In the presence of aluminium salts, on the other hand, the solution remains pasty for a very long time before becoming solid; the mass is then viscous in certain cases where the temperature is raised 15 degrees above the setting point. In other cases the viscosity varies with the salt of aluminium employed, and it increases as one approaches this point. We consider that the setting point is reached when on stirring the mixture with a thermometer and withdrawing the latter vertically, the small quantity adhering to the thermometer remains solid without dropping.

The same effects may be produced, perhaps slightly weaker, by means of alumina *in statu nascendi*, obtained by the action of equimolecular quantities of ammonia and alum. An excess of ammonia stops the action of the alumina. The basic salts formed by the exact neutralisation of alum by ammonia behave in the same way as a non-neutralised alum. Finally, the alkaline aluminates exert no influence of the setting point.

## The Influence of the Quantity of the Aluminium Compounds on the Setting Point.

In working with a 7.5 per cent. aqueous solution of gelatine, we have found that very small proportions of alum or salts of alumina sensibly increase the setting point. The temperature increases a degree with 0.107 gm. of alumina per 100 gms. of gelatine, and as the proportion of the aluminium compound increased it was found that the setting point was raised till the proportion of alumina was approximately 0.64 gm. per 100 gms. of gelatine. The setting point, then, is about 6 degrees higher. This maximum effect is produced by adding to 100 gms. of gelatine the following weights of the various salts, which correspond to 0.64 gms. of alumina:—

Potassium alum, $Al_2(SO_4)_3 K_2 SO_4 24H_2O$	6.0 gms.
Ammonia alum, $Al_2(SO_4)_3 (NH_4)_2 SO_4 24H_2O$	5.6 "
Aluminium sulphate, $Al_2(SO_4)_3 18H_2O$	4.2 "
" chloride anhydrous, $Al_2 Cl_6$	1.6 "
" nitrate, $Al_2(NO_3)_6 15H_2O$	4.3 "

If these weights are exceeded the effect of the aluming is not increased.

When the strength of gelatine is altered it was found that the maximum of the setting point varied to an equal degree. It is 7deg. for a 12 per cent. solution of gelatine, 3.5 deg. for a 5 per cent. solution. Whatever may be the concentration of the gelatinous solution, it is always the same amount of alum which produces the

maximum effect, that is, 6gms. of potash alum=0.64gm. of alumina per 100 gms. of gelatine solution.

## The Composition of Gelatine Modified by the Salts of Alumina.

If a thin film of gelatine and alum is coated on a sheet of glass and then washed till the water shows no trace of sulphuric acid, it will be found that the alum is disassociated, and that the sulphuric acid and the potassium are entirely eliminated; it is the alumina alone that is fixed.

When sheets of gelatine are immersed in a solution of aluminium sulphate and the latter titrated, it will be found that the solution will be impoverished, and that the gelatine has fixed the alumina. On quantitatively estimating the alumina and sulphuric acid in this solution before and after immersion of the sheets of gelatine it will be found that the ratio of the weights of these substances remains practically constant.

The immersed gelatine appears then first to fix the alumina compound in the form of  $Al_2(SO_4)_3$ , which the treatment with water disassociates, the alumina alone being retained by the gelatine.

It was now to be determined whether the alumed gelatine ought to be considered as a true chemical combination. For this purpose a 7.5 per cent. solution of gelatine was divided into equal parts, and increasing quantities of alum were added. These mixtures, coated on glass, were dried, and then submitted to prolonged washing in running water. The film stripped from the glass was again washed in water till the washing water showed no trace of alumina or sulphuric acid. The results were then dehydrated by washing with alcohol, desiccated, powdered, and analysed. The following were the results obtained:—

## ACTION OF THE ALUMS AND ALUMINIUM SALTS ON GELATINE.

Test No.	Quantity of Alum added to 1,000 Parts of 7.5 % Gelatine Solution.	Quantity of Alumina added to 100 Parts of Gelatine.	Quantity of Alumina fixed by 100 Parts of Gelatine (after washing), mean of several tests.	Quantity of Sulphuric Acid retained by 100 Parts of Gelatine.	Ash per 100 Parts of Gelatine.
1.	Check Nil.	Nil.	Nil.	Nil.	0.5
2.	1.85	0.23	0.47	" "	0.906
3.	4.75	0.59	2.09	" "	2.7
4.	6.5	1.18	2.6	" "	3.25
5.	19	2.36	2.9	" "	3.5
6.	25 (1)	3.1	3.6	" "	4.18
7.	38	4.75	3.56	" "	4.03
8.	75	9.4			

In the tests 1-5 it was eliminated from the Gelatine in the washing, which explains the increase in the proportion of alumina to the initial proportion.

The tests prove that the quantity of alumina retained by the gelatine increases with the weight of alum employed till the gelatine has fixed 3.6 per cent. of alumina; beyond this point, whatever may be the proportion of alum used, the weight of alumina contained in the gelatine remains constant.

It would seem that in this case we have a true chemical combination.

It should be noted that the greatest increase of the setting point of the alumina gelatine is obtained when that gelatine contains 0.6 per cent. alumina, does not correspond with the greatest fixation of this substance.

## The Properties of the Alumed Gelatine.

The alumed gelatine having fixed the maximum of alumina, that is to say 3.6 per cent., presents the same appearance as ordinary gelatine, but it swells much more slowly than the latter in cold water.

Very dilute acids appear to have no action on the alumed gelatine at ordinary temperatures; but they disassociate it when they attain a certain concentration.

The caustic alkalis and ammonia, even in feeble proportions, appear to destroy the combination and reduce the gelatine to its original condition. The alkaline carbonates act like the caustic alkalies, but act less energetically.



The preceding tests allows us to draw the following conclusions.

1. That different salts of alumina and nascent alumina possess, like alum, the property of raising the setting point of aqueous solutions of gelatine. This property seems to be entirely due to the action of alumina; the same results being obtained with very different quantities of the various salts, when they contain the same weight of alumina.

2. Of all the salts of alumina, alum produces for equal weights the least increase of the setting point, in consequence of its small proportion of alumina; for the opposite reason anhydrous aluminum chloride produces, on the contrary, maximum effect.

3. The setting point of aqueous solutions of gelatine increase proportionately to the quantity of alumina that is added, till it corresponds to 0.64 gms. of alumina per 100 gms. of gelatine, whereafter it may be the salt of alumina employed. Above this quantity the setting point remains constant and then decreases.

4. The setting point varies with the concentration of the solution of gelatine.

5. Gelatine appears to fix a maximum quantity, about 3.6 gms. of alumina per 100 gms. of gelatine, and to give up to water the alumina or salts which are combined with this base. It appears to form a definite compound.

A. AND L. LUMIERE.

## SELECTIVE FOCUSING IN PORTRAITURE.

THE reproduction of a portrait in our contemporary the "Camera" leads its author, Mr. Felix Raymer, a well-known portraitist and writer in the United States, to explain the methods adopted to assigning different degrees of definition to the various portions of the photograph. As the method followed is one which may be easily applied, with variations, to other cases, we may reproduce a small portion of Mr. Raymer's explanation:—

"I will now give directions for focussing on this portrait as the method was followed out. First, the lobe of the nose was focussed on. Why? For the reason that it is nearer than any other part of the face, and, being nearer, it should have its proper place or weight in the picture, which would be nearer to the beholder of that picture. In addition to this, it must be remembered, that the light is concentrated at that part of the face as strong, if not stronger, than any other part of the face. The strongest concentration of light should receive the strongest concentration of focus to be in perfect harmony.

"Next, the side swing of the camera was used until the near or light shoulder was brought into focus, which at the same time lessened the distorted effect of the far or subordinated shoulder. Without the use of this side swing the near shoulder would have been out of focus, and so would have been the far shoulder, so that the focus would have come through the central parts of the drapery, making the near and the far shoulders have a distorted effect. The near shoulder being the one at which the light is concentrated, should be the one at which the focus is concentrated, so that the swing is used until that effect is secured. Now we take a look over the entire field. We see that the centre of the face is focussed

at the parts that are accentuated by the light, but as the eye travels backward to the back of the head, it does so over a field that receding or going from us. Is this right? Certainly, for it is what we call perspective or distance. If this field does not recede it will be a flat field or one that has no distance. To see the effect of these two pictures, focus your lens on a subject as I have described, and make a negative, then leaving all else the same, insert a diaphragm that will bring the back of the head in focus and make another negative; make prints from both and compare them, and see which possesses the greatest amount of roundness.

"It is this difference in focussing that makes one man's work better than another's many times; not always, of course, but I am sure in most cases. It is apparently a small matter, but in reality the whole picture depends upon the effect of the result, and it is often spoiled by the operator using a lens not intended for portrait work. I have visited numbers of studios and found the operator using a small R.R. lens working at  $f/8$ , and he would wonder why his pictures do not look like some of the best work made. The reason is that the R.R. lens cuts too deep for pictorial effect in portrait work; it makes too flat a field, or too near the subject in all parts of the picture. Another thing many cannot understand, and that is why I can give so little exposure on the negative I make at the conventions, and they have to give so long a time to theirs at home, when the light they have is as large as the one I may be using at the convention. This is accounted for by my lens being a portrait lens, and working at a larger aperture than theirs, which is an R.R. or symmetrical working at a much smaller aperture."

## Photo-Mechanical Notes.

### The Printing and Allied Trades Exhibition.

THE Exhibition, opened by the Lord Mayor on Saturday last, and remaining open until July 28, is not only full of interest for the photographer, as showing how important a place photography is taking in the graphic arts, but is especially important to the photo-engraver, since most of the leading firms are exhibiting their work, and the material dealers take this opportunity to show their novelties. Dealing with the photo-engraving firms in alphabetical order, the Anglo-Engraving Company show some large three-colour work, as well as much two-colour and ordinary half-tone. They show the originals side by side with the reproduction so that comparison can be made. The Art Reproduction Co. show a lot of specimens, including coloured photogravures. The Cox Illustrating Co. show many specimens, and also examples of their metallic overlay. Messrs. Dent and Co. have an attractive stall again, with the original and reproduction in many sizes, and a new method of preventing the wood mount from warping. Carl Hentschel, Limited, have a good display, especially of Colourtype. Messrs. Marshall have a tasteful show in the gallery. The Press Etching Co. have a stand with many specimens; and John Swain and Son, Limited, are near the main entrance, with a show of specimens of half-tone, three-colour, wood engraving, and electrotypes.

Hunter's, Limited, have a big stand showing a complete range of supplies for printer and photo-engravers, the principal novelty being the Mark Smith patent etching machine, which bids fair to take away with the old rocked-tub method of etching.

Penrose and Co. also have a show, with their latest form of screen camera. As novelties, they show an enclosed arc lamp for three-colour work. This contains three carbons which can be changed instantaneously, so that red, green, and blue light respectively can be used without any extra trouble. They have also introduced and exhibit a neat little appliance for ruling up three-colour plates in exact register without loss of time, which should prove a boon to the three-colour block maker.

The L.C.C. School of Photo-Engraving have a large exhibit in the gallery, comprising specimens of students' work in all branches and several frames showing the progressive stages in photo-mechanical work. There is also in the gallery a large loan collection, got together by St. Bride's Institute, illustrating the history of the printing art, and here there are specimens shown of almost every imaginable process.

### A German Book Production School.

We have received from the Royal Academy of Graphic Arts at Leipzig, a volume containing a history of the school and details of the courses of instruction, together with many reproductions of the student's work showing the wide range of the studies there, which cover book production in all its branches, including even ordinary

portrait photography. There are examples of drawings, reproduced half-tone, line, and three-colour original wood engravings, lithographs, wood engravings, type settings, and bookbinding designs. The get-up of the little book is, on the whole, exceedingly tasteful, and it is pleasing to see the half-tones printed on something less glaringly white and shiny than usual.

Many will hear with regret of the death of Mr. Edward Bierstadt, New York. He was born at Solingen, Germany, in 1824, but early migrated to America, and established himself in New York in 1870 for the production of Albertypes. In 1880, he turned his attention to three-colour work, and it is related that in making the plates, a red screen was exposed forty-four hours. His first photograph in colours from life was made in 1894, the exposure requiring ten minutes. Mr. Bierstadt's name has come prominently before the public in recent years through his having produced in company with Geo. B. De-Vinne the process of making mechanical overlays for half-tones which bears their joint names.

# PHOTO-MECHANICAL PATENTS.

**PHOTO-MECHANICAL PRINTING.**—No. 15,926. Improvement in photo-mechanical printing. John William Ippers, 65, Chancery Lane, London. (Date applied for under Patents Act, 1901, July 14, 1905, being date of application in the United States.)

**PRINTING PLATE ATTACHMENTS.**—No. 15,270. Improvements in or relating to means for attaching half-tone process plates, fine-line etchings, and the like to the stereotype plates of rotary and other printing machines. George Allan and Arthur Rowland Byles, 33, Chancery Lane, London.

## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes."*

The following applications for patents have been made from July 2 to 7:—

**ENLARGING APPARATUS.**—No. 15,113. Improvements in photographic enlarging apparatus. Herbert Holmes and Houghtons, Limited, 88, High Holborn, London.

**MOUNTS AND FRAMES.**—No. 15,359. Improvements in mounts, frames, or wallets for supporting pictures or the like. Frédéric Eugène Vignerot, 3, Brown Street, Market Street, Manchester.

**CAMERAS.**—No. 15,437. New or improved apparatus for use in connection with photographic cameras. Claude Horace Gaggero, 57, Arcadian Gardens, Bowes Park, London.

**TESTING LIGHT FILTERS.**—No. 15,455. Improved testing device for photographic light filters. Edgar Clifton, 25, Newman Street, London.

# COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**PRINTING PLATES.**—No. 5,780, 1905. This invention relates to negative plates, and has for its object the making of plates, from which the image of cut or incised lines, produced by etching, may be printed on any sensitised surface, the lines showing varying degrees of light and shade. The claims made are (1) the process of preparing a plate for photographic printing, which consists in placing a transparent or translucent plate coated with a transparent or translucent but non-actinic surface or ground over the subject to be etched, outlining the subject looked at through the plate by lines or incisions made in the aforesaid surface or ground, and then wholly or partly filling said lines or incisions or some of them with colours having different actinic properties substantially as described for the

purposes specified; (2) a prepared plate for photographic printing, having a transparent or translucent but non-actinic etching surface or ground, substantially as described for the purpose specified. William Jay Little, of Newton, Massachusetts, U.S.A.

**EXPOSING FILMS.**—No. 26,191, 1905. This invention relates to the exposure of films and plates inserted into light proof envelopes, and the latter may be pulled out of the case through a slot, and the film or plate is retained in the case. In Fig. 1 the case chamber is designated *a*. This chamber is intended for the reception of the exposed films, *b*, and is shut off from the exposing chamber by the slide, *c*. The slide, *e*, is acted on by springs, *d*. By the yielding support of the slide, *c*, it is

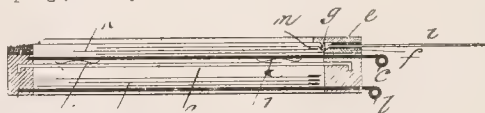


FIG. 1.

rendered possible to use the same case for plates and for films. The exposing chamber is outwardly bordered by the cover-frame, *e*. *f* is a bar fixed to the lateral frame-parts of the case. The cover-frame is provided with a rod, *g*, which, when the case is closed, extends with its lower edge more closely to the surface of the slide, *c*, than the upper surface of the bar, *f*. *i* is the light-proof envelope of the layer-carrier and *k* the layer-carrier itself. *l* is the lower closing-slide for the case. The light-proof envelope, *i*, is closed at both ends. The closed ends are folded over, as shown in Fig. 2, so that the position of the film in the envelope is shown by the folding of the ends. The package can, therefore, at any time without difficulty be so inserted into the case that the edge of the film adjacent to the bar, *f*, is not engaged by the bar, *g*, and does not lie above the bar, *f*. When a package has been inserted into the case, for which purpose the cover, *e*, of the case is opened, and when an exposure is to be made, that end of the package which is at the side of the case opposite the side at which the rod, *f*, is situated, is severed, in order to open the light-proof envelope. When this has been done the other end of the envelope, which projects from the case at the end supporting the bar, *f*, is pulled. The lower edge of the rod, *g*, then forms an abutment for the edge of the film, *k*, so that the latter cannot pass



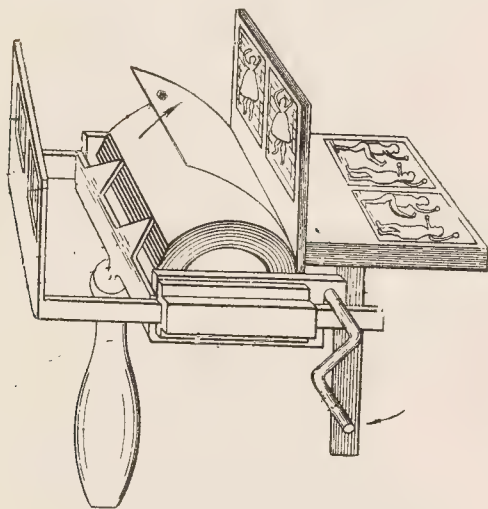
FIG. 2.

through the slot in the case, whereas the light-proof envelope can move out of the case along the sinuous path indicated in the drawing. As soon as the envelope has been pulled off the film the latter can be exposed. After the exposure the film is allowed to drop into the case-magazine, *a*, by opening the slide, *c*. When said magazine contains a sufficient number of films it is opened by drawing out the slide, *l*, and the exposed films, *b*, are removed. 1. The method for exposing light-sensitive layer-carriers contained in light-proof covers, which consists in inserting the light-proof covers with the layer-carriers into an exposing chamber in such a manner that the ends of the light-proof cover extend on opposite sides of the exposing chamber through light-proof slots; the slots themselves forming stop or abutment members outside the area of the layer-carrier inserted into the exposing chamber, and pulling hereafter the cover or elements of the cover so that same leave the exposing chamber, whereas the layer-carrier is retained inside through the action of the stop member or members. 2. An exposing case for carrying out the method described in Claim 1, having slots on two opposite ends, allowing the ends of the layer-carrier envelope to pass, one or each wall of one or both slots



being provided with an abutment-member for retaining the layer-carrier. 3. An exposing case, according to Claim 2, wherein one of the slot-walls of one or both slots is formed by a bar which projects from the supporting-surface of the layer-carrier case, and which is enclosed on one or both sides by counter-bars on the opposite slot-wall, for the purpose of providing a sinuous path for the envelope which is removable from the case, which path the layer-carrier cannot traverse. 4. An exposing case, according to Claims 2 and 3, in which the counter-bars for the bar projecting from the supporting-surface of the layer-carrier case are provided on a cover which is removably located on the exposing case. 5. As an article of manufacture and commerce a cut film in a light-proof envelope having an enlargement or thickening at one end for the purpose of holding back the film in the exposure case for use substantially as described. Optische Anstalt, C. P. Goerz, Aktiengesellschaft, Friedman, Berlin.

**CINEMATOGRAPH APPARATUS.**—No. 7,043, 1906. This invention relates to improvements in cinematographic apparatus by means of which prints may be rapidly rotated before the eyes. The claims are for: 1. Cinematographic apparatus comprising in combination with a lens or lenses adjustable on a frame or support, a rotary axle adapted to be mounted in said frame or support, and a plurality of blocks of cinematographic pictures



tangentially fixed to a support adapted to be rotated by said axle. 2. In cinematographic apparatus as described in Claim 1, the construction wherein stereoscopic lenses and stereoscopic cinematographic pictures are used. 3. Cinematographic apparatus substantially as described with reference to the annexed drawing. Ernest Reginald Law, 1, Rue Michel Roset, Geneva.

#### CATALOGUES AND TRADE NOTICES.

Jonathan Fallowfield, of 146, Charing Cross Road, has just issued a supplementary list of novelties and useful sundries, which includes many little things which should appeal to many of our readers.

J. J. Griffin and Sons, Limited, of Kingsway, have for some time been well known for their developing and toning and other chemicals in packets, cartons, and tins, and, in order to make these more widely known, they are now supplying sample sets at nearly half the usual price. As only a limited number of such sets are being issued it is necessary that immediate application should be made.

"Notes on the Use of the Wellington Specialties" is the title of a very readable and well-illustrated book of 87 pages which has just been issued by Messrs. Wellington and Ward, of Elstree. There is good, sound instruction in it, and many a useful tip for general

work may be learnt from a careful perusal of its pages. From the same firm we have also received a compact price list, which is extremely convenient for reference.

To-day Mr. J. C. Stevens, the well-known auctioneer, includes in his weekly sale some very good pieces of apparatus, the price of an amateur, which are well worth attention. They include a fine 12 by 10 parallel bellows camera, by Beck; a 7½ by 5 W. Premier with six slides; a No. 3 Dallmeyer Bergheim lens; a Dallmeyer 3 B lens; a Ross quarter-plate twin lens camera; Goerz lenses; a stereo Weno, besides two Dallmeyer rectilinear and two Beck's rectilinears and a tourist telescope by Baker.

## Commercial & Legal Intelligence

**CURIOUS BICYCLE STORY.**—Henry James Cray, 30, a photographer of 180, Markhouse Road, Walthamstow, was charged with stealing a bicycle. Last week Mr. Henry Brown, a laundryman, of B. Hurst Hill, went to the Working Men's Club, Woodford Green, and left his bicycle outside. He missed it half an hour later, and a prisoner was found in possession of it a quarter of a mile away. He was trying to mount it, but could not, and when told he would be charged with stealing it he offered all the money he had to be allowed to go. When charged, he said a man had asked him to mind it. The prisoner told a long story about being the worse for liquor and going about with a man he did not know. Some of the men quarrelled with his friend about a woman, and he (prisoner) went away. When he was rejoined by his friend the latter had a bicycle and when a woman came up and quarrelled he was given the bicycle to mind. Getting frightened, he went away, and when he was seized for stealing the bicycle he thought those who seized him were those who had quarrelled with his friend. He denied the theft, and was committed for trial, bail being allowed.

**PHOTOGRAPHY ON BRIGHTON PIER.**—De Joriette Plummer claims damages for breach of agreement against the Brighton Palace Pier Company. The case for the plaintiff was that, having discovered a process of rapid photography, he entered into an agreement, under which he worked a business on the pier on sharing terms. First, all work expenses were to be paid out of the gross receipts, and of the profits 40 per cent. were to go to the plaintiff and 60 per cent. to the Pier Company. In something under a year plaintiff's share came to more than £200. As it was obvious the business could be increased, plaintiff patented his process, and then entered into another agreement for three years, under which £60 was deducted for rent—the sum was increased when an additional room was found him on the pier—and the profits were to be divided equally. In this agreement was a clause that plaintiff should devote his whole time to the business on the pier. Plaintiff said that when he pointed this out, the secretary replied, "That doesn't matter, our company do not want you to be here all the time." It was known to the secretary, he said, that he had other businesses in Brussels, Croydon, Kensington, and Southsea. One gathered that for a time plaintiff carried on a business in the Western Road, Brighton, in connection with the Pier Company. Difficulties arose in 1904 between him and the new secretary of the company, and ultimately he had notice to quit the premises on the pier. Until he was given notice to give up his shops, he said he received no complaint that he was not attending to the business. His other businesses were under managers, and at the time he was under the Brighton Palace Pier agreement he had to give but little time and attention to them. Since he left the pier he had opened businesses at Eastbourne, Birmingham, Bournemouth, and three in London. The defence was that under the agreement plaintiff was the company manager of the photographic business on the pier. He was a shrewd business man, and contracted to give his whole time to the business, and also to carry it on to the satisfaction of the company. He had made suggestions as to a new agreement, but they came to nothing, and then, counsel said, the company found that he was carrying on eight or nine other businesses in different parts of the country, and was away from the pier more than half his time. Before he was dismissed he had locked the place up (in November) and taken the key with him. Now, after waiting a year, he claims £300 damages. If improperly dismissed, he could only claim what

was out of pocket; if he had established other business—better businesses—he had sustained no damage. Mr. Nomico, former secretary to the Pier Company, said he had no knowledge that plaintiff was carrying on any other businesses than that on the pier. C. T. Ford, the present manager, said the same, and he and other witnesses spoke of Mr. Plummer's frequent absences. Mr. Peake, a director of the company, said the company found all the capital, and took all the risk of the business in the Western Road, and the profits were shared. It was late on Saturday afternoon when a special jury who tried the case found a verdict for the plaintiff. No sufficient evidence had been submitted to the jury for them to assess the amount of the damages sustained, this question is to go to an official referee. Upon his decision depends also, to some extent, the question of costs.

CARL HEINRICH WILLY PUTZ (trading as H. W. Puetz), Photographic Chemical Merchant, 6, Savage Gardens, E.C.—The order of adjudication in this case was made in April last, and on July 13 the case came before Mr. Reginald Brougham, sitting at the London Bankruptcy Court, in connection with an application by the bankrupt for his order of discharge. Mr. Egerton S. Grey appeared as Official Receiver, and Mr. Oscar Osborn (Osborn and Osborn) on behalf of the bankrupt, the petitioning creditor, Emmanuel Bridault, merchant, of Paris, being represented. The liabilities, as estimated by the bankrupt, amounted to £1,069 1s. 10d., but proof of debt was only £167 8s. has so far been lodged, and the probable claims not yet proved amount to £31 11s. 1d. The assets, which were valued at £81 5s., have realised only £25. The difference between the actual value and the bankrupt's estimate of his assets is accounted for mainly by the fact that £40 of the available assets were subject to a claim for distrainable rent. It is not expected that any dividend will be paid to creditors. Upon the case being called, Mr. Osborn stated that he wished to give formal notice to the Official Receiver to dispute certain of the allegations made in his report. He had given a general notice, which was insufficient, but he had only recently had an opportunity of inspecting the report, which the bankrupt did not consider was quite correct in all its statements. In the circumstances, an adjournment of the application was applied for by his client. The representative of the petitioning creditors said that he had given notice to dispute the application on grounds other than those contained in the Official Receiver's report. He was perfectly ready to proceed with the case. His Honour ordered an adjournment of the application for a fortnight, but said that the bankrupt must pay the costs consequently incurred.

VAN DER WEYDE, Henry, Photographer, 182, Regent Street, W.—The order of adjudication in this case was made in March, 1902, and the bankrupt applied on July 10, to Mr. Registrar Linklater, sitting at the London Bankruptcy Court, for his order of discharge. It was reported by Mr. Egerton S. Grey, who appeared as Official Receiver, that the trustee had admitted proofs of debt amounting to £9,582 15s. 7d. in respect of liabilities estimated by the bankrupt at £12,627 13s. 9d. The assets, which were estimated to produce £2s. 4d. only, realised £163 14s. 4d., and a first and final dividend of 13d. in the £ had been paid. The difference between the actual value of the assets and the bankrupt's estimate was accounted for partly by the payment over to the trustee by the landlords of the bankrupt's business premises of the sum of £65 recovered by him in excess of six months' rent; partly to the holder of an assignment of book debts, amounting to £67 8s. 6d., surrendering her claim; and partly to realisation of copyright, etc., £65. The bankrupt was an American subject. In 1877, being in debt to the extent of £200, and having no assets other than patent rights, he began business as a photographer at 182, Regent Street, W. To meet his need for capital he borrowed £3,000 of one Dallas, but subsequently became financially embarrassed, and, in 1879, he called together his creditors, and paid them a composition of 2s. 6d. in the £ on liabilities of between £3,000 and £4,000. To Mr. Dallas he assigned a patent in satisfaction of his claim. His difficulties on that occasion arose through his devoting much time and attention to his inventions to the detriment of his photographic business. After that failure he borrowed £4,000 from a Captain Austen at 10 per cent. interest, and continued to trade at 182, Regent Street. He also continued to work at his inventions, leaving his business to a

manager, by whom considerable losses were incurred. In January, 1882, he (debtor) borrowed of one Taylor £1,500, which was paid to Captain Austen on account of his claim, and seven years later a Mrs. Hext lent him £2,000, which was paid to the Captain in settlement of his debt. In 1892 Mrs. Taylor died, and her executors accepted £350 in full discharge of their claim, but his debt to Mrs. Hext was still due. The bankrupt was continually in difficulties, and shortly before the date of the receiving order owed over six years' rent (£3,088) to his landlords, who then distrained. In 1894 he promoted a company, but, owing to an injunction being obtained against it on account of the noise made at its factory, it was wound up. Since his bankruptcy he had been chiefly supported by friends, who had advanced him £1,800 to exploit other inventions, which had, however, not yet proved successful, and he had delayed applying for his discharge in the hope of being able to realise such inventions and pay a substantial sum to his creditors. The bankrupt attributed his failure to loss on trading and his inability to realise on his inventions. His loss on trading between 1898 and 1901 amounted to £2,034, and his drawings for household and personal expenditure during the same period to £2,401. He had been aware of his insolvency since December, 1897, when his balance-sheet showed a deficiency of £1,089. Of the unsecured indebtedness £4,000 or thereabouts had been incurred since that date, and his deficiency, as shown by results, had increased to £9,419. The bankrupt's occupation was originally that of a portrait painter. As already stated, he subsequently became a photographer, and his business proved very successful. He devoted, however, such an amount of time and attention to experimenting on, or exploiting, various inventions that his business suffered, and, in 1879, he was compelled to make the arrangement with his creditors. Nevertheless, he continued his experiments in various directions, and had taken out, or applied for, in all some fifty-six patents, none of which had proved financially successful, and which had involved him in very heavy losses. As offences, the Official Receiver reported that the bankrupt's assets were not of a value equal to 10s. in the £; that he had continued to trade after knowing himself to be insolvent; that he had contributed to his bankruptcy by rash and hazardous speculations and culpable neglect of his business affairs; and that he had on a previous occasion made an arrangement with his creditors. Counsel, appearing on behalf of the bankrupt, asked that the discharge might be granted subject to a judgment being entered up against his client for a sum sufficient to pay the creditors a composition of 5s. in the £. He was prepared to pay £500 down in a very short time, and the balance of the money necessary to pay the composition would be provided at a later date. The Registrar remarked that the proposal was rather vague, as there was no security for the payment of the composition suggested, and, in the circumstances, he thought that the bankrupt would be wise to take an adjournment of the proceedings with a view to his putting somewhat more of substance in his offer than there was before the Court at the present moment. The application was accordingly adjourned for a month.

A SPECIAL exhibition of photographs taken by Captain Godfrey Faussett, R.N., Equerry to H.R.H. the Prince of Wales, is now open at 59, Brompton Road. These exhibits are particularly interesting, as they were taken, of course, from the same point of view as seen by the Royal party. Possibly the most interesting are those of wild elephant capturing and a Burmese dancing girl. Many prints also show the game that had fallen to His Royal Highness' gun. With the above are also a series of enlargements from negatives taken by Her Majesty the Queen, and a whole series of enlargements from the negatives of many distinguished amateurs. The exhibition is well worth seeing.

THE International Printing, Stationery, and Allied Trades Exhibition, which will continue at the Agricultural Hall, Islington, N., appeals in many of its features to photographers, not only as regards three-colour printing, but also in the show of picture post-cards.

MR. R. H. BEAVEN, who has been for many years with Messrs. G. W. Wilson and Co., of Aberdeen, has now been appointed the northern representative of Mr. C. Corn, of Upper Street, Islington, and will shortly start on his journeys to Scotland and the North of England.



## News and Notes.

**THE Bristol Photographic Club.**—This club has arranged an unusual form of competition for members in connection with its autumn exhibition. The judges will be asked to select the four best works by members and to place them in their order of merit. This list will be put into a sealed envelope and not opened until the fifth day of the exhibition. During the first four days all members will have the right to vote upon the pictures. The member's picture placed first by the judges will receive a special silver plaque; the member whose picture is voted as best by the members will receive any picture in the exhibition he may choose, valued at a guinea; while the member whose voting list agrees most nearly with that of the judges will also get a picture of same value. This competition should cause every member to take a keen critical interest in the exhibits, and stimulate their study of what constitutes a "picture."

At the last meeting of the Physical Society Mr. T. A. Vaughton pointed out that it has been frequently noted by several observers that some metals, such as aluminium, cadmium, zinc, magnesium, etc., although not radio-active in the ordinary sense of the word, yet have the power of affecting a photographic plate. The electric spark has a remarkable influence on this "activity," in some cases causing an increase, and in others apparently diminishing it. The alteration is not merely momentary, but remains for months. It is, however, quite superficial, and may be removed by slightly rubbing the surface with emery-paper. In the case of aluminium sparked with gold, the direction of the current does not make much difference in the activity of the sparked plate, but in the case of other couples the difference is very marked. For example, if a cadmium strip is sparked with antimony, the cadmium being connected with the positive terminal, the cadmium becomes very active photographically, not only on the spot sparked, but all over its surface. If, however, the cadmium is connected with the negative terminal and sparked with a positive terminal of antimony, the cadmium remains very slightly more active than if not sparked at all.

**LONDON and Provincial Photographic Association.**—September 6, 1906, has been fixed as the last day for receiving for consideration copies of papers read before other societies for adjudgment in the "Henderson Award." This award, which is given yearly, is one of the value of £5, and it may be in cash, a gold medal, or a silver or bronze medal and cash, or apparatus as selected by the recipient of the award. It is made to the author of the best paper on a photo-chemical or kindred subject, and the Association will be glad to receive copies of such papers for consideration through its secretary, Mr. Herbert C. Rapson, 13, Shaftesbury Road, Hornsey Rise, N.

"**SUMMER HOLIDAYS**" is the title of an edition de luxe of the G.E.R. Company's handbook to the seaside resorts and broadland served by this company, and it is thoroughly well illustrated, not only with reproductions in line and half-tone, but has also some excellent three-colour full-page reproductions of water-colour drawings.

On Saturday, 7th inst., the office and warehouse staffs of Houghtons, Ltd., took their annual outing up the river, travelling from Hampton Court to Runnymede by "La Burgoyne." Lunch and tea were served on board in the saloon of the boat, and parties of fifty sat down at a time, one or other of the directors acting as chairman for each party. At Runnymede the boat stopped for an hour, and afforded an opportunity for a ramble in the fields. The crowds of boats returning from Henley rather hindered the passage of the locks on the homeward journey, and Hampton Court was not reached till nearly ten o'clock in the evening. Nearly 200 members of the staff were on board.

**Hove Camera Club.**—An exhibition of prints representing Canadian work has been held at the headquarters of this society. The collection was brought together by H. Mortimer Lamb, and as well as pictures by himself, included work by Sidney Carter, A. S. Goss, J. A. Hodgkin, and Rex Stovel, all names of repute in Canada. The exhibits were mainly portrait studies, Canadian landscape not lending itself to photographic rendering, although "The Avenue," by J. A. Hodgkin, and Mr. Mortimer Lamb's well-known prints, "At

Last" and "A Forest Portal" were very striking. The portrait was of a very high order, largely "Salonesque" in treatment, particularly noticed a portrait of a child by A. S. Goss, a character study in light tones, and a print by Sydney Carter in gum intints.

"This is a free country, and the rights of the press must be held." With this declaration a magistrate at Oyster Bay Island, fined James Swan, in command of the secret service accompanying President Roosevelt, £2 for a technical assault on Clarence Legendre, a newspaper photographer. On the day President arrived at Oyster Bay to commence his much-needed summer holidays Legendre was waiting outside the station with a crowd of other people. Mrs. Roosevelt, he said, gave permission to photograph her husband, and for that purpose placed his camera in the middle of the road, with the intention of taking a snapshot of the President as he entered his carriage drive to his country home at Sagamore Hill. The same sort of thing had been done for years all over the country, sometimes without consent even of the wife of the party chiefly concerned. Swan, however, thought that Legendre came too near the sacred presence, ordered him back, finally pushing him into the crowd on the pavement. Such interference with the rights of the pictorial press understood here was bound to be resented. Swan apologised, too late. He paid the £2 fine in preference to going to gaol for days, and now he will be sued for £50 damages in a civil suit.

We have received the following further contributions to the Mawdsley Fund: G. W. Green, 10s.; C. R. Pearce, 4s.

"From the Art Studio of Ford, producer of portraits, 'Sunbeam Studio, Egremont,' is the title of an excellently got-up booklet, daintily printed and illustrated with some good half-tones. Some very useful hints to sitters are given, and the whole is well calculated to draw attention and business.

## Correspondence.

- Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- We do not undertake responsibility for the opinions expressed by our correspondents.

### PHOTO COPY PROCESS.

To the Editors.

Gentlemen,—In Mr. Shawcross' reply in your issue of July 6 I am glad he admits no claim to the introduction of the ferro-gallic process, although your issue of the 22nd June distinctly states it was due to him. He further says "Colas" published form "professed" to give these results. Why, his own, as described in his patent (8771) is an exact copy of "Colas" original, with quantities of the ingredients slightly altered. The only possible claim he can make is the using of the same developer in different form.

I adhere to my statements that I saw manufactured, both in the Continent and in the States, a water bath gallic paper long previously to his patent. It was certainly arrived at by a different plan, and one which at the present day is still considered much superior, viz., by giving the paper a second liquid coating of solution and developer, and not by rubbing in the gallic acid in a dry form by mechanical means—a very crude and uncertain method. The above plan was in no way an infringement of Mr. Shawcross' patent, nor one he could lay any claim to. It worked as a trade secret, and was not to my knowledge patented.

Is it not possible that the northern firms he so bitterly complained of may have adopted some such plan, and are perfectly entitled to claim the process as their own?

Marions made "Gallic Paper" previous to his patent, and in reference to them will confirm my statement. I did not say "water bath paper."

**Sepia Paper.**—Arndt and Troost may have only patented this paper in Germany in 1894, but it was put on the market by them there years previous to that date. It is a peculiar incident that Mr. Shawcross patented his in France and England, but carefully avoided Germany. Also when Arndt and Troost patented it in England, it was unopposed by him, or, if so, unsuccessfully. At a later period this firm were applying for injunctions, and stopping

of this paper all over the country. Why did he not step and raise the question then? Were they able to show a claim? As far as I am concerned this discussion is now closed.—Yours truly,  
MARGRAND.

#### AN APPEAL FOR HELP. To the Editors.

Gentlemen,—In your issue of to-day I saw an appeal from Mr. Milton Christian for help for Mrs. Sargent. I fully agree with in every way that hers is a deserving case. Last summer she and on me in Hull in distressed circumstances, since when she tramped up to London in search of work. Last Saturday she and on me here, on her way to Grimsby, where she expected to do a little work to tide her over for a time.

Should any subscription list be open or opened for this poor I shall be only too glad to subscribe my mite.—Faithfully  
MIGNON.

We need hardly say that we shall be pleased to assist by giving any subscriptions.—Eds., B.J.P.]

#### THE ARCHITECTURAL POSTAL CLUB. To the Editors.

Gentlemen,—Will you kindly allow me to draw attention to the fact that there are vacancies for two or three workers in the Architectural Postal Photographic Club. The club was started in 1904, for the study of architectural photography in its many branches, and has had a very successful career. The annual subscription is 1s. 6d.

A lantern slide section will be formed, to start next season. A good architectural slide maker will be gladly welcomed, so that the sets may start by October next.

All particulars may be obtained from me.

Bedford Square, Loughborough. J. E. UNDERWOOD, Hon. Sec.,

#### THE P.P.A. AND ASSISTANTS' CERTIFICATES. To the Editors.

Gentlemen,—Everything must have a beginning. The P.P.A. is not perfect—probably nobody has said or thought it was—surely it has begun in the right way. Even in the early days the Fellowship of the Royal Photographic Society it was granted me and all; but now it is by no means an easy title to obtain.

Thus it must be with the P.P.A.; one and all must be admitted even a few of the backyard men—till its gets sufficiently strong to stand alone, and lay down the law to photographers generally, and to the much-despised ones.

“Disgusted Assistant” hopes to form a Photographic Assistants’ Trade Union, he is almost doomed to disappointment. Let me look back through the files of your pages for the last ten years, even the almanacks, and see the numerous attempts that have been made at this sort of thing, and the utter failures they have of them been.

One has an uncomfortable feeling that in the letters of your correspondent one has a good example of the old saying: “Out of the fulness of the heart the mouth speaketh,” and that if he is being paid 4½d. an hour by these “amateur professionals,” is all he is worth.

Abuse of your opponent is no good, and ink and mud slinging helps case either, whether weak or strong. In my opinion, your correspondent has gone the right way to alienate the sympathy of many sides that of, yours faithfully, ANOTHER DISGUSTED ASSISTANT.

#### PROPOSED SOCIETY FOR COLOUR PHOTOGRAPHERS. To the Editors.

Gentlemen,—The letter in your last issue by Mr. Comley, is not no doubt satisfactory from some points of view, is in others distinctly unsatisfactory. For instance, I am a beginner in colour work, and should like, therefore, to know what advantage it will be to me to see the ambitious, but unsatisfactory results by other beginners, and how am I to learn from them?

The suggestion that skilled workers will aid seems to me to be a little visionary, and as, no doubt, many would propose to work commercially, is there not a chance of some little jealousy being excited, for I have not found that my brother professionals as a rule are prone to help me to compete with them?—Yours faithfully,  
A COUNTRY PROFESSIONAL.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

July.	Name of Society.	Subject.
1.....	Aberdeen Photo Art Club .....	Outing to Edzell.
21.....	Manchester Amat. Photo. Soc. ..	“Photographing Flowers.” Demon- strated. Dr. A. T. Lakin.
21.....	Halifax Camera Club.....	Outing to Wheatley Valley.
21.....	Bowes Pk. and Dis. Ph. Soc. ..	Outing to Waterford and the River Beane.
21.....	Redhill and District Cam. Clut	Outing to Worth.
21.....	North Middlesex Photo. Soc. ..	Outing to Waterford and the River Beane.
21.....	Leeds Camera Club.....	Outing to Bolton Woods.
21.....	Hackney Photographic Society	Trip on Greenwich Boat.
21.....	Bradford Photographic Soc. ..	Outing to Shipley Glen.
24.....	Manchester Amat. Photo. Soc. ..	Exhibition and Discussion on Hand Camera Work by our own Members. S. L. Couthurst.
24.....	Hackney Photographic Society	Short Papers by Members.
25.....	North Middlesex Photo. Soc. ..	Technical Meeting.

## Answers to Correspondents.

\*. All matters intended for the text portion of this JOURNAL, including queries, must be addressed to “THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C.” Inattention to this ensures delay.

\*. Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\*. Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\*. For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

- A. L. Twist, High Street, Bulith Wells, Breconshire, South Wales. Photograph of H. P. Wardle, Esq., Master of the Hawkstone Otterhounds, Holding an Otter above his Head away from the Hounds, on the Wye at Bulith Wells.
- G. Hynd, High Street, King's Heath, near Birmingham. Two Photographs of the Rt. Hon. J. Chamberlain, Esq., M.P., at Highbury after his Birthday Celebrations, July 10.
- W. G. Honey, 102, Patrick Street, Cork. Three Photographs of their Excellencies the Lord Lieutenant of Ireland and the Countess of Aberdeen.
- R. Wilkinson, The Studio, Hornsea, Yorkshire. Photograph of Traction Engine and Wagons with Aldborough School Children returning from the Seaside.
- Mrs. E. Denison-Biuns, 44, Mersea Road, Colchester. Photograph of a Group of Old Soldiers.

COPYING.—I enclose some negatives of a deed which I have been asked to copy; it is on parchment, and the ink rather faded. My trouble is that I cannot get enough contrast between the parchment and the ink. Can you suggest any particular method of procedure likely to succeed?—RANWORTH.

Use a slow process or photomechanical plate, and do not give too long an exposure. Develop with hydroquinone, 8 grains; sodium sulphite, 30 grains; formaline, 10 minims; water, 1 oz. Continue development as long as there is no sign of deposit in



the letters, and then fix, wash well, and if the parchment is not dense enough intensify.

**PUBLIC RIGHTS AND PRIVATE FOOTPATHS.**—Am I at liberty to walk across a field by the public footpath and take a photograph of private property? If so, am I at liberty to copyright and sell the views? I was last week warned off such a place.—**TRESPASSER.**

The owner of land through which runs a public right of way has not the slightest power to prevent anyone from taking a photograph therefrom, for whatever proprietorial rights he may possess in the demesne he certainly has no rights in the view as a view, therefore you can do what you like with it. The question, of course, is complicated by the fact that the footpath, being public, is public as a highway only, and this must be used in a reasonable and usual mode. It would be a very nice point for the Courts to decide, but commonsense certainly says that, provided no obstruction was caused, the taking of a photograph cannot be said to be an unreasonable use of the footpath.

**T. A. BAKER.**—1. Certainly you must secure fresh copyright for the new picture. 2. You must have a new block made.

**BLACK SPOTS ON ENLARGEMENTS.**—I have some enlargements which show numerous black spots. How can they be removed without injury to the film?—**S. H. BREAM.**

The usual plan is to apply the following, with a very fine camel's-hair pencil:—Potassium iodide, 30 grains; iodine, 20 grains; potassium cyanide, 20 grains; water,  $\frac{3}{4}$  oz.; glycerine,  $\frac{1}{4}$  oz. Dissolve in the above order, and as soon as the spots disappear, blot the solution off with clean blotting paper and wash well.

**BACKGROUNDS.**—What is the usual material for making backgrounds, I mean the cloth?—**T. WHITE.**

The usual material is unbleached sheeting, which may be obtained up to about 8ft. in width. This should be well damped, strained on a frame, and then given a thick coating of warm size before painting.

**FRENCH PASTELS.**—Can you kindly tell me where I can obtain French pastels for working up bromide enlargements?—**M. BLACK.**

Reeves and Sons, artists' colourmen, Moorgate Street, E.C.

**NEGATIVE MARKINGS.**—I enclose some negatives, and shall be glad if you will explain what has happened, and if there is any method of removing the marks. The negatives were developed with hydroquinone and immersed in a fixing bath containing alum.—**OPERATOR.**

This is the characteristic marking which is always obtained when a film containing an alkali is immersed in a solution of alum or one containing alum, the alumina or hydrate of alumina is precipitated in the film in a gelatinous condition, and, so far as we are aware, there is no method of removing them. When an alum bath is used after development or an alum fixing bath, it is essential to wash well after fixing.

**LENSES.**—I have just bought an expensive anastigmat, but I find on testing it that the definition at the sides of the plate is not so satisfactory as with my old R.R. Is this as it should be, and what is the fault?—**OPTIC.**

The fault lies in the test, a street scene, with the lens pointing straight down the centre of the roadway is no test for a lens, as the houses on each side would be obviously nearer the lens than the extreme distance in the centre, and if this was focussed on the roundness of field of the old R.R. would be an actual advantage, as this would probably compensate for the nearness of the object. If you want to roughly test your lenses take the flat straight face of a house or pin up a large newspaper and make comparative exposures with full apertures. Then you will be better able to judge.

**T. BROS.**—He died on May 25, 1905. See the "B.J." June 2, 1905, p. 435.

**F. V.**—Certainly not.

**CHROMO.**—We have handed your letter on to one who may help you and who will write you by post.

**COPYRIGHT.**—Your opinion and advice on the following matter greatly oblige. In June, 1903, a shopkeeper paid me for permission to reproduce one of my copyright photographs, others, in a small book of views. Since that time the said shopkeeper has gone bankrupt. Now I find that the printer's book is issuing the same kind of book to local shopkeepers still containing my view. I do not wish or expect to gain anything from this, which I consider an infringement, but I to know how the law stands in the matter. I have looked the "B.J.P." for several years back, but I cannot find a case. What I wish to know is: 1. Does the bankruptcy of my agreement with the shopkeeper? If so, in what? 2. Is the printer within his rights in sending the books to shopkeepers to sell without my permission? 3. Can I stop publication and sale of any more books containing my view? Can I proceed against the shopkeepers that are selling the containing my view? 5. Can I demand the block to be given me or have it destroyed? I have been told by one shopkeeper that I can do what I like, he will still keep on selling them. I have written to the publishers, and I enclose a copy of the letter, also a copy of my agreement with the shopkeeper. It is simply a case of who and what is right.—**D. G.**

(Copy of Agreement).

Agreement between A on the one part and B, both of the part of ——. That B be allowed to print ten thousand copies of photographs of —, registered No. 000000, or instruct be printed same number for the consideration of One Guinea (£1 ls.), in one style—viz., for retail at one penny each in Blankshire Book. Signed, etc.

(Copy of Letter from Publishers).

Dear Sir,—In reply to your letter with regard to view Blankshire Book, this is part of a book we printed some years since. We note your name is acknowledged on the view in question, and you gave permission to Mr. B to use the view and most of the edition was done and taken by him, and had permission through Mr. B to use it at the time.—Yours faithfully,

C. AND CO., LTD.  
1. B, having become bankrupt, his right of reproduction to 10,000 copies might be an asset of the estate and might be sold to a purchaser. 2. If the printer bought the rights in the Blankshire Book then presumably he would have the right to continue to print a reproduction of your photograph up to 10,000 copies. 3. Provided that a new edition in excess of the above stated number has been published you certainly have strong right of action. 4. Yes, if the 10,000 is exceeded. 5. You can demand destruction or delivery of the block, a return of copies sold above the 10,000, and claim for damages. This is an important case, and as the publishers are a big firm and probably prepared to put up a good fight or bluff it through their solicitor, we should strongly advise you to place it at once in the hands of a solicitor, or apply to the Copyright Union, 23, Soho Square, W.C. In any case B had no right to give them permission to use it, except for his own book.

**A. K.**—1. Dawbarn and Ward, 6, Farringdon Avenue, E.C., supply. 2. Use a slow plate and expose to artificial light contact with the negative.

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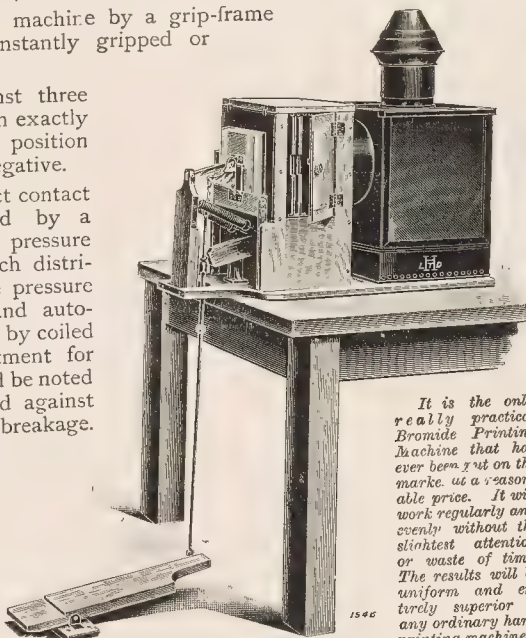
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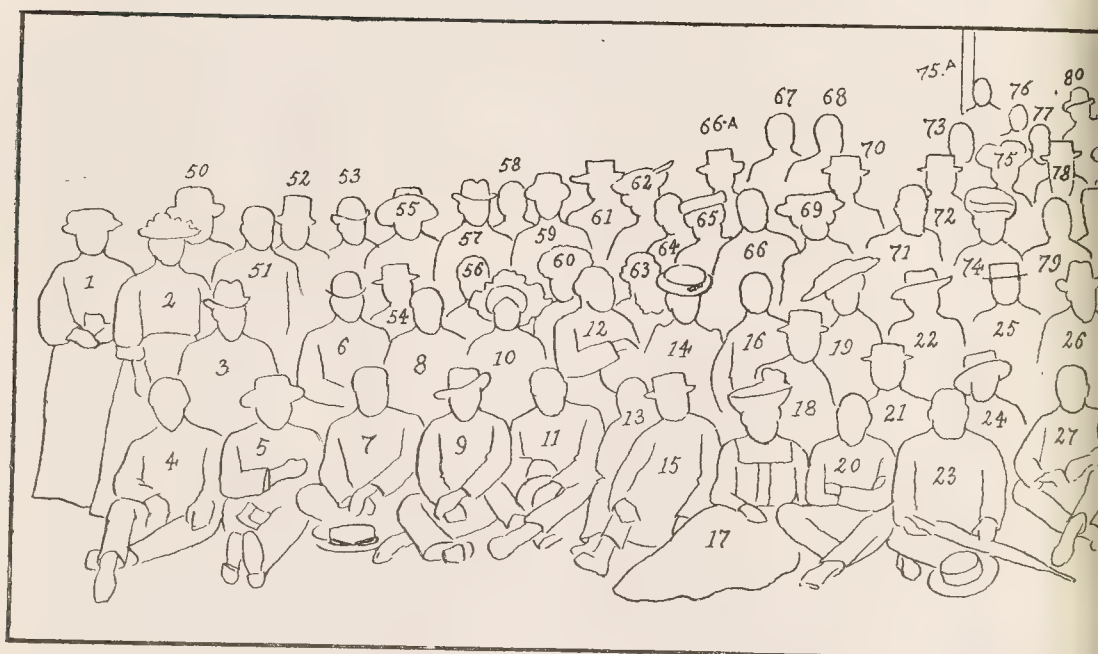


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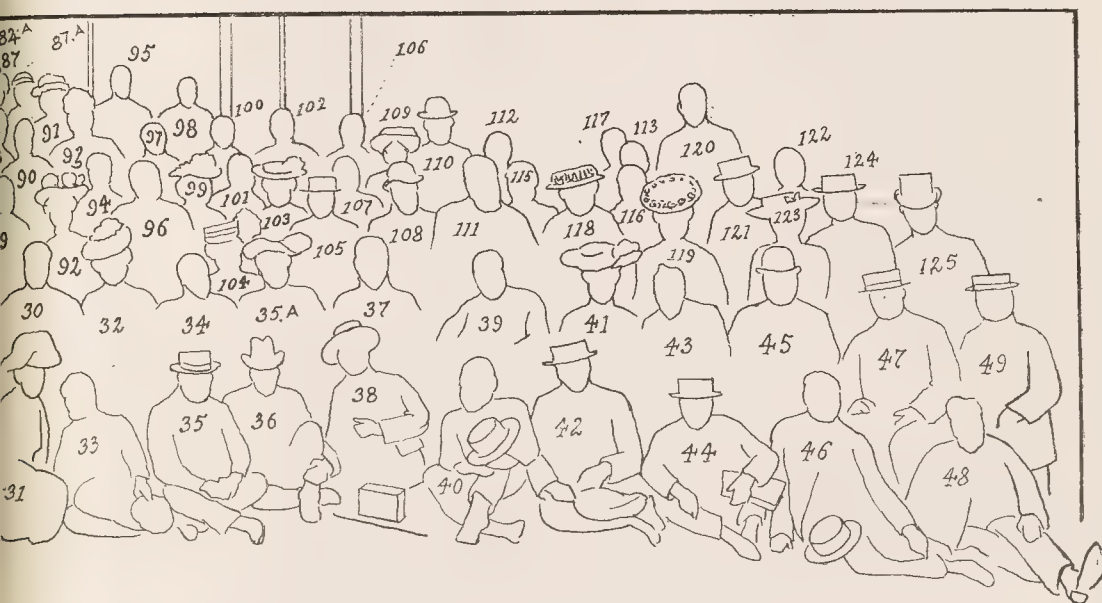
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No. 2412 Vol. LIII.

FRIDAY, JULY 27, 1906.

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## SUMMARY.

A simple method of examining and drawing the plane projection of the three-dimensional image, as given on the ground glass of the camera. (P. 583.)

The possibilities of cinematography in colours, with the suggestion of an imbibition process will give each little picture complete colour. (P. 584.)

The recommendations of the Joint Committee of the Lords and Commons will, if carried into law, press hard on some photographers to now rely on Sunday trading. (P. 582.)

Picture postcards are suggested as a cheap and effective means for the study of posing and lighting by eminent workers. (P. 582.)

The analysis of a half-tone portrait with comparative illustrations and measurements of the dots in light and shadows. Standards suggested which may prove useful when harsh criticism is applied to results. (P. 585.)

The artistic value of glossy prints and a strong protest against the too frequent prevalence of matt surfaces and blurred masses devoid of any drawing. (P. 587.)

A summary of the present status of colour photography, a paper read at the Photographic Convention on July 13, at Southampton. (P. 588.)

Mr. H. J. Comley suggests that the Convention is a neutral ground, where all professional disagreements may be forgotten and personal fellowship be fostered. (P. 592.)

A deep green filter for dark room lamps, which is specially useful for red sensitive plates. (P. 592.)

A working formula for casein printing-out paper. (P. 593.)

A new three-colour camera, devised by Sir William Abney. (P. 595.)

The P.P.A. and Assistants' Certificates still claims attention. (P. 597.)

## EX CATHEDRA.

### A Practical Use for Three-colour Work.

Whilst many will not admit that the present position of three-colour photography is such that it can be profitably applied by the professional to every day portraiture, there are other fields in which it may be useful. For instance, there is lying in front of us now an excellent three-colour half-tone of a tapestry covered armchair, which has been issued by a furniture manufacturer with his price list. This was made from a set of three-colour stained films, which were merely securely bound together by one edge, that not only could the block-maker see the subject complete in all its colouring, but so that each individual positive became a guide to the fine etcher as to what was and was not wanted. This principle is obviously applicable to many cases when it would be utterly impossible, either from the size of the object or other circumstances to send it to be photographed. Considering how easy it is to make such positives and how easy to so adjust results as to obtain correct colour rendering there should be a fairly wide field open for this particular application of three-colour work.

\* \* \*

### Ozobrome and Three-colour Work.

It was but natural to connect the process of ozobrome with the production of three-colour carbon prints, and Mr. Manly has shown us some specimens by this process which are extremely effective, and one in particular the original of which we happen to know was very true to colour. It is obvious that by this process the production of three-colour prints will not only be considerably facilitated, but that it means a very great saving in time. One has merely to make as many sets of bromide prints from the three constituent negatives, as one wants colour prints, and they can all be treated at once. This should render the production of colour prints by professional photographers a much easier matter, and it will further enable the negative to be taken of a small size and then direct enlargements in colours can be obtained.

\* \* \*

### Dark Slide Shutters.

The notes which have recently appeared in our pages on this subject have been somewhat contradictory. That on page 542 referred to the experiments of Herr Beckers, whose conclusions were distinctly negative of any fogging or other deleterious action of aluminium. Now in "Die Photographische Industrie" an amateur returns to the charge and gives instances in which plates left in dark slides with aluminium shutters showed black patches and fog after only twenty hours. Now Herr Beckers states that since his previous note he has repeated his experiments with aluminium and left



plates in the slides for a whole week and has found no ill results. His suggestion is that when there is trouble it must be ascribed to radio-active impurities in the metal and not to the metal aluminium itself. Considering the large number of dark slides which are now issued in England with these metal shutters, we should have thought that we should have heard something before this had any pronounced trouble been met with.

\* \* \*

#### **Sunday Trading.**

Two or three times during the past few months reference has been made to proceedings that have been taken against photographers for following their business on the Sunday. The only proceedings, at the present time, that can be taken against those who do so is under the antiquated Act of Charles the Second, passed in the year 1677, and the greatest fine for its infringement is five shillings only. Some little while ago a Joint Committee of Lords and Commons was appointed to inquire into the question of Sunday trading, and it completed its labours last week. Here are some of the recommendations the Committee now make. One is that the general principle of the Act of 1677, in regard to Sunday trading, ought to be maintained, and that the penalties imposed by that Act, in consequence of the change in the value of money, are now inadequate for securing the end in view. Another is that the exigencies of modern life make it necessary to permit, in particular districts, the sale of certain articles for a part or the whole of Sunday; and that special regulations necessary for this purpose should be framed by local authorities, under proper supervision and confirmation by the central authority. Two recommendations of the Committee will be of interest to photographers who carry on business on Sunday, if they are permitted to do so should the recommendation be enforced by an Act of Parliament. They are these. First, that every shop assistant, and presumably photographic ones, should be secured by law one day's rest in seven, and that no such person should be subject to any penalty if he objects, on conscientious grounds, to Sunday employment. The second is, that any employer who places upon an assistant any obligation to work on Sunday as a condition of employment without provision for securing him one day's rest in seven should be subject to a penalty. This would secure to some employees a full day's rest that they do not now get. However, the recommendations of the Committee have not yet been embodied in a Bill, and there is no probability that they will be this session, nor in the next, but there is little question that the subject will come before Parliament in the near future. If photography is not one of the exigencies of modern life that it is necessary to permit, many photographers who do a large business on Sundays will suffer badly.

\* \* \*

#### **Duty Free Alcohol.**

It may be remembered that last year the late Government introduced a Bill, based upon the report of the Industrial Alcohol Committee, to permit duty free alcohol to be sold for purely industrial purposes, but owing to press of other matter nothing came of it. One day last week, late at night, the Financial Secretary to the Treasury moved the second reading of the Revenue Bill on the part of the Government. One of the main features of the Bill is to allow of the sale of alcohol free of duty when it is used for manufacturing purposes. In introducing it Mr. McKenna said that the case of the spirit free of duty would be about eighteenpence the gallon, but the duty itself is eleven shillings a gallon. At the present time alcohol is permitted to be sold free of

duty provided it contains ten per cent. of wood naphtha but the new Bill proposes to reduce this proportion to five per cent. This will tend to lower the price of methylated spirit, as the cost of the wood naphtha is considerably more than that of the alcohol itself. The reduction of the proportion of the naphtha will, also, render spirit more serviceable for some photographic purposes than it is at present. When the present methylated spirit is sold in less quantities than ten gallons, and then the purchaser must hold a license to purchase it, it must, in addition to the wood naphtha, contain a small proportion of petroleum spirit, which causes it to become opalescent when diluted with water. The Bill is not a controversial one and it passed its second reading the same night, at the Committee stage was set down for this week. The Bill, if it passes into law, as in all probability it will shortly, as it is a non-contentious one, will not be of the same benefit to photographers generally that it would have been when the collodion process was the only one employed. Still, collodion is largely used by process workers and for enlarged negatives, and the new Act will enable this material to be sold at a much lower price than it is possible at present with the duty-paid alcohol, which costs about three times the price of the ether it contains.

\* \* \*

#### **The Study of Pictorial Postcards.**

Amongst the most attractive things shown in the windows of fancy stations at the present time is undoubtedly picture postcards—those of portraits of actresses and other celebrities perhaps receiving the largest share of attention. If one looks in the show-cases of the ordinary portrait photographers perhaps only a few doors off, one cannot help being impressed with the wide difference there usually is in the specimens there exhibited and those shown for sale by the stationers. Those shown by the former are doubtless his own work, while those displayed by the latter are, as a rule, by workers of high standing, both at home and abroad. In many provincial towns the difference is still more marked than it perhaps is in the metropolis. Is there any real reason why the difference should be so great? If photographers were to study these published portraits they could at once see how they could improve their work both as regards lighting and posing, yet they do not seem to appreciate the example set by really artistic portraits. There seems to be no real reason why this should be so for the examples are to be seen almost everywhere, and what is more, they may be purchased for about a penny or twopence each for study at leisure at home. Still, the opportunity does not appear to be largely availed of—or at least is not greatly profited by, judging by the specimens one sees in the majority of middle-class photographers' show-cases. Some may say I cannot get such lighting in my studio: that is a fallacy; any kind of lighting may be obtained in any form of studio if the operator has the ability to apply it. Others may say I do not get the same class of sitters to deal with, and the like. This may be correct to an extent, for it must be admitted that, generally, actresses do take, naturally, more graceful poses than is the case with ordinary everyday sitters, but the poses they take are not always the most suitable to photography, hence the artist, often, has to considerably modify them, and it is here his skill is shown. We should recommend country photographers whenever they visit London to make a point of taking back with them a few dozen of these portrait picture postcards, which are now to be had for as many shillings, and study them at home. If they were to make this rule they would quickly see the means of materially improving their own productions.

## THE PERSPECTIVE OF THE AERIAL IMAGE FORMED BY A LENS.

IN studying the formation of the image produced by a photographic lens, it should always be remembered that when the object is a solid, or three dimensional, the real image formed by the lens is also three dimensional. The flat, so-called "image" on the ground glass is then simply a plane projection of the three-dimensional image, and for many purposes it may very conveniently be looked upon as a shadow of the "solid image," cast by a source of light the size of the lens exit pupil. Many misconceptions have arisen through neglecting to consider the fact that the real image is three dimensional, and, very curiously, the perspective laws governing the form of this real image seem to have received little, if any, consideration.

Some little time ago we were led to inquire into this subject, and, somewhat to our surprise, we found that the formation of the aerial solid image produced by a lens is governed by extremely simple laws, far more simple than the optical laws that the student is usually compelled to observe when drawing the solid image.

The optical methods take much time and generally lead to a multiplicity of working lines that is very confusing. The perspective method is very rapid, and the resultant drawing of the image is almost free from working lines. Further, image points are determined by lines intersecting at fairly obtuse angles, while by the optical methods all such points are fixed by lines or rays intersecting at acute angles; so acute in many cases that the position of the point cannot be accurately determined without calculation.

The rules governing the perspective of the image are as follows:—

- 1.—Every line in the object and its corresponding image line will meet, if produced, in a point in the principal nodal plane of the lens.
- 2.—Parallel lines in the object are represented in the image by lines that converge on to a point (a vanishing point) in the principal focal plane of the lens.

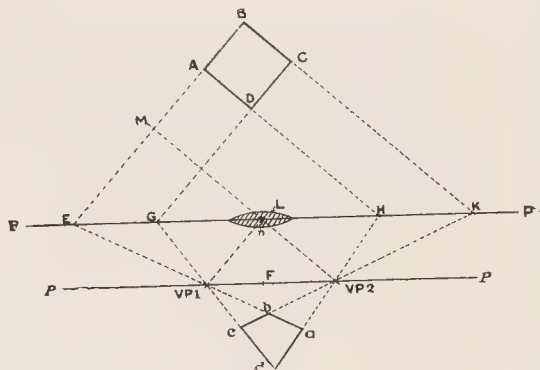
It should be understood that in solid perspective (as in plane perspective) there is no way of fixing the position of a point other than that of representing two lines that intersect in the point. Hence to fix the image of a single object point we must draw two lines through the object point, and then on drawing the images of these two lines their intersection gives the image point. If the image of a point is determined by optical "rays," as many lines are involved, but we have little choice as to the position of the lines, whereas by perspective methods we can put the lines at any angles we please, and so secure obtuse intersections and great accuracy.

To illustrate the application of the two perspective laws given, we will consider the case of a simple horizontal square object A.B.C.D. of two dimensions only (see figure). If this object is a little below the axis of the lens, L, all four corners of the square will be visible to the lens, and they will be represented in the aerial image by the points a, b, c, d. The diagram represents all the various points in plan only. The line PnP is the trace of the principal nodal plane of the lens L passing through the node n, and the line pFp is that of the principal focal plane passing through the principal focus F. To illustrate rule 1, it may be noticed that the object line AD and the image line ad meet, when produced, in the principal nodal plane at H, while under rule 2 the lines ad and bc, which represent the parallel object lines AD and BC, meet in a vanishing point in the principal focal plane at VP2. Rule 1 is also illustrated at the points E, G, and K, while VP1 is a second vanishing point for the lines cd and ab.

It is obvious that the points E, G, H, and K are easily

fixed by producing the object lines AB, CD, AD, and BC, until they cut the principal plane PnP, and that with the aid of these points and the vanishing points VP1 and VP2 it is easy to draw the image a, b, c, d. To determine the vanishing points we adopt an expedient common in all perspective methods. We assume the existence of an imaginary line that is parallel to the lines we wish to represent, but leads directly to the vanishing point. In this case, to find VP2 we assume a line MN parallel to AD and BC and passing through the node N of the lens. Under the laws of Optics the image of such a line must be in the same straight line, therefore if we produce this line to cut pFp in VP2 we have (under law 2) the vanishing point for the images of all lines parallel to MN, and therefore the vanishing point for ad and bc.

The diagram being an explanatory one contains more lines than are absolutely necessary. The dotted lines need not be drawn, for the only lines actually required are the principal nodal plane, PnP, and the principal focal plane, pFp. Having drawn these lines we lay a parallel ruler on BC, and where its edge cuts PNP we tick off the point K. We shift the ruler to AD and similarly tick off the point H. Then, keeping the ruler parallel to its former position, we place it with its edge on the nodal point N and tick off VP2. If next we lay a straight edge through



K and VP2 we can rule the line cb in the proper position, and of approximately the right length, and by shifting the edge to H and VP2 we can draw ad. On repeating the process on the other side of the lens we obtain the points E, G, and VP1, and through these points we rule the lines ba and cd, and so determine all four points a, b, c, d, this result being quite accurate and also clear and free from working lines. If an attempt is made to draw this image by ordinary optical methods it will be found that the points b and d cannot be determined with any approach to accuracy on account of the very acute intersections involved, while c and a will probably be in error. The positions will have to be calculated if optical methods are employed, and accuracy is to be ensured.

It should be observed that under rule 2 the principal focus is the vanishing point for all image lines that represent object lines parallel to the principal axis of the lens. Or, in the language of perspective, the principal focus is the "point of sight" in the system of lenticular solid perspective. This is a fact that is not generally known, but it is, as we have often found, a most useful fact to remember when studying optical problems that are not immediately concerned with perspective. The diagram given is a plan only, but the same construction will apply to a vertical section, and by combining a vertical section with a plan the complete construction of a three-dimensional image can be examined and studied.



## CINEMATOGRAPHY IN COLOURS.

THE exhibition of cinematography in colours given at the Photographic Convention at Southampton may possibly direct further attention to this subject. Although the rendering of moving scenes by the cinematograph is now so perfect that one may easily be deluded into the belief that one sees the actual objects, there is not the slightest doubt that if to this representation we could add colour, illusion would be still more perfect, and, from a scientific point of view, the cinematograph would be still more valuable.

Five or six years ago results in colour were shown by means of the cinematograph, but lately we have heard but little on this head. There is, however, obviously a possibility of the attainment of this object, particularly in the face of the latest advances that have been made in the colour sensitising of negative emulsions. Here was the crux in the old days. We had then no satisfactory red sensitisers; but now, given a suitable mother emulsion, there is no insuperable difficulty to so sensitising this as to make it comparatively easy to obtain fully-exposed negatives behind the red filter.

Naturally a good deal depends upon the filter; but as with the new filter dyes there should be a possibility of obtaining a ratio of exposures of 6:6:6 respectively for the blue, green, and red filters, there should be no difficulty in obtaining correctly exposed negatives in correct colour gradation. It should be possible to obtain these ratios, but we are not prepared to say how these filters can be exactly prepared, because more experiments are required; but it may be pointed out that, with a fairly open filter, an error in absorption could be compensated by under-exposure.

Assuming, then, that we have rapid panchromatic emulsions and rapid filters, we are face to face with the problem of obtaining the colour record negatives. This problem can only be solved by careful consideration of the method by means of which we are to project the pictures. We do not mean the actual mechanical means, but whether we are to resort to triple projection—that is, the so-called additive system in which light is added to light, or whether we are to use superimposed stained films. Then, again, there is a possibility of utilising the well-known persistence of vision, and to superimpose on the retina the impressions of the three colours so rapidly that the result shall be normal colour.

If we adopt the system of triple projection it is obvious that we must take three negatives side by side in such a manner that the three positives can be projected to superimpose. This means, of course, three lenses side by side, and one then has to reckon with parallax, which, however, is hardly likely to be of much moment. The far more important fact, from the practical commercial point of view, is that one must use a negative, and also a positive film, which is at least three times the width of the ordinary film, and that the negative film, being exposed behind stationary filters, must receive the correct ratio of exposures. Possibly, also, there might be a mechanical difficulty in moving a celluloid film of the required width with sufficient regularity and without the danger of the celluloid tearing or breaking down under the strain.

Having obtained the negative, one would have to make positives by contact, and practically repeat the movements for obtaining the negative in projecting the positive in colours.

If we adopt the persistence of vision method, by means of which we should take a series of negatives through violet, green, and red filters, alternating and repeating in this order, it is obvious that one has the mechanical difficulty of alternation of the filters synchronously with the negative film. Precisely the same trouble will be met with in projection. To say that this is impossible would be dogmatic, but it is obvious that there must be an enormous loss of light and enormous increase

in the cost of the taking and projecting instruments. The question next arises as to whether it would be possible to obtain negatives of each colour record, and so combine afterwards into one film that they could be projected by cinematograph. This immediately resolves itself into the question of printing.

Supposing that we obtained simultaneously the three-colour record negatives on one or three films, because for this it would be perfectly immaterial as long as the films for all three records were synchronously. Is it possible to so utilise one of our present printing processes as to obtain on one film a series of pictures each of which shall be in itself a perfect colour picture? If thus each picture, being itself a colour record, could be projected in any existing cinematograph lantern.

At the first glance it is obvious that we must at once reject any process in which superposition of stained films is used, the exposing, printing, and staining up of, say, 150 ft. of a colour record and superimposing of the same would be a task in face of which the labours of Hercules would be child's play.

The question remains, then, as to whether we could use an imbibition process. Here seems to be a possible solution of the question, for in these processes we have not the superposition of three films, but merely the transference of details to one film, and it should be possible, though possibly not easy, to obtain accurate register of the matrix films, for this would mean merely accurate mechanical movement, accurate perforation, and pressure.

Slight irregularities in superposition would probably be absolutely unnoticeable on the screen; and, however idealistic the suggestion is, this is what we want—a length of cinematograph film, each picture in which shall be a record of the movement at the instant of exposure, and at the same time in itself a complete colour record.

Assuming that this last idea is feasible, then one can conceive of three separate lenses, three separate negative films, and three separate colour filters, and of these the only one moving being the film, then one might, by means of an imbibition process, obtain one film, each picture of which should be perfect colour. Or one might use the alternating colour filter and obtain an alternating colour record negative, and, using an imbibition process, transfer each colour record to the other picture; this, at least, means accurate superposition.

So far as we could gather, the results shown by Captain Lascelles Davidson and Mr. Friese Greene were obtained solely by the aid of two colour records side by side on a standard negative film, and positives from these were projected in an ordinary cinematograph; in front of the objective was a colour-box, by means of which the two positives were combined. The impression one gathered, though possibly wrong, was that these experimentalists use two colour records only—a blue, green, and an amber or orange. If so, correct colour cinematography on these lines is impossible. We have here applied to the lantern precisely the same principle which Gartner, of Berne, has utilised in his two-colour process; where real reds are ignored, and whilst this may be useful for pure landscape work, it can never be a true scientific record of colour by the aid of cinematography.

These few notes are advanced rather with the hope of suggesting further work and experiment; possibly also because we believe that soon we shall see the problem solved. This we believe, notwithstanding the dictum of a distinguished member of the Photographic Convention, who, after the exhibition of the ordinary coloured slides and the cinematograph pictures, said that he considered three-colour photography as somewhat of a farce with playing the overture to Wagner's "Niebelungen Ring" with three fingers on a piano.

## ANALYSIS OF A HALF-TONE PORTRAIT.

A Paper in "The Inland Printer," by whose courtesy the illustrations are given.

The original photograph from which both half-tones are productions is a soft brownish-black platinum print with considerable "surface texture" showing in the background, so that it is not an easy subject to reproduce.

The engraving (Fig. 1) is inserted alongside of Fig. 2, not for purposes of invidious comparison, but to show clearly what variation in treatment and interpretation has been given to each of the reproductions.

It is impossible to properly appreciate the actual closeness of adherence to a given requirement unless one makes comparisons in the light that one condition may throw on another. The engravings themselves are made the subject of comparison so that the various modifying influences that interpolate between the engraving and their finished prints may to a large degree cancel each other, because the same personal equation is impressed upon each specimen.

When one realises how much misunderstanding and undeserved blame of reliable workmen arises from a combination of circumstances in which no particular blame can attach to anyone in the matter of printing half-tones, it becomes an important matter to lay such a groundwork for comparisons, establish certain standards of attainment, etc., as shall make the lot of all craftsmen an easier one, because there will be little or no carping criticism, but there may be a great deal of wholesome analysis of efforts and results that will be productive of far-reaching results.

Photographs or wash-drawings having a deep black background with little gradation in the middle tones when used as copy for half-tone

plates may show up well in the engraver's proof. This is because the ink can be placed on the cut with a hand brayer, and the overlays made to bring out deep blacks, middle tones and "whites" with all the gradation, and sometimes even better gradation than was present in the original copy. After the ink is on the plate the prover can, and frequently does, manipulate the plate by wiping off colour here and there after the style of the worker in gravure, steel die or copperplate printing.

The prover's mind is concentrated on getting a nice proof, and rightly enough from one point of view, for he has not been awakened to the fact as a general thing that the cut will come for is to set the pace for the man to whom the cut will come for interpretation on the cylinder press. What can be done on the Washington hand press can only be approximated on the cylinder press. A half-tone cut will not print dead black in the heavy shadows if the half-tone dot is there. The letterpress may carry so much colour that the type looks sloppy, yet the half-tone cut is

grey and dead. If additional colour is carried in a mistaken effort to make the shadows print solidly the entire cut is "mushed."

The customer who has a job to be printed with illustrations, should, as far as practicable, have all the work done by one house. The printer should be careful to give the engraver advice regarding the character of the stock and ink to be used and also information of the effect sought to be obtained. The engraver will adapt his work to the paper and presswork. Too often, however, a mixture of old and new cuts from a variety of sources and with a variety of meshes are given the pressman, and it is a very difficult task to reconcile, in the same form, the treatment an open cut requires with the treatment required by a solid cut. A cut that is made open by the engraver may be proved up to look like almost solid by the prover, but the pressman will find it difficult to make this metamorphosis on long runs on the cylinder press without spoiling the job by destroying the balance between the engravings on the type matter.

This brings us to the point of making an analysis of the two specimens shown. In order that it may be the more readily understood and the one compared with the other the characteristics are given in Table A, which summarises the values.

The analysis has to do with the screen pitch, unit area, diameter and area of the black and white dots, and the percentage of black and white of four tonal values. The points of observation are noted in the table.

Fig. 1 has 145 lines per inch, a screen pitch of .0069 inch, and a unit area value of 476. (.0000476 sq. in.).

Fig. 2 has 150 lines per inch, a screen pitch of .00666 and a unit area of 443.5 (.00004435 sq. in.).

The margins of the white dots in the background of Fig. 1 are ragged to a large degree, thus throwing the dots and the printing areas surrounding them out of symmetry, which produces a "blotchy" appearance. This is probably caused by too vigorous etching or too much heat when baking the "enamel." Either one would cause ragged edges. On the other hand, a slight excess of heat would partially destroy the acid-resisting properties of the enamel and thus allow the acid to attack the copper underneath over the whole of the area, but as the plate shows no such action, it is assumed that the defect is due to the lack of adhesion between the enamel and the copper to prevent the flaking away of enamel particles in the acid immediately adjacent to the edges of the dots, thus leaving a ragged margin.

It will be noted from the table that the tonal value of Fig. 1 in the background is quite abnormal. This is apparent at a glance

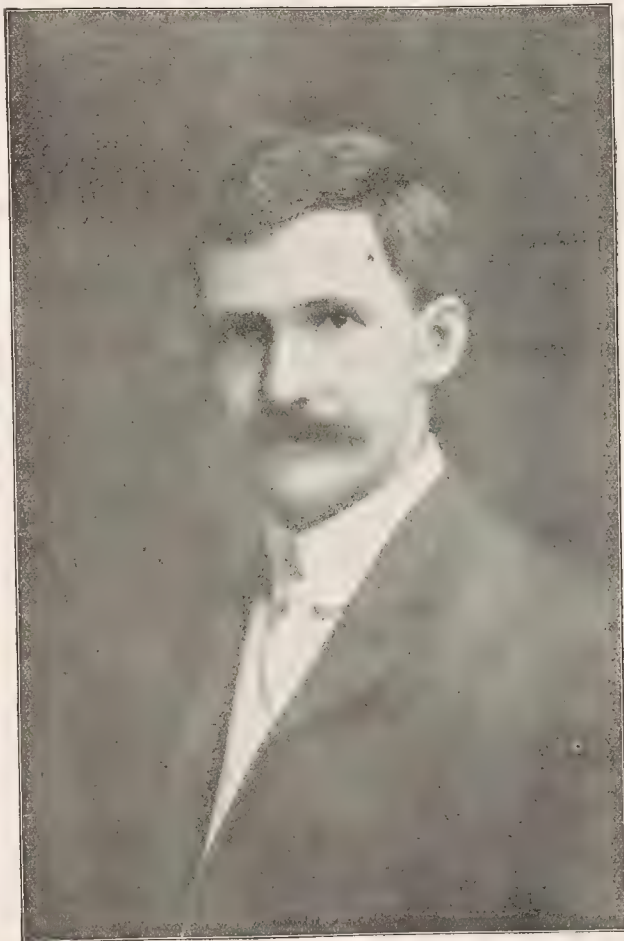


FIG. 1.—145 lines per inch.



TABLE A.—SPECIAL PORTRAIT HALF-TONES. CHARACTERISTICS AT 145 AND 150 LINES PER INCH.

KINDS OF DATA.	FIGURE 1.				FIGURE 2.			
	"Whites."	Background.	Grey.	Shadows.	"Whites."	Background.	Grey.	Shadows.
	Smallest in Collar.	○ Near Ear.	○ Left Cheek.	Smallest ○ Right Eye.	Smallest in Collar.	○ Near Ear.	○ Left Cheek.	Smallest ○ Right Eye.
Form of Dots and where located. }								
Diameters	.0015"	.0050"	.0060"	.0025"	.0010"	.0035"	.0050"	.0020"
Areas, white	458.3	196.4	232.7	49.1	435.6	96.2	282.7	70.7
" black	17.7	279.6	193.3	426.9	7.9	347.3	150.8	372.8
% of white	96.28	41.26	59.35	10.03	98.18	21.69	65.75	15.94
% of black	3.72	58.74	40.65	89.97	1.82	78.31	34.25	84.06
Unit areas	.0069 × .0069 = .000476 sq. in. = 476				.0066 × .0066 = .000435 sq. in. = 435			
Lines per inch	145				150			
Screen pitch	1/14" = .0069 in.				1/10" = .0066 in.			
Diagonal pitch	.00975 in.				.00942 in.			
Areas of pure grey	White 238 and 238 Black .0055				White 221.7 and 221.7 Black .0053			
Diameter of pure grey dot								

by comparison of one print with the other, but what the *specific value* of such aberration is cannot be told in this manner, by offhand visual inspection, hence the desirability of scientific analysis.

When attention is called to certain features, *definite* values should be ascribed to the same. Tonal value should be referred to as diameter or area of dot, or percentage of white. The latter would be preferable, as it is easy to make up a table showing such percentage values for various screens and diameters of dots, giving *unit areas* as well. Black percentages are easily found by simply subtracting the percentage of white from 100.

By doing things along these lines, process engraving will be placed on the proper scientific plane, and the day of uncertainty, when the sentiment of the skit on indefiniteness, "As long as a piece of string and as big as a lump of chalk," was the rule, will have passed into oblivion.

The differences of the two engravings are clearly pointed out in Table B, which is self-explanatory. The areas for both the black and white values are given in Table A so as to more clearly show wherefrom the percentages are derived.

Taking the white area of the first column as 458.3 and remembering that the unit area for Fig. 1 is 476, the proportion of *white* contained in unit area (which is *altogether*

white) is expressed as  $\frac{458.3}{476}$

and the amount of black, due to the smallest black dots, as  $\frac{17.7}{476}$  or 3.72 per cent.

In Table B, the background of Fig. 1 is shown to possess

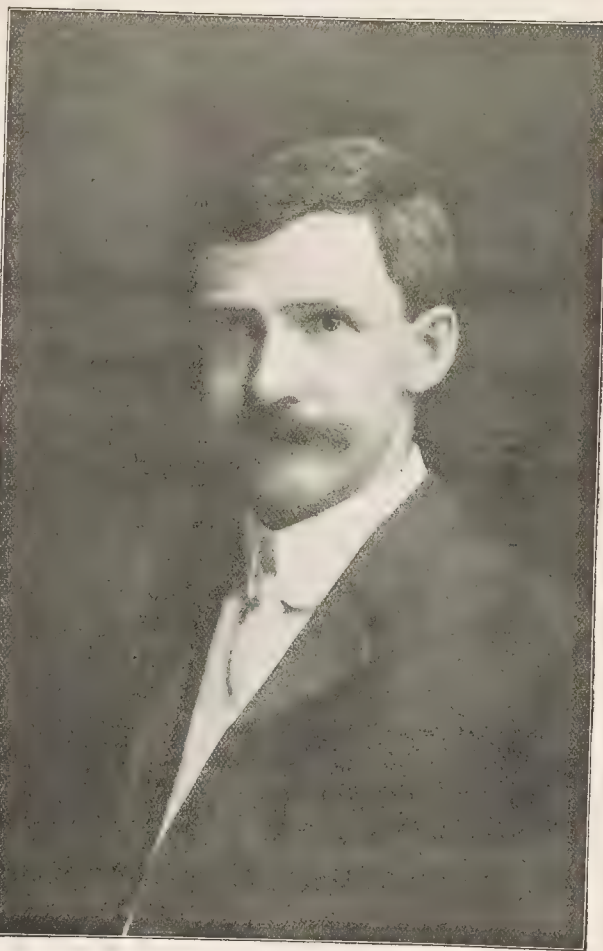


FIG. 2.—150 lines per inch.

almost twice as much white as Fig. 2, and in the "white" Fig. 1 has approximately half the white value of Fig. 2. The brilliancy of Fig. 1 is to be very much below that of Fig. 2.

To properly consider value of either engraving from the basis of interpretation, it is absolutely necessary to know the tonal values of the original photograph. This should be given numerically for the quarter, half, and three-quarter tones.

Having such a record it comes easy to know from table giving the sizes of dots, areas, and percentages, whether the interpretation is a faithful one or is but an approximation.

A reproduction may be faithful enough as to recognisability but it may at the same time lack all the subtle charm of true tonal values that differentiate an approximation from a true copy.

If unit area is taken as 476 whole or pure white will be represented by this number; white by 357;  $\frac{1}{2}$  white by 238;  $\frac{1}{4}$  white by 119;  $\frac{1}{8}$  white by 59.5, and no white by dead black that covers all of a unit square or unit area.

The dot diameters for these areas work out correctly until the point of 25 per cent. of black (75 per cent. white) is reached. At or near this point the dividing space between two contiguous depression (white dots) is etched away, and the law of periodic acceleration comes into play to modify the etching rate and also

the interpretation. If unit area is taken and the diameter of a dot is calculated therefrom which shall have the same area, it will be found when four such dots are placed with their centres coincident with the corners of a square, whose sides are equal to the screen pitch, that there will remain an uncovered area in the

of the square, even though the dot and unit area is exactly the same. In order to cover this area the dot diameter must be increased so as to be the same as the diagonal pitch. The reason for this tonal aberration is found in the fact that dots of such area and diameter as to equal unit area, when their centres fall at the corners of a unit area square, have their circumferences overlap at the sides of the square.

These deductions are based on round white and black dots. The "four crescent" dots beyond the "three-quarter" whites are amenable to a separate law.

N. S. AMSTUTZ.

TABLE B.—SPECIAL PORTRAIT HALF-TONES.  
PERCENTAGE CHARACTERISTICS AT 145 AND 160 LINES PER INCH.

	"Whites."		Background		Greys.		Shadows.	
% white, Figure 1	96.28	41.26	59.35	10.03	15.94			
% white, Figure 2	98.13	51.69	63.75	89.97	84.06			
% black, Figure 1	3.72	58.74	40.65	36.25				
% black, Figure 2	1.82	78.81						
	100	100	100	100	100	100	100	100

## THE ARTISTIC VALUE OF GLOSSY PRINTS.

IF we are to accept unquestioned a dogma often enunciated by our readers "we should have to acknowledge that a highly glazed paper from the artistic standpoint, absolutely unsuitable as a printing medium. But fortunately for the progress of photography unreasonable obedience to the voice of contemporary authority has never been characteristic of those who practise this delightful and instructive science. Doubtless, also, this laudable independence is in no small measure due to a general belief that freaks of fashion rather than the outcome of ascertained truth have largely shaped the orthodox with respect to what does and what does not constitute "art" the finished products of photographic work.

From somewhat extensive inquiries I have made amongst manufacturers and retailers I find that whilst the popular demand for sensitised papers carrying a high gloss shows no signs of diminishing, a slight but progressive increased sale of matt surface papers has been noted in recent years. On this question photographers are divided into two separate and opposite camps. On the one hand is a select body of enthusiasts, who claim to represent the high-water mark of artistic ideals and accomplished work, and who not only insist on the exclusive use of matt surface papers, but place all glazed printing media on that Index Expurgatorius which marks the limits of artistic salvation. On the other side, and this is a matter of common knowledge, there are vast numbers of equally enthusiastic "serious" workers, equally well-educated, and with equal opportunities of possessing or acquiring the artistic sense, who habitually employ glazed papers, or who do so whenever they consider these are more appropriate.

### The Condemnation of Gloss.

In passing, it may be noticed, as a curious circumstance, that while it is extremely rare to hear a single voice publicly raised in favour of glossy printing, the crusade against their employment is vigorously carried on whenever an opportunity can be made or found. Not only is this the case with respect to the lecturers at our photographic societies and the writers in our journals, but the editors of the latter are frequently forced to inform their correspondents that the judges and committees of our leading exhibitions will not even look at a photograph if it be finished with a highly glazed surface.

But now, for once, let us glance at the other side of the picture and endeavour to discover why it is that the much condemned glossy print still retains its popularity in spite of the number and nature of the attacks made upon it during the past few years.

### The Suggestion of Light.

Photography, as we all know, depends essentially upon the presence and action of light, and it is self-evident that a very large proportion of photographs depict, with more or less fidelity, sun-illuminated scenes with contrasts of light and shade strongly or moderately marked. Further, in probably the majority of cases, the shadows accentuate the high-lights rather than the converse. In other words, the features of paramount artistic and material interest are not only brought into prominence and made visible by means of light, but also bear the impress of this creative agency on their surface. All this is doubtless of the nature of a truism, but upon the proper interpretation of such truisms we must, I believe, look to settle the problem now under review.

In photographs of the foregoing description, that is where the presence of light is the predominant characteristic of the salient features of the scene portrayed, the use of a glossy printing medium is essential, because it is most appropriate, and is consequently most

artistic, inasmuch as it harmonises best with the nature of the subject and assists to rivet the attention on what is important. If, on the other hand, a matt paper were employed, as is invariably done in "art" photography, in order to subordinate or obliterate natural effects, then a very clumsy and roundabout course is taken, as a clear proof is thus afforded that a faulty selection of time or subject has been made. But, in any event the man who deliberately determines radically to alter the visible values of one of the most important factors composing a picture assumes a grave responsibility. Before so doing, he may well ask himself whether his intuitive sense of the beautiful, or his training, is such as to qualify him to modify features of great artistic import in the scene he proposes to reproduce. In the long ago it was said by one who was inspired by that rare genius which voices the meaning of things that "the course of nature is the art of God," and if this be true there can be little doubt that the number of photographers who are entitled to blot out or completely repaint one of nature's pictures is exceedingly small.

It requires but a small acquaintance with the many and marvellous glories displayed in a sun-bathed or sun-embellished scene, such, for example, as so often are open land and seascapes, to realise that much of their beauty would necessarily be marred or lost were they reproduced as sombre spiritless forms by the employment of matt surface printing.

Sunlight, especially when spread over large areas, graphically connotes life and the concomitants of life, but if we dim that light by lustreless printing we cast a pall over the scene that creates the impression we are in the presence of inanimate objects. The outward form may dimly be discerned, but the vitalising power of the soul within is gone.

### The Beauty of Detail.

Another (and a crowded) category of photographic reproductions is that in which detail, well or badly lighted, forms an important feature. Now, in the latest "school" which at present dominates "art" photography, and which is largely founded upon a misconception of the methods of the painter, all detail is regarded as a factor of exceeding wickedness, and as such to be suppressed by one or other of these well-known formulæ which occupy so much space in the book of faking. In doing this, it is apparent that the fact is lost sight of that sunlight clustered detail may be, and often is, of great beauty, and cannot be suppressed without at the same time destroying much of prime importance in the making of the picture. But detail is not infrequently the very essence of a picture. Take, for instance, the portrait of a laughing, girlish face, symbolic of all that is bright and joyous in youth. Here the delineation of the details of the expression, such as the sparkle of the eye, and the curves of the mouth, must be clearly defined if a true conception is to be formed of the real meaning of the photographic study. And to do this in the most efficient way a glazed surface print is a *sine quâ non*. Otherwise everything is so toned down to one level of uniform dullness that it is quite impossible, except by the merest guess work, to discover wherein the interest of the picture lies.

In this connection it is often forgotten that from mere considerations of size a photograph ought to approximate, in the methods of treatment, more to a Meissonier than to a Turner. To crowd, without a vestige of visible detail, a scene covering an area of miles or of yards on to a half-plate negative is to reduce what is an obvious absurdity. I do not wish in any way to advocate indiscriminate forcing into the forefront of all detail it is possible, fixed,



whether it be needed or not, but I do insist on the absolute necessity of depicting detail, strongly or not, according to circumstances, whenever its appearance is essential to the meaning or the making of a picture. And when detail, especially finely clustered detail, is to be shown, a highly glazed paper is, of course, the best to use. If, in lieu of this, a matt printing medium were employed, as is so often done, blurred masses without texture or parts 'would result, and the picture so manufactured could not be otherwise than an unpleasant travesty on the original. Neither must it be forgotten that apart from the magnifying power of glaze to accentuate the appearance of small items, glaze reflects a good deal of light, and by so doing further assists in approximating the finished print to that of the natural picture.

If further evidence were needed as to the genuineness of the error into which so many photographers have fallen through the indiscriminate use of matt surface printing this would be afforded by a reference to the methods employed by painters when dealing with similar subjects. If we visit the Royal Academy, or, indeed, any like exhibition at home or abroad, it will be noted that practically every canvas is finished with a highly glazed surface. This is effected not only by the laying on of one or more coatings of varnish, but also, in some instances, and in addition to the varnish, by the mixing of gloss-giving media to the actual pigments employed. Were varnish solely employed as a preservative, and were it detrimental from the artistic standpoint, it is perfectly certain it would seldom be applied till after the picture had passed the crucial test of its first public exhibition.

#### Common Subjects which call for Glossy Prints.

To sum up the whole question, though not by any means to exhaust it, it may be said, speaking generally, that the use of a glossy

paper is often more artistic than a matt one, because the form in the vast majority of cases, gives a better rendering of the meaning as well as the form and other pictorial items of a scene or subject. Glazed paper should always be employed whenever light is the characteristic of a picture, or is an important factor of it; whenever life and the proximate effects of life are its salient features, whenever it is desired to bring into prominence, or to distinguish detail which would otherwise be unrecognisable.

Amongst the "laws" governing composition none is more generally accepted than is that which insists that conspicuous incongruity be fatal to artistic success. And yet incongruity of a glaring type often deliberately created, simply by the substitution of matt place of glossy paper. For example, nothing could well be more incongruous than the effect produced by finishing with a dull, dead surface a photograph of a scene which owes much or all of its charm to the glint and glow of sunlight over it. The present swing of fashion's pendulum in the direction of ordaining the invariable use of a sombre surface for photographic prints is supported in no single instance by an acknowledged authority on art, and is backed by no reasons which can by any possibility be regarded as valid. In place of arguments we are given only adjectives; we are told that dulness and the absence of all distinctive detail are "artistic," are "beautiful," or are, perchance, "precious"; that murkiness means "mystery," "breadth," and "subtlety," and, *per contra*, we are informed that glossy printing is opposed to the "best interests of art."

On the other hand, the popular taste in continuing to use glazed printing media whenever the latter are most appropriate, that in the vast majority of cases, is supported not only by the obvious teachings of nature, but by the existing works of all those great painters who are acknowledged as masters by the cosmopolitan world of art.

F. GREENFELL BAKER.

## THE PRESENT STATUS OF COLOUR PHOTOGRAPHY.

A Paper Read Before the Photographic Convention, Southampton.

I WISH that the task of trying to give you a brief but coherent idea of the present status of colour photography had fallen to someone else's lot, for it is not the first time I have spoken on it, and it is always as well that a subject should be viewed from different standpoints.

My task is rendered all the more difficult because the recent exhibition organised by the BRITISH JOURNAL OF PHOTOGRAPHY has practically taken the wind out of my sails. This was an excellent exposition of colour-photography as now practised.

It is necessary to divide the subject into two main heads: First, the commercial application in the shape of photo-mechanical work, and, secondly, those processes which, requiring no mechanical power, may be used by any photographer, whether professional or amateur.

With regard to photo-mechanical processes, there is practically only one which is now of any importance, and that is the half-tone process. We are all of us more, or less familiar with the present status of this craft, or, at any rate, with the results. It is true that there are still faults and the inks are not in every case ideal, and in some cases one feels that there is more fine etching than should be required. To enter at any length upon these points would entail you being wearied and my transgressing that rule which says that papers must be limited to half an hour. The subject of the inks in particular has been ably treated by Sir Wm. Abney, and the outcry is still for those with ideal absorptions. I believe I am correct in saying that if more attention was paid to the precipitation of suitable dyes of the so-called aniline class, suitable as regards fastness to light, transparency, and correct colour absorption, we might get further advances. A generally accepted opinion is that all the aniline dyes are fugitive, but this is not so by any means. Of course, the chief fault of the half-tone process is the irritative effect of the cross-line screens; collotype is a long way ahead in this respect, but it was proved quite ten years ago not to be a commercial three-colour process, if regularity of results is to be kept in view.

I am not rash enough to say that we have reached finality in the photo-mechanical reproduction of subjects in natural colours, but advance is to be made, it can only be by the application of scientific facts and not to rule of thumb work.

Turning now to the second method, we must divide this into two classes—the direct and indirect processes. To the former belong practically only the Lippmann and the bleaching-out process.

Since Professor Lippmann, of Paris, gave, in 1891, details of his process of obtaining photographs in colours direct in the camera there has been no great advance; minor improvements there have been, but the very fact that it is necessary to use a perfectly transparent and grainless emulsion must, so far as I can see, limit the speed of the plate, with the result of proportionately long exposures. The fact, too, that the resulting pictures are upon glass, and can only be seen by reflection when viewed at a certain angle, must limit this process to the laboratory.

Professor Lippmann last year announced that after exposure of a film of bichromated gelatine in the camera in such a manner as to obtain interferential effects he had been able to considerably intensify the colours by first treating the film with potassium iodide and then with silver nitrate. By this process silver iodide would be formed in the luminated hardened gelatine. The colours were not only more vivid when viewed in the ordinary way, but the complementary colours were vividly seen by transmitted light. Bichromated gelatine is excessively slow, and so far has not been satisfactorily orthochromatised, so that there is little hope with this. If the same principle could, however, be applied to the ordinary Lippmann emulsion plates, it might be valuable to obtain negatives in the complementary colours.

Another process which will give us colours direct is that known as the bleaching-out process. In this, as you probably all know, a mixture of fugitive dyes is coated on paper, and exposed under a coloured original, and the dyes are bleached out by the coloured light that they absorb.

Dr. Neuhauss, who has paid considerable attention to this subject, uses a mixture of methylene blue, auramine, and erythrosine in a solution of gelatine, and increases the sensitiveness by the addition of chloral hydrate and caustic soda. Dr. Smith, of Zürich, who is placing a somewhat similar paper on the market, still adheres to the use of anethol, the camphor, of aniseed oil, and advises the backing of the paper when the printing is half finished with a sheet of blotting-paper saturated with hydrogen peroxide and alcohol.

You will note that this is a printing-out process from a coloured original, and so far exposures in the camera seem hopeless, for Dr. Smith's authority it is possible to obtain a result in the camera with an exposure of something like six hours. Should it be possible to increase the sensitiveness of this product so that it became possible to obtain a coloured result by any reasonable exposure in the camera, it would be very valuable, because with one such result the duplication or printing would be easy, as the colours obtained would in the same way reproduce themselves on a similar preparation, for red light bleaches out the blue and blue, leaving red, blue bleaches out yellow and red, and yellow bleaches out the red and blue. Intermediate colours of course, formed by the partial bleaching of two colours. There are many difficulties in the way to success, for the results depend upon the character of the light, sunlight not giving the same result as electric, and so on.

### Indirect Processes.

Indirect methods of colour photography are those in which three negatives of a subject are obtained through suitable red, green, and violet filters, hence the name three-colour photography, which embraces a whole series of processes.

There are, however, two main divisions—the first comprising the additive or optical synthesis methods, in which an image is formed either by projection with three-coloured lights, or the image is formed by reflection in an instrument such as the chromoscope such as I have on the table here. In both cases the transparencies are projected with or viewed by light, which is practically the same as the colour filter through which the negatives were taken.

While these methods are not such as appeal to every worker, because in the one case the triple lantern is a costly and cumbersome apparatus, and in the other because only one person can see the result at a time. In my opinion no results by any other methods can equal those obtained in this way.

Professor R. W. Wood, of Wisconsin, U.S.A., devised in 1899 a method of producing pictures in their natural colours by optical synthesis by means of three diffraction gratings ruled in different degrees of fineness on glass. Three constituent negatives are taken in the ordinary way through the usual red, green, and violet filters, and from these transparencies made by the usual photographic process. A sheet of glass is coated with bichromated gelatine and dried, and exposed to the transparency taken through the red filter, the coarsest ruled diffraction grating being placed in between; the whole is then exposed to sunlight, using parallel rays as far as possible. On the same plate is placed the positive from the negative taken through the green filter, with a finer filter interposed, and again exposed to sunlight, and the plate then developed with warm water. The third transparency, from the negative taken through the violet filter, is exposed, film side out, with a second bichromated gelatine plate, a still finer ruled grating being interposed, and then developed with warm water and dried. On bringing the two plates into accurate register and viewing them by transmitted light by means of an eye-piece, a picture in colours will be seen, the colours being formed by the decomposition of the light by those lines of the various diffraction gratings which were impressed on the bichromated gelatine, through the transparent parts of the positives used.

In 1904 Professor Wood improved his process and applied it to positives obtained by the Joly process—that is, positives obtained from the negatives taken through screens ruled with the three filters in closely contiguous lines. Gratings were ruled with three sets of lines in bands corresponding to the width of the red, green, and blue lines of the Joly screen. The positives from the Joly negatives were flowed with a thin solution of gelatine sensitised with bichromate of potash and dried. The triple ruled grating was then placed with its ruled surface in contact with the sensitive film, and exposed for a short time to light, and the plate then dipped in warm water and dried.

Quite recently Mr. H. E. Ives, the son of F. E. Ives, who has probably done as much as anyone for photography in natural colours from a practical point of view, has so far improved this process that in my opinion it can now be considered practical. He points out that the disadvantages of using Professor Wood's latest method are that one has to use a special grating, that one is constricted to the use of Joly pictures, and, further, that the Joly rulings themselves act

as gratings and give rise to false colouring due to the superposition of spectra.

I do not propose to enter into a detailed statement of all the arguments and facts that he deduces, nor to detail his methods of his early work, but to try and give you a succinct account of the plan he has finally adopted. Negatives are taken in the usual way through the usual colour filters; from these negatives transparencies are made by contact. A diffraction grating replica on glass having 3,600 lines to the inch is required, and some bichromated gelatine plates and a ruled screen, with at least 200 hundred lines to the inch, and with the opaque lines twice the width of the transparent. One of the transparencies is then projected by means of a lens on to the bichromated gelatine plate, the diffraction grating being placed in contact with the film, and then over this the ruled screen. The exposure is made, and the second transparency placed in position; the diffraction grating is now turned through an angle of  $21\frac{1}{2}$  deg., the ruled screen shifted so as to cover the exposed part of the film, and uncover a fresh strip; another exposure is made. The third transparency is then placed in position, the grating again shifted  $21$  degrees, the ruled screen again shifted to cover the two exposed lines, and the third exposure made. The plate is then washed in water to free it from the bichromate, and the operation is finished.

The shifting of the grating is to cause the blue, green and red to fall in their proper places, when the grating ruling is parallel to the slit, the blue falls on the plate, after a shift of  $21\frac{1}{2}$  degrees the green is on the plate, and with the second shift of  $21$  degrees the red; for as a grating is rotated as regards the slit, the spectra close in towards the slit.

The resulting plate, because you cannot call it either a negative or positive, simply has impressed on it the rulings of the grating at the above-mentioned angles, and only where the light passed through the transparency. When viewed in the hand the result is a colourless sheet of glass; but when illuminated by light from a slit and viewed by a lens or eye-piece, the colours are at once seen in very great brilliancy.

In order to obtain a great amount of light, Mr. Ives uses four slits, and thus obtains the superposition of two first and two second order spectra. The lines are so fine as to be absolutely invisible to the naked eye. This method is to be adapted for lantern projection, and it is hoped to find means to take the pictures directly in the camera.

From a scientific point of view this process is of very great interest, but I very much doubt, and this is entirely a personal opinion, whether it can ever become a popular commercial process. Dismissing any inherent difficulties in the working, and there may be some, I do not think that the public are going to be satisfied with pictures on glass or those that require a special apparatus to see them; such could not be given by Edwin to Angelina, or at least it would be inconvenient for the latter to carry about an instrument as big or bigger than a stereoscope, in order that she might, when she thought fit, gaze on the features of her beloved.

The process is extremely ingenious, and every credit is due to the inventor, who obviously bids fair to become the distinguished son of a more distinguished father.

### Subtractive Methods.

All other methods of obtaining photographs in natural colours are what are known as subtractive methods. That is to say, we start with a white screen or paper, and lay pigments thereon, and thus subtract something from the total white light.

Considering first those methods by means of which we can obtain transparencies that can be projected with any ordinary lantern: there are practically three principal processes, the Sanger-Shepherd, that of the Lumière N.A. Company, and Pinatype.

Taking these processes in order, I propose to briefly sketch the lines on which they proceed, and show you results by the same. I do not propose to enter into working details; those amongst you who dabble in colour photography are as well acquainted with the same as I am. Others must judge for themselves of the value of each and all the processes, and they have a very ready means of obtaining instructions for the same. Personally, I do not believe that there is much difference in results by any of the positive processes provided the negatives are correct.

First of all we come to the Sanger-Shepherd process. In this a positive is made from the negative taken through the red filter on an ordinary black tone lantern plate; this is developed, fixed,



thoroughly washed, and the image converted by means of ferricyanide and an iron salt into a blue image. From the negative taken through the green screen an image is obtained on bichromated gelatine containing a little silver bromide, the support being celluloid, and printing being done through the celluloid; the image thus obtained is developed in warm water exactly as in the carbon process, then stained up with a red dye, and superimposed on the blue image, and the celluloid stripped. In the same way a positive is made from the negative taken through the blue screen, and stained up in yellow, and the whole cemented and bound together.

In the Lumière process as worked in England, precisely the same procedure is adopted, only the blue image is obtained by the same process as the other transparencies, and stained up with a blue aniline dye.

The Pinatype process differs from the other two, in that the dyes used will not stain hardened gelatine; that is to say, in the last two processes the original negatives are used for printing, a relief in hardened gelatine is thus obtained, and this relief is stained up; whereas in the Pinatype process transparencies have to be made in the usual way, and from these the coloured transparencies are obtained.

A sheet of glass coated with bichromated gelatine is exposed under the transparency from the negative taken through the green filter, and after removal of the bichromate with a bisulphite bath, the image is stained in red. This red positive is treated to a weak bath of a copper salt and dried, then coated with bichromated gelatine, dried, and exposed under the transparency from the negative taken through the red screen, and then stained up with blue. The yellow image is obtained in the same way, or it may be obtained reversed, and used as a cover glass.

Mr. E. T. Butler has kindly lent me a few slides which are made by his process, which practically consists of dyeing the gelatine first, then bichromatising, exposing, and developing. These results are specially interesting, as they are from negatives taken, all three simultaneously, in a camera which Mr. Butler has invented.

#### Prints on Paper.

As regards obtaining colour results on paper, there have been a great many processes proposed or worked at one time or another. For instance, Drs. Miethe and Lehmann have suggested using the dusting-on process, in which successive coatings and dusting-on must be resorted to. Gum bichromate printing has also been used by Perscheid and others, principally continental workers.

Dr. Selle uses the property of certain dyes which stain bichromated gelatine hardened by the action of light more strongly than the unhardened, and proceeds as follows: "A sheet of glass is coated with a zinc-white collodion, which acts as the support for the coloured picture. On this collodion film a bichromated gelatine film is coated, and when dry exposed under one of the negatives. By washing in cold water the undecomposed bichromate is removed from the gelatine film, whilst the chromic oxide formed by the action of light remains behind. The print is now laid in an aqueous solution of a mordant dye of corresponding colour—that is to say, a dye which has the property of not staining pure gelatine, but of combining with the chromic oxide to form a so-called "colour lake"; thus only those parts of the gelatine film which have been affected by light will be dyed. When dry, the first image is coated with collodion and a film of bichromated gelatine coated on top of it. On this light-sensitive film the second constituent negative is printed, after the outlines are made to accurately coincide with those of the first image. The second print is treated like the first, and stained in the proper colour. Finally, after the second image has been coated with collodion, a third film of bichromated gelatine is coated on the top, and the third negative printed and dyed, etc. The finished print with the white collodion support may be easily stripped from the glass and mounted on a card. The colours are very permanent, because they are chromium lakes; yet no dyes appear to exist which possess all the properties which Selle's process requires. This is the principal reason why this interesting and really original process has not been introduced in practice.

Schmidt, of Berlin, also uses a similar process.

Reichel, of Munich, makes three-colour photographs by printing the three constituent negatives on collodio-chloride paper, tones them in special baths blue, red, and yellow, and then mounts them one on top of the other. For the red image a sulphocyanide gold

bath with sodium iodide and potash is used; the yellow print made by toning with lead, and the blue with iron salts.

Another process for the preparation of prints has been patented by Sanger-Shepherd and Bartlett. Three images are obtained on celluloid films as usual; these are stained with suitable dyes, the damp coloured film is brought into contact with paper coated with soft gelatine. The dye is transferred fairly quickly into soft gelatine, and when the dyed film is lifted up the colour image is seen on the paper. The same process is gone through with the two other constituent images, which must, of course, be laid on the paper so that the outlines coincide. The dye is sucked out of the image by the gelatine, and the celluloid images, which thus become colourless, can again be dyed, and can be used for making prints. Like the dye solutions, they are quite permanent. The process of printing may be examined from time to time by lifting up one corner of the paper.

Another process introduced by the Lumière N.A. Company is briefly as follows: The three constituent negatives are obtained in the usual way, and that taken through the red filter is varnished with celluloid varnish. A sheet of glossy bromide paper is soaked in water for at least half an hour, then, whilst wet, squeezed in contact with the red filter negative, and exposed, developed, and fixed. After thorough washing, the image is converted into a blue print. Prints from the other two negatives are now taken by printing bichromated gelatine films on thin celluloid, the celluloid being in contact with the film of the negative; then developed with water, and stained up in the red and yellow dye baths, and the three successively transferred on to the blue image, the celluloid being stripped in each case.

The Pinatype process was, I believe, demonstrated to you Monday evening. Briefly it is as follows: Transparencies are made in the usual way on ordinary plates; these are then printed on bichromated gelatine, and the plates thus obtained stained in the respective dyes, and gelatinised paper, after being well wetted, is squeezed in succession to the three-coloured plates, and the dye is transferred to the film of gelatine. The dyed print plates are kept, and may be repeatedly used, and only require restraining before each pull.

#### Carbon Processes.

Recently we have had commercially introduced three-colour carbon tissues. Those of the Rotary Photographic Company are coated on very thin celluloid, which is placed in contact with the film of the negative, so that double transfer is avoided. The Autotype Company use the double transfer process for their colour tissues and a semi-transparent temporary support.

The results obtainable by these processes are excellent, and there is nothing to learn, as they are nothing but the carbon process.

It is utterly impossible to give you any complete idea of all the methods which have been proposed and patented for obtaining transparencies and prints; to do this would compel us to undertake an all-night sitting. I have sketched in the principal processes those which we may justly consider as in practice.

Possibly I should mention Drac's process, in which no colour filters or screens are used, but the light is split up by means of prisms into definite sections of the spectrum, and these are used for making the negatives and projecting the transparencies.

Then there is an extraordinary process patented by Schinzel, which, if it can be worked, should be valuable, but I can see some difficulties in the way. Briefly, a plate is coated with three sensitive films, each of which is sensitised for a particular region of colours, and carries a colour screen in itself. After development and fixation the plate is treated with hydrogen peroxide, and the silver sets free nascent oxygen, which bleaches the dyes; then on removal of the silver the result would be a photograph in colours. There are other modifications suggested, but it looks rather visionary on paper.

Guthrie, of Berne, has patented a two-colour process, in which only one exposure is required. A chlorobromide transparency plate is dyed in an aqueous solution of naphthol orange and placed in film with a panchromatic plate, and the exposure is made through the glass of the transparency plate.

The orange-dyed transparency plate acts during exposure first as the sensitive plate for the blue rays, and secondly as a light-filter, which only permits the red, yellow, and green rays to reach the panchromatic plate. On the first plate there will thus be only

blue parts of the picture represented as black; on the second only the red, yellow, and green parts will be black. In other words, the transparency plate gives the negative for the yellow print, the panchromatic plate the negative for the blue print. The prints are made as follows: From the panchromatic (blue) plate, a Berlin blue print is made by any of the well-known methods, either by toning a transparency plate or bromide print or printing on ferro-prussiate paper. The transparency (yellow) plate, from which the stain is quickly removed by fixing and washing, is either printed on P.O.P. or on stripping collodion-chloride paper. The prints should be fixed with ammonia without rinsing, and will thus acquire a muddy yellow or yellowish red tinge. The yellow transparency is now directly combined with the blue, by placing the plates film to film. If a print on paper is required, the collodion print is transferred direct to the blue print. It is obvious, without further elaboration, that this process never gives us photographs in natural colours. Even if our eyes cannot directly recognise red in a landscape, yet in the multitude of compound colours red is always present. Moreover, the inventor admits that his process will not reproduce red. This naturally recalls the fact that plates with two such films and, further, plates with three films specially sensitised and bearing their own colour screens, are obtainable commercially; whether they are of any practical value I am not prepared to say.

### The Joly Process.

I have reserved to the last any mention of what we may justly call the one-plate processes. The first of these was that invented by Dr. Joly, our President of last year. In this process all the colour filters were ruled in parallel lines on one glass, and this was placed in contact with a plate, and the exposure was made through this compound line filter screen. From the negative thus obtained a positive was made on an ordinary black tone lantern plate, and this bound up in contact with a screen similarly ruled, only with the correct colours, which were slightly different to those of the negative making screens. This process was followed or was independently contemporaneous with the McDonough process, an exactly similar one. Sampolo and Brasseur had also a somewhat similar process, but these processes were not commercially successful. For one reason we had not satisfactory panchromatic plates, and another was that the ruling was comparatively coarse, so that when projected the lines were distinctly visible on the screen. The most important reason, to my thinking, for their non-success, lay in the fact that they were glass processes and would not give prints on paper.

Recently Powrie, in conjunction with a Miss Warner, of that city of recent infamous fame, Chicago, claims to have considerably improved the process. His method of making the plates is as follows:—

"Sheets of ordinary negative glass are coated with bichromated gelatine, and exposed to the light through a negative plate of transparent and opaque parallel lines. The light passing through the transparent lines of the negative renders the gelatine insoluble in warm water, the unexposed portions washing away, thus securing upon the glass colourless gelatine lines, which, with the plates now in use, are from 1-600 to 1-1,000 of an inch in width.

"The plate is then immersed in a colour bath of a suitable green dye, and then in subsequent baths to render the colour stable, washed and dried. The appearance of the glass is a delicate green tint. It is then recoated over its entire surface with bichromated gelatine, and again exposed to the light through the opaque-lined negative, taking the precaution to have the green lines protected by the opaque lines of the negative, and also one-half of the remaining unexposed surface.

"The plate is treated in a similar manner after this exposure as for the green lines, except that a red dye is now used, and the plate is rinsed and dried as before. The appearance of the plate is yellowish in tone. It is then coated a third time, again exposed, and passed into a bath of violet-blue dye. This gives the plate a neutral tint, from the recombination of the three elementary colours, the surface being completely covered without overlapping of the edges.

"It is possible by this photographic printing operation, with special machinery for aligning the plates and printing them automatically, to obtain remarkable uniformity. The increased fineness of the colour lines renders them invisible to the eye, and registration of the lines with a transparency would be impracticable.

"The next operation is that of coating them with a panchromatic emulsion, when they are ready to be exposed in an ordinary camera, developing and fixing in the usual manner, and obtaining a negative in colours. It is obvious that in this case the exposure must be made through the glass."

The negatives obviously show the subject in its complementary colours, and it is only necessary to print on a similar plate to obtain the colours as in nature.

### The Lumiere Process.

Recently, too, MM. Lumière, the distinguished chemists of Lyons, have patented the use of potato starch. This is sifted so as to obtain as far as possible starch grains of approximately the same size, then they are stained with the necessary filter colours, and mixed so that the mixture presents a uniform grey tint, proving that there is no preponderance of one colour over the others. The mixture is then sifted over glass which is rendered sticky, and the grains adhere. Now it is important that there should be no overlapping of the grains, and that the interspaces of bare glass left between the grains—for they are shaped something like an elongated oyster shell—must be filled up with an opaque material. They must also be protected by a varnish. There is also another point, and that is that starch is not transparent until imbedded in some material like Canada balsam. You will thus see that there are many difficulties to be overcome, and when this multiple filter plate is ready it has to be coated with a panchromatic emulsion.

The exposure is made, of course, through the glass, and after development and fixation the result is a negative not only as regards light and shade, but also colours; that is to say, the complementary colours are obtained, so that to obtain a positive one must either print on to a similarly prepared plate or convert the negative by one of the well-known methods into a positive direct.

Drs. Smith and Merckens, of Zurich, have patented the use of very small geometrical figures of all sorts for exactly the same purpose, and they claim that they can make a printing paper by the same means. These patterns are impressed on a gelatine plate mechanically, and the emulsion coated on top, the exposure being made through the glass.

Some such process as this, if practicable, will, I think, solve the problem of colour photography. One plate carrying its own filters, and a similarly coloured paper whereon to get our results; but if the latter, the coloured paper is impracticable, then we have means at our disposal in existing methods of obtaining prints in colours. What we want, as I have proved by being able to make a print from a Joly negative in colours on paper.

There is one fact I should like to mention before leaving this particular subject. All these one plate, mosaic, or line processes were outlined by the well-known French writer, Louis Duco du Hauron. In his work, "Les Couleurs en Photographie, Solution du Problème," published in 1869, he suggested the use of lines and dots for particular purpose, but it is not generally known that in a letter to M. Lelut, a member of the Institute of France, which was written in 1862, seven years previously, he points out that lines, dots and geometrical figures could be used. As a matter of fact, there are very few variants of three-colour photography that Duco du Hauron did not outline, although they have been the subject of recent patents.

### The Future Outlook.

Possibly I might say a few words as to the practice of colour photography. Recently it has been so simplified by the introduction commercially of satisfactory panchromatic plates, of excellent filters which absorb really very little light save that which they ought to, and easy printing materials, that it is a subject which should receive more attention than it does. What has stood in the way of its more general adoption, what still stands in the way, is the want of a camera which will enable us to take all three negatives at once, a camera which can be obtained at a reasonable price, is simple in construction and working. Given this, I am convinced that where we now have one colour worker we should have a hundred. The very fact that one must make three consecutive exposures limits our work enormously; whilst in the studio this is not felt so much, it is a great drawback for all outdoor work, where trees, cattle, etc., will not keep still just to please the photographer. It is pos-



sible that I am optimistic and prejudiced, and that the pictorial worker who loves to suggest rather than delineate an object, will smile at my ideas that colour photography in another few years will be the rule and not the exception, and will say that it can never be a means of pictorial photography because it will not allow him to make eccentricities. My answer is that it will place a still greater power in his hands because he cannot only destroy and alter form, but colour also.

The future of colour photography lies in a one-plate exposure on one-printing paper, but the intermediate step is the one-exposure three-plate camera, and three printings. Colour photography, as stands at present, has been commercially proved in Berlin, in London, and in Plymouth. There is a vast field open before it, not only in portraiture, but in every subject that has colour, and when we look around us it will be found that the exception in nature is monochrome, whereas in photography it is the rule. E. J. WALLACE.

## THE CONVENTION AND AFTERWARDS.

The Photographic Convention of 1906 is now ancient history, and most of its members have long ago got over the excitement of the week's meeting, and are looking forward with pleasurable anticipation to the time when they will meet again, under similar conditions of fraternal goodwill, good weather, and jolly good time. But to me as a professional, the Southampton convention was more than a mere holiday; it afforded an opportunity of meeting with friends new and old, among which are numbered many of our leading workers and business men, with whom it was both pleasurable and profitable to compare notes, and to discuss matters which can only be of real interest to the man who has to earn his bread by means of photography.

It also tended to enlarge one's sympathies towards one's weaker brethren, and gave the opportunity for giving more than one what may prove to be helpful counsel and advice.

It brought one into intimate contact with manufacturers and dealers, men whose products we have been using for years; and gave the opportunity for paying off old scores, other than financial, in a spirit of mutual friendship and bon amie.

It gave one also the pleasure of meeting with the leaders of thought in the photographic world, both scientific and journalistic, some for the first time; and their helpful and instructive communications, both from the platform and in personal conversation, cannot fail to stimulate a keener interest in photography, in both its artistic and its scientific aspects, and to make even the hardened professional feel that there is still something to mark, learn, and inwardly digest, if he would keep pace with the rapid development of photography in all its higher methods and advanced possibilities, and that if he would rise above a position of mediocrity he must embrace the opportunities which are before him, and seek to elevate himself to a higher plane of experience, both in theory and practice.

While these and other features in connection with the Convention must be of general interest to all professionals who have the future of photography at heart, it is surprising to know how few really working professionals attend the annual meetings. Is it not because as a class they are so conservative and narrow in their relations toward their fellow craftsmen, even unfriendly, and sometimes-unkind and unjust, especially towards those who are in the same line of

business in the same town as themselves? Is not this the reason why the Professional Photographers' Association is not the powerful organisation it was designed to be? Why the old Benevolent Association came to an untimely end? Why all the proposals for the elevation of professionals have met with such ignominious failure? Is not the spirit the cause of the cutting of prices, and the general lowering of the business in the eyes of the public, which is also one of the causes of the depressed state of photography as a business to-day? And the question which thoughtful men are asking is, "Where will it all end?"

The greatest lesson which I learn from the Convention is that in we have a neutral ground, where all professional disabilities may be forgotten, and where a fraternal fellowship may be fostered, and larger-heartedness cultivated. I am more than ever convinced that if photographers would fraternise more, it would be to their mutual advantage, and would do much towards removing the strained relationship which now exists between them, especially in this country. In America things are different. Over there photographers meet in friendly conclave, and freely discuss business methods such as advertising schemes, unfair competition, scales of charges, etc., and generally aim to improve the business status of the profession. Is not this kind of thing possible in this country? If it is, then the annual Photographic Convention is a convenient and ready-made means of bringing it about, which I feel should be taken advantage of.

I am aware that such a meeting of professionals was proposed in connection with the recent meeting at Southampton; but so few really working professionals were present, and so little interest taken in the idea, that it fell through. I hope that before the next meeting of the Convention, I shall have the opportunity of again bringing this matter forward, and of co-operating with the able and genial hon. secretary, Mr. F. A. Bridge, in bringing it to a successful issue.

I may add that it is quite an aspiration and a personal privilege to come into friendly contact with such an honest, large-hearted man as Mr. Bridge, and no professional can attend a convention under his supervision without imbibing a large share of his friendly spirit, which will send him back to his business a better man, both in mind and heart.

HENRY J. COMLEY.

## FOREIGN NOTES AND NEWS.

### Dark Room Illumination for Working Red Sensitive Collodion Emulsion.

Herr Fritz Haberkorn contributes a useful little note to the current issue of the "Photographische Korrespondenz," and, while it has reference particularly to the use of red sensitive collodion, it is obviously also applicable to gelatine plates. He points out the danger of using a red illumination, and gives the following formula for the preparation of a deep green screen:—

Gelatine .....	12 gms.
Distilled water .....	200 ccs.
Allow to soak for an hour, and then melt by the aid of a water bath and add	
Blueish acid green (Hoechst) .....	3 gms.
Then add	
Tartrazine solution 3 per cent. ....	1.2 ccs.
Naphthol green solution 4 per cent. ....	2 ccs.

Stir well and filter, whilst hot, through felt. Plate glass should be thoroughly cleaned, then rubbed with a 0.5 per cent of potash water glass and accurately levelled. To every 100 qcm. of glass allow 7 ccs. of the dyed gelatine. Two such screens are required, and one should be coated with matt varnish. If possible, also, a sheet of ground glass should be placed in the lantern between the light and this screen, as it cuts off a good deal of the heat; then the matt varnish can be omitted.

For tank lamps a solution of the following composition may be used:—

Distilled water .....	800 ccs.
Blueish acid green 2 per cent solution .....	25 ccs.
Naphthol green 4 per cent. ....	1.5 ccs.
Tartrazine 3 per cent. ....	1.2 ccs.

This is for an internal width of 2½ cm.

In order to test the efficiency of these screens, a plate coated with Albert's rapid red emulsion was exposed behind a Chapman-Jones

nitometer at a distance of 30 cm. for five minutes, and then developed. The different screens used were:—1. A combination of copper ruby glass, a dark yellow, and a bright yellow ground glass; König's methyl violet and tartrazine screen; 3. Two glasses coated with Albert's green collodion, one with matt varnish; 4. Two of the above described glasses, one with matt. varnish. (The size of all the screens was 33 cm. square, and the light a 16 cp. incandescent electric lamp.) 5. Stenger's lamp filled with the fluid above given. The results were as follows:—

Combination.	Spectrum Transmitted in $\lambda$	Last Number Visible.	Relative Quantity of Light.	Appearance of Plate.
1	610-710	—	—	Totally fogged, no numbers legible.
2	670 7 0	—	—	
3	4-5-575	15	24	Clean.
4	490-530	10	128	
5	49-525	9	192	

his proves that 1 and 2 are quite useless, and that 4 and 5, whilst more brilliant, are from four to eight times safer than Albert's green collodion. The region  $\lambda$  490—530 practically excludes F and E, and comprises the little  $b$  group.

#### Caseine Papers.

M. Macaire gives the following formula in the "Photo Magazine" for preparing a print-out paper with caseine, and it is stated to have all the good properties of albumenised paper and none of its disadvantages. Fifty kilos of commercial caseine are mixed with one kilo of caustic soda or potash and 100 kilos of water, and then vigorously beaten up till the caseine is thoroughly dissolved, and allowed to stand for 48 hours. The mixture is then filtered and the caseine precipitated by the addition of acetic acid, and the magma washed till there is no longer any trace of acidity, then rinsed with alcohol and a little ether to remove the traces of water, then allowed to dry spontaneously in the air and powdered. The result is pure caseine.

To make the sensitive emulsion the following formula is used:—

Alcohol .....	130	parts.
Pure caseine .....	10	parts.
Heat on a water-bath at 100deg. F. and add		
Glacial acetic acid .....	9	parts.
Calcium chloride (anhydrous) .....	1.25	parts.

Dissolve and add		
Absolute alcohol .....	10	parts.
Citric acid .....	2.5	parts.

Dissolve and add		
Alcohol .....	10	parts.
Camphor .....	3	parts.

Then add the following, which should be heated to 100deg. F.:—		
Water .....	30	parts.
Absolute alcohol .....	10	parts.
Silver nitrate .....	10	parts.
Glycerine .....	3	parts.

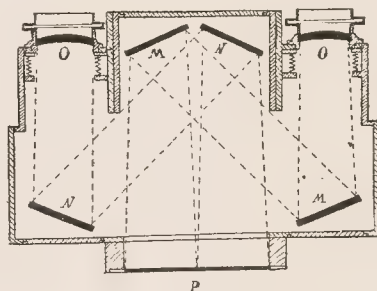
After coating, the paper should be dried for two hours at a temperature of 100deg. to 110deg. F. The paper is printed and toned exactly like any ordinary gelatino or collodio-chloride paper.

#### The Stereo Tel phot.

M. Vincent describes in the current number of the "Photo-Révue," an instrument which he has designed for stereoscopic work at long distances by means of which the inversion of the images is avoided. The apparatus is an adaptation of Vautier-Dufour and Schaefer's telephot, which was described in THE BRITISH JOURNAL OF PHOTOGRAPHY, 1903, p. 589.

The principle of the apparatus is as follows:—At O and O<sup>1</sup> are the two lenses, at M, M<sup>1</sup>, and N, N<sup>1</sup>, are the plane mirrors. The rays transmitted by the lens O are reflected by the mirror M on to the mirror M<sup>1</sup>, and thence on to the left-hand half of the plate P. The rays from the left-hand lens O<sup>1</sup> are reflected by the mirrors N and N<sup>1</sup> to the right-hand side of the plate P. The separation between the two lenses was 29 cm. (= 11½ inches), and the focal length was 70 cm. (= 27½ ins.). The images are in the correct position, and the prints are obtained without any inversion. By means of a pocket stereoscope the images on the ground glass can be ex-

amined, and one can tell whether the relief is little or too great. The focussing of the two lenses is quite independent. When, in spite of the great differences between the various planes, one has to



use a large aperture, one lens is focussed for a near point and the other for a distant plane, and when examined in the stereoscope the image appears perfectly sharp and is superior to that obtained when both lenses are focussed on one middle plane.

## Exhibitions.

### RUGBY PHOTOGRAPHIC SOCIETY.

The 1906 exhibition of the above society will be held in the Benn Buildings, Rugby, on Wednesday, Thursday, Friday, and Saturday, November 14th, 15th, 16th, and 17th. Judge: R. Child Bayley, Esq., F.R.P.S. (Editor of "Photography"). Open Classes: A. Landscape, seascape, and river scenery; B. Architecture (interior and exterior); C. Any other subject not classed above; D. Lantern slides (sets of four). Awards: In each class the judge will have placed at his disposal a handsome bronze plaque, specially designed, and a silver medal. Entries close on Wednesday, October 31, 1906. Entry forms and further information respecting the exhibition can be obtained from Mr. R. H. Myers, hon. secretary, 13, Bridget Street, Rugby.

## Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patent were made between July 9 and 14.

FLASH LAMPS.—No. 6,705A. Ignition device for flash lamps actuated simultaneously with the instantaneous shutter of photographic apparatus. Wilhelm Venier, 18, Southampton Buildings, London. (Date applied for under Rule 5 of the Patents Rules, 1905, March 20, 1906.)

PHOTO-PRINTING APPARATUS.—No. 15,574. Improvements in photo-printing apparatus. Joseph Halden, 17, St. Ann's Square, Manchester.

TELESCOPIC CAMERA ELEVATOR.—No. 15,660. Portable telescopic photographic camera elevator. Edmund Healiss Harrison, 87, Fairholme Road, Croydon, Surrey.

PROJECTION APPARATUS.—No. 15,729. Improvements in or relating to optical projection apparatus. James Tiburce Felix Conti, 53, Chancery Lane, London. (Date applied for under the Patents Act, 1901, July 13, 1905, being date of application in France.)

PHOTO-MECHANICAL PRINTING.—No. 15,658. Apparatus for photo-mechanical printing. Benjamin James Hall, 41, Castlenau, Barnes, Surrey.

### COMPLETE SPECIFICATIONS ACCEPTED

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

THREE-COLOUR CAMERA.—No. 14,623, 1905. This invention relates to cameras for obtaining three photographic views simultaneously



upon the same plate; such views being practically free from differences due to stereoscopic effect. The camera is divided into three compartments, arranged side by side; the back of each compartment being open to three different portions of the same sensitive plate. In front of the central compartment are arranged, side by side and close together, three small lenses, which may be of the same or of different focal lengths. Or they may consist of three different strips or portions of a single lens. Assuming, for the purpose of description, that three lenses are employed, the rays which pass through the two outside lenses are, by means of mirrors, deflected to the right and to the left respectively. These rays are, by means of other mirrors set at suitable relative angles, again deflected and ultimately reach the right and left hand portions of the sensitive plate. Meanwhile, the rays which traverse the central lens pass direct to the central section of the sensitive plate. In the path of the rays traversing the central lens, another lens preferably adjustable in the direction of its focal axis, is arranged; and between each outer section of the sensitive plate and the mirror pertaining thereto is also arranged a lens; these supplementary lenses enabling the focal length of the rays passing through each outer lens to be adjusted and made equal to that of the rays passing through the central lens, thereby ensuring the production upon

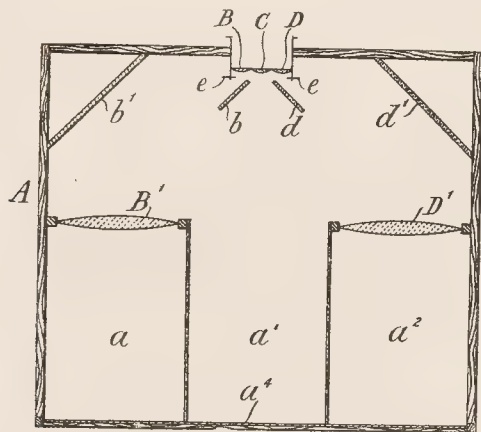


Fig. 1.

the sensitive plate of three pictures of exactly equal size. In place of mirrors, it will be obvious that prisms may be employed. It can also be perceived that what may be described as the two "outside" cameras may be of fixed and equal focal length, whilst the central lens is of a different focal length, there being arranged within the central section of the tri-part camera an adjustable lens whereby the size of the image thrown upon the central section of the sensitive plate may be regulated to correspond with that of the images thrown upon the outer sections of the said plate. Or the focal length of the central camera may be treated as normal, and lenses employed in the two outside cameras for the purpose of adjusting the focal length pertaining thereto to that of the central camera. The apparatus may, therefore, be constructed with either one, two, or three pairs of lenses; but in all cases at least one pair is necessary, in order to equalise the focal lengths of the three members of the tri-part camera. When it is desired to use the apparatus in connection with colour screens, the lenses may be uncorrected for chromatic aberration; the distances apart of the compartments pertaining to the respective pairs of lenses being altered to suit the different focal distances yielded by the different colours. The brightness of the three images may be varied by varying the extent to which the three lenses are respectively screened. The accompanying drawings illustrate diagrammatically a tri-part camera adapted for carrying my invention into effect; Fig. 1 being a longitudinal section of one form of the apparatus, whilst Fig. 2 is a similar view illustrating an alternative mode of construction. A is the camera divided into three compartments

$a$   $a'$   $a''$  and B C D are three lenses or three portions of a single lens arranged opposite the central compartment  $a'$ . Referring more particularly to Fig. 1, it is assumed that the focal length of the outside lenses B D are equal to one another, but a greater than that of the central lens C.  $b$   $d$  are mirrors mounted respectively at the rear of the lenses B D and at an angle of 45 deg. with the focal axes thereof. These mirrors reflect rays of light passing through the lenses B D to mirrors  $b'$   $d'$  arranged in planes parallel with those of the mirrors  $b$   $d$  opposite to lenses B<sup>1</sup> D<sup>1</sup>, which latter are respectively mounted in the compartments  $a$   $a''$ . The lenses B<sup>1</sup> D<sup>1</sup> are preferably the meniscus type, and are so disposed that the focal length of each pair of lenses B B<sup>1</sup>, D D<sup>1</sup>, is equal to that of the single lens C. The several sets of lenses are so arranged that there is no appreciable distortion of the several images thrown upon the sensitive plate  $a''$ ; and being, moreover, of equal focal length, the images thrown upon the several portions  $a$   $a''$  the sensitive plate correspond with one another in size. The lenses B C D are preferably mounted within the camera, shown, in order to facilitate the proper transmission of the rays to the mirrors  $b'$   $d'$ .  $e$   $e$  are adjustable screens or slides for preventing too wide a dispersion of the rays passing through the lenses B D. The mirrors pertaining to the pairs  $b$   $b'$  and  $d$   $d'$  are each mounted on slide adapted to enable them to be adjusted in such a way that the central portion of the image to be reproduced is reflected upon the central part of the sensitive plate allotted thereto. The lenses B<sup>1</sup> D<sup>1</sup> are also mounted

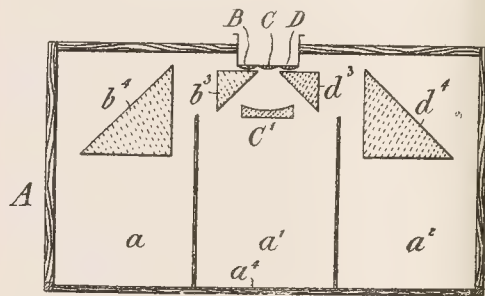


Fig. 2.

as to be capable of adjustment. According to the modification illustrated in the diagram Fig 2 prisms  $b^3$   $b^4$  are substituted for the mirrors  $b$   $b'$  before referred to, and prisms  $d^3$   $d^4$  are substituted for the mirrors  $d$   $d'$ . In this construction, the normal focal length is assumed to be that pertaining to the lenses B D and the focal length of the lens C is accordingly increased and rendered equal thereto by the introduction of the plano-concave lens C<sup>1</sup>. In this case, the optical centre of the pair of lenses C C<sup>1</sup> is in front of C and is at a focal distance from the sensitive plate equal to that of the lens B in conjunction with its reflecting prisms  $b^3$   $b^4$ , or of the lens D in conjunction with its reflecting prisms  $d^3$   $d^4$ . It will be obvious that the triple lens B C D may be formed as an integral body or as three separate lenses arranged side by side; and formed so that the lens C<sup>1</sup> may, if preferred, be combined with the lens C. The claims are:—1. The herein described camera adapted for the simultaneous and parallel production of three precisely similar photographic views free from stereoscopic effects; the apparatus comprising a chamber, divided into three compartments in each of which a sensitive surface is exposed, and a centrally arranged tri-part lens, the ray which passes through the central portion of the lens being led direct to the sensitive surface exposed in the central compartment, whilst the rays which pass through the lateral portions of the said lens are deflected and respectively transmitted by means of reflectors to the sensitive surfaces respectively exposed in the two outer compartments; a lens of a character adapted to render the focal length of each of the latter lenses equal to that of the direct or central lens being placed in the focal axis of each of the reflected or outer rays,

substantially as set forth. 2. The herein described modified mode of constructing cameras of the kind and for the purpose referred to in the preceding claiming clause, according to which a lens is placed on the focal axis of the direct or central ray and its focal length altered to coincide with that of each of the reflected or outer rays which respectively pass through the lateral portions of the tri-part lens, substantially as set forth. William de Wiveleslie Abney, K.C.B., Measham Hall, Derby.

**PRINTING FRAME.**—No. 18,195, 1905. This invention is for printing bromide and other gaslight papers by daylight, and is effected by means of a frame similar to an ordinary printing frame. A groove on each side of the front or exposing surface is made in these grooves, a slide moves to and fro over the exposing aperture in the frame, the slide has a slot across, of any width not exceeding that of the exposing aperture in the frame, each end of the slide must be rather wider than the aperture to prevent light entering before or after exposure. By passing the slot over the negative the picture is printed, one movement is sufficient for bromide paper with a good negative, but for gaslight papers with a bad light or dense negative so many passes are required that it is necessary to divide the slide crosswise, by this means time exposure can be made. As this method will not answer for gaslight and bromide papers with a good light and thin or even proper negatives, the slides are connected with a clip on each side of the slide. The claims are:—

1. A means of printing by daylight, bromide and other gaslight papers by the use of a slide or slides working in grooves made in an ordinary photographic printing frame, the said slide or slides having a slot and employed as hereinbefore described. 2. A means of obtaining equal results with the various densities of negatives and different degrees of light by the use of a regulating slide, to operate the slot in the said slide or slides and employed as hereinbefore described. William Gale, 4, Smart's Lane, Loughton, Essex.

**FOCAL PLANE SHUTTERS.** No. 20,528, 1905. The purpose of this invention is to provide a convenient and reliable means for regulating the opening in focal plane shutters. This is effected by means of spring grips operated by external means. The blind is of the ordinary opaque kind, and is attached to rollers in the usual manner. To one roller is fixed the lower section of the blind, its free end being connected to adjusting tapes. To the spindle on which the said roller turns is an extended pivot to which is fixed the usual winding knob, detent, and tension indicating dial. The roller is formed of a hollow cylinder which freely fits the spindle on which it turns, but is prevented from erratic movement by means of a light friction spring situated between the spindle and the inner surface of the said cylinder. At the ends of the latter and securely fixed to the said spindle are solid bosses on which are fixed narrow adjusting tapes attached at their opposite extremities to the lower blind. Each section of the blind is sufficiently large to entirely cover the exposure aperture, one part performing this function before, and the other after exposure, and their free ends are provided with suitable stiffening strips to prevent the material from sagging. The section of the blind attached to the adjusting roller is provided at each side of its free end with flat spring clips, which normally grip the tapes and firmly hold the sections of the blind at a given degree of separation. When it is required to alter the width of the slit, the blind is first allowed to run down. This will bring the spring clips directly underneath the pressure feet. A lever is then depressed, which causes the pressure feet to release the grip of the springs and admits of the free rotation of the bosses in either direction, the reserve run of the spring roller taking up the feed in one direction and giving way in the other direction, and consequently altering the width of the opening as may be required. During the process of adjusting the slit the top blind is held stationary by the pressure feet retaining the spring clips in position, and the adjustment is brought about by turning the setting gear. The spring detent connected therewith being for the time placed out of action. The raising of the lever, operating the pressure feet, allows the spring clips to again grip the tapes. The claims are for:—1. In a photographic shutter of the focal plane type of the method of regulating the width

of the slit or opening in the roller blind, by means of spring clips engaging or disengaging adjusting tapes, the said spring clips being opened or closed at will by external means substantially as and for the purpose described. 2. The combination in a focal plane shutter of a spring roller and a composite roller, the latter being formed of a cylinder carrying a section of the roller blind, and end bosses, to which adjusting tapes are attached, the said bosses at times having independent movement to the said cylindrical roller, such movement being controlled by the setting mechanism substantially as and for the purpose described. 3. A lever operated link, or strip, provided with pressure feet which open spring clips connected to one section of the roller blind substantially as and for the purpose described. 4. A sliding spring controlled detent in combination with a rocking detent, the former acting as time catch when moved longitudinally in the path of a time stop, and the latter as a pawl or click in conjunction with the winding gear, also as a release when making exposures, substantially as and for the purpose described. 5. A sliding cam plate provided with slots, and cams, for operating the pressure feet, the sliding time detent, the pivotted detent, and the adjustment stop, substantially as described and illustrated in the accompanying drawings. Magnus Neill, 140, West Twenty-third Street, New York, U.S.A.

**LUMINOUS TRANSPARENCIES.**—No. 21,913, 1905. The invention refers to an improved method of mounting transparencies so as to produce luminous reflections and brilliant colour effects. These results are obtained by placing behind a transparent photograph on convex or flat glass i.e., a glazed film, a brilliant, coloured background, which may be in contact with or placed at some distance behind the film, said background consisting simply of a coat of coloured varnish applied on an opaque backing with a glossy or matt surface; or, more generally, of metallic sheets called foils of various shades, or sheets of aluminium or any other bright metal; or of enamelled plates, varnished or bright; or of paper, cardboard, gelatine, or celluloid of a shiny appearance, coloured, nacreous, lustrous, glazed, iridescent, watered, marbled, frosted, gilt, silvered, coppered, bronzed, in a word, with a brilliant surface; or it may consist of a shiny woven material of any colour, such as: brocade, spangled cloth, gold, silver, silks, satins, velvets, plush, etc.; or it may consist of a brilliant and coloured surface. The claim is for a method of mounting transparent positive photographs for the purpose of obtaining new diaphanous, transparent, and brilliant effects in monochromes and polychromes, said method consisting in the application of a coloured and brilliant background behind or under transparent photographs or the like on flat or convex glass, so as to give the photographs the peculiar effects of diaphaneity or transparency, brilliancy, colouration, and luminosity set forth in the above specification.—Fernand Georges Paul de Neuville, 132, Rue du Faubourg, Paris.

**DEVELOPING DISH.**—No. 3,479, 1906. This invention relates to an improved developing dish which has a well or sunk centre into which the plate fits, and a depression so that the fingers can lift the plate. The sides of the dish are curved over so as to prevent the liquids from spilling over the edge and a spout partially covered in is formed at one corner of the dish. The claims are for:—1. An improved developing dish which having a well in the bottom requires less chemicals to flood plates, and also keeps plates from slipping to ends of dish. 2. An improved developing dish having a small indentation or sunk portion between the edge of well and side of dish, by means of which indentation the plate can be easily lifted out of well, either by the finger or any appliance for that purpose. Lewis William Donne, 181, Upton Lane, Forest Gate.

The following complete specification is open to public inspection before acceptance under the Patents Acts, 1901:—

**PHOTO-MECHANICAL PRINTING.**—No. 11,071, 1906. Photo-mechanical printing. Ippers.



## New Materials.

Velox Carbon "Vigorous." Sold by John J. Griffin and Sons, Limited, Kingsway, W.C.

This particular type of Velox carbon has been lately improved, so as to do away with the tendency to veiled high lights and stained prints, too often met with when a slightly oxidised developer is employed. Our trials have been very satisfactory, and we have not met with the troubles of veiling or staining, although an old developer was used. The paper certainly deserves its name of "Vigorous," for the prints are extremely rich and plucky. Using an actinometer with H. and D. squares, increasing in geometrical progression, we found that seven steps were recorded, that is, from bare glass, reckoned as unity, to 64, which corresponds to a H. and D. density of 2.1, a range which comprises most negatives that one can print. The sudden drop, however, from under this density to pure whites is very striking, and proves that the paper will be particularly suitable for obtaining good results from somewhat thin negatives.

### CATALOGUES AND TRADE NOTICES.

The July number of the "Camera House Journal, Butcher's Business Bulletin," is to hand, with seasonable and novel lines.

Messrs. Dorrett and Martin send us a price list of their tinted miniatures with celluloid, the surfaces, and mounts for the same, and inform us that they have been compelled to transfer this part of their business to larger premises, fitted up with the latest apparatus, etc., so as to enable them to cope with the increase in this branch. Their new address is 16, Belle Vue Road, Upper Tooting, S.W.

## Commercial & Legal Intelligence.

SYDNEY PORTER, of New Road, Chippenham, photographer.—The liabilities expected to rank for dividend amount to £229 12s. 9d., and the deficiency is explained at £137 13s. 5d. According to the Official Receiver's observations, the debtor, who is forty-nine years of age, states that he commenced business about twenty-five years ago as a photographer with about £40 capital. He attributes his position to "bad trade and keen competition."

J. J. WADDINGTON.—To take over the engraving and photogravure business lately carried on by J. J. Waddington, Limited (incorporated in 1901), and to adopt an agreement with E. W. Hunter. No initial public issue. First directors (not less than two nor more than five): E. W. Hunter and H. N. Hunter, £50. As fixed by company, 6, Henrietta Street, Covent Garden, W.C.

SOUTHWARK Photo Engraving Company, Limited, London, S.E.—Lien registered July 13, for £600 five-and-a-half per cent. debentures; no trustees; charged on the whole of the undertaking.

A WICKED FRAUD.—A remarkable prosecution took place at Birmingham on Friday, when two photographers' canvassers were charged with travelling to Walsall without paying their fares. Benjamin Cohen, photographer and art dealer, was summoned for aiding and abetting the defendants, who were in his employment. Mr. Lambert, of London, who prosecuted for the L. and N.-W. Railway Company, said the defendant Cohen employed many canvassers in his business who travelled the Midland Counties. He took out two monthly third-class season tickets to Walsall in the names of Francis Wasp and Dennis King, two of his travellers. These travellers were required to return their tickets to the office every night, and frequently they were transferred and used by female canvassers. On some occasions the girls travelled without tickets at all, and, when asked for their tickets, said they had left the season tickets at home, giving the names of Wasp and King. They said they had protested to Cohen against the use of these tickets, but they were compelled by Cohen to use them. Sir Walter Fisher, the presiding magistrate, said it was one of the most wicked frauds it had ever been his lot to listen to. How could honest traders compete with a man who was sending his canvassers about the country without paying their railway fares? They would fine Cohen £2 and costs for the first offence, or a month's imprisonment, and £10 and costs in the second case, or two months' imprisonment. The summonses against the canvassers were dismissed.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

July	Name of Society.	Subject.
28.....	Halifax Camera Club.....	Outing to Cragg Vale.
28.....	Blackburn Camera Club.....	Outing to Pendle Forest, Chatburn
28.....	Coveutry Photo. Club.....	Outing to Hampton and Packington
28.....	Hull Photographic Society ..	Outing to South Cave.
28.....	Hove Camera Club.....	Outing to Alfriston.
28.....	Manchester Amat. Photo. Soc.	Outing to Astbury.
30.....	Southampton Camera Club .....	{ "The Alps and Objects of a P
31.....	Manchester Amat. Photo. Soc.	raphic Society." T. M. Weaver
31.....	Hackney Photographic Society	{ "The Production of a Newspea
1.....	North Middlesex Photo. Soc.	Illustrated, Francis Fielding.
1.....	Leeds Camera Club.....	Members' Open Night.
2.....	Hull Photographic Society .....	Lantern Slide and Print Competi
		"Mounting and Framing."
		General Meeting.

## News and Notes.

WHEN a Sunday-school excursion from London visited Sheerness last week, seven youths belonging to the party walked along beach in front of the fortifications. Two of them carried cameras and they had snapshotted two warships and another vessel when they were stopped by the soldiers on duty. They were taken to the garrison, and afterwards to the police station, where the negatives were examined. It was found that no photographs had been taken of the fortifications, and inquiries showed that the youths had no intention of infringing the regulations against photographing the defences. They were not detained, but the plates of the two warships were kept.

LAST week the president of The Bristol Photographic Club, Mr. John Fisher, gave to members and friends a most delightful critical address upon the qualities, from an art point of view of the portraits by Herr Duhrkoop, which were lent by THE BRITISH JOURNAL OF PHOTOGRAPHY. Mr. Fisher said that the standard set by the pictures was so high as to be quite bewildering. Indeed, he thought that their effect upon a true artist would be discouraging for the very reason, but, he added, the effect upon a true student would be highly encouraging and stimulating on account of the possibilities they revealed. Herr Duhrkoop's work proves that he is a cultured artist—a man who goes straight to Nature in her simplest form, and who portrays ordinary everyday scenes with such skill that it confers ease, grace and beauty upon them. Mr. Fisher then proceeded to analyse various pictures individually.

NOTICE has been given by Mr. Bottomley of his intention to ask the Under-Secretary of State for the Colonies whether his Majesty's Government will consider the propriety of making a friendly representation to the Natal military authorities in favor of substituting photography for decapitation as a means of identification in the field.

At the recent annual meeting of the Huntingdon and District Amateur Photographic Society the proceedings were adjourned, on a proposition that the Society be broken up owing to lack of interest. The adjourned meeting was held last week, when Mr. W. C. Bernard was in the chair. After a discussion the proposition to break up the Society was withdrawn, and it was agreed that a special committee of three be appointed to consider what steps should be taken to increase the membership and stimulate the interest in the doings of the Society, and Messrs. E. Trench Smith, W. J. Trehearn, and W. Murton were elected to form the special committee. Mr. W. C. Bernard was again elected President for the ensuing year, and the following gentlemen were re-elected vice-presidents:—Messrs. F. B. Thackray, J. W. Tysoe, A. G. Dilley, and the Revs. Hedley Vicars and G. R. Holt Shaffo. Mr. W. D. Storey was elected hon. treasurer, and Sergt. Trehearn was re-elected hon. secretary, while the following were elected on the committee: Messrs. J. Pascoe, Sergt. Major Page, B. Allen, W. Murton, and E. Trench Smith. It was agreed to send out the portfolio on the 18th of August, the subject agreed on being "Flowers."

The council of the Royal Meteorological Society, with the view of advancing the general knowledge of meteorology, promoting an intelligent public interest in the science, and making the work of the society more widely known, last year appointed a lecturer to act in co-operation with scientific societies, institutions, and public schools in various parts of the country. The success attending the project was so marked as to lead the council to continue the appointment for another year. The lecturer, Mr. William Marriott, F.R.Met.Soc., is prepared to deliver lectures on the following meteorological subjects:—(1) "A Chat about the Weather," (2) "Weather Forecasting," (3) "Rain, Snow, Hail, and Thunderstorms," (4) "The Upper Regions of the Atmosphere," (5) "Clouds, Fog, and Sunshine," (6) "Climate and Health," (7) "Meteorology in Relation to Agriculture," (8) "How to Observe the Weather" (elementary). The lectures will be illustrated by lantern slides. Particulars as to the fees for the lectures and as to the terms on which the exhibits can be lent may be obtained from the assistant secretary, Royal Meteorological Society, 70, Victoria Street, Westminster, S.W.

"THE Holidays 1906, where to stay and what to see," is the title of a book published by Walter Hill and Co., 67, Southampton Row, W.C., and as its title implies, deals with holiday resorts on the Midland, L. and N.W., G.N., G.E., G.W., and Great Central Railway Companies' lines. It is a useful local and general guide to many places.

SOME strikingly effective advertisement matter has been sent us by Mr. A. H. Pitcher, of College Court, Gloucester. Excellent examples of various cross lines screens suitable for fine and cheaper papers, with a few, but telling lines underneath, are just such as appeal to the local tradesman, who may be getting out a catalogue. Mr. Pitcher has also succeeded in obtaining insertion in the local paper of a very effective free advertisement of the acceptance by H.M. the King of some enlargements made by him.

THIS year's meeting of the British Association is to take place at York, from August 1 to 8. In the preliminary reports we note, among other subjects of direct or indirect photographic interest, that Sir Wm. Ramsey and J. F. Spencer will read a paper on chemical and electrical changes induced by ultra-violet light, which contains some important new matter as well as a summary of what is at present known on this subject. Mr. H. Stansfield will read a paper on photographs of thin liquid films, and Prof. Barton and J. Penzer on photographic records of a string's vibration and responsive notions in the air. Several semi-popular afternoon lectures are also to be illustrated by lantern slides.

THE Yorkshire Photographic Union have just issued their latest list of lecturers for the 1906-7 season, and a goodly list it is too.

THE "Professional Photographer" for June and July is just to hand from Kodak, Limited, and it is, like the first number, excellently printed, and will be found useful by professional photographers, to whom alone it is issued.

THE newly fitted up dark room of the Dublin Camera Club was formerly opened on the 16th, at a duly summoned meeting of the club. Mr. W. H. Ebbs read a paper on negative making, and afterwards by kind permission of Lafayrth, Ltd., gave a demonstration on the process of development.

THE first Annual Photographic exhibition and Competition of the Dumfries and Maxwelltown Photographic Association takes place from October 11 to 13. The prospectus is an attractive one, for, besides classes confined to members of above society, and a class for the members of the Scottish Photographic Federation, there are four different open classes comprised of (1) landscapes and seascapes; (2) portraiture and general; (3) miscellaneous; (4) lantern slides. The prizes have to take the form of silver and bronze plaques and medals, and at least two prizes will be awarded in each class. Jas. Patrick, Esq., Edinburgh, the well-known Scottish Federation judge, has agreed to come down to Dumfries in that capacity. Prospectuses and Entry forms may be had from the secretary, T. Armstrong, 41, Moffat Road, Dumfries, N.B., on application.

MR. ALFRED WATKINS has accepted the presidency of the Photographic Convention for 1907. The Herefordshire Photographic Society have also held a preliminary committee meeting to consider things in general.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—It was my intention to allow this subject to drop, but after perusing the letter of your correspondent "Another Disgusted Assistant," in this week's issue, I feel constrained to put him right. For his edification I would point out that I am *not* a 4½d. per hour man. I am paid £90 per year as manager of a branch studio, and I have had experience in some of the best studios in England and Ireland. As I said in my last letter, this is not a *personal* grievance, but one which is felt by the whole body of photographic assistants. By assistants I mean all who are employed by others. There are many "amateur assistants," as well as "amateur professionals." These men are often advertised for. You see such announcements as "good amateur not objected to" in advertisements. These men I do not acknowledge. But there are many really good men employed as "general assistants" for a mere pittance, men who are capable of turning out good class work, yet who have no chance whatever of getting into better berths. General assistants they must remain. Why? Because they have not been employed by some big firm. Correspondingly there are many men holding places in good-class houses whose work is not so regularly good as many humble general assistants, but who can easily secure good prices because they can say, "I have been with So-and-so."

Take a general assistant in a country business as an example. I know several such. He has to turn his hand to anything, operating, retouching, printing in several processes, enlarging, copying, toning, etc., and he has to do all these in a place, and under difficulties, in which a first-class man would not be able to do anything.

He has no superabundance of apparatus and accessories, no conveniences for controlling the light, no big choice of backgrounds, only one or two lenses; often enough the apparatus is old and out of date. I know such a man. If he had the proper apparatus and accessories and good modern conveniences he could turn out work as good as many men getting £5 per week, but he has in his studio three chairs, a table, two backgrounds, and a rug. That is all the accessories he has to work with. He cannot control the lighting, there are no blinds or diffusing screens. He has no studio camera or stand, just a whole-plate field camera, with a half-plate anastigmat. The studio is too small for good work, being only 18ft. by 12ft. His dark-room is a box 4ft. by 3ft. Now would a man who is used to every modern convenience, all the latest apparatus, etc., do really good work under such circumstances? I am afraid not. Yet there are many "general assistants" who turn out passable work under these circumstances. Yet they cannot hope for anything better, because, forsooth, they have had no better experience. This is where the examination would put them on a level with others—give them a chance in the battle of life. Why cannot they be given this privilege? They are *men*, not animals, and as such can insist upon equal privileges as others. I am not pleading for incompetents; let them go, we do not want them.—Yours, etc.,

DISGUSTED ASSISTANT.

### FILM COLOUR FILTERS.

To the Editors.

Gentlemen,—Your "Ex Cathedra" notes this week contain a reference to the use of stained gelatine films for filters, which is of interest to me as an advocate of them some years ago. I believe it was in the JOURNAL ALMANAC for 1892 that I published a method of preparing them, and for some time I used gelatine films as filters, behind the lens. My experience was that, sooner or later, they invariably buckled, owing to their hygroscopic nature, and it was necessary to be constantly replacing them. I find nothing so satisfactory as glass. In landscape work one rarely needs more than one filter, and though at one time I carried four I now find the one



meets all requirements. This I have in a sliding panel, behind the lens, inside the camera, and it is always in position, so can be pushed to or fro to cover the lens or not as occasion demands. In another camera the filter is fitted into a sliding frame, working to and fro behind the lens, also inside the camera, but as the frame can be operated from the outside the filter can be pushed into position after the dark slide is inserted, or withdrawn if circumstances make it inadvisable to use the filter at the last moment. My filters weigh, with frame, under one ounce, so I do not think this is a serious addition in weight to one's kit. Of course, it is quite possible to use thin microscopic cover-glasses for filters, and they are most efficient, while their weight is little more than that of gelatine. I have recently made two filters for stereoscopic camera, with one-inch circles of thin cover glasses, cemented and mounted to fit on back of lenses, and they leave nothing to be desired.

Edwards, of course, issued long ago stained films, mounted for the diaphragm slot, and although the colour was excellent, better than any glass at that time procurable, I found them open to the objection of eventually getting out of shape. I am, yours faithfully,

G. T. HARRIS.

[Mr. Harris's note appears in the ALMANAC for 1903, p. 700.—Eds. B.J.]

### A NOTE ON THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—As a "Plate User" who finds a knowledge of the constants  $K$  and  $\gamma\infty$  of great practical use, I should like to add a few words to this discussion in the hope that it may help to clear up some of Mr. Payne's difficulties.

It is quite true that the constant  $K$  depends only on the ratio of  $\gamma_1$  and  $\gamma_2$  and may be the same for plates of very different qualities; but the constant  $\gamma\infty$  depends not only on the ratio  $\frac{\gamma_2}{\gamma_1}$  but also on the absolute value of the two development factors,  $\gamma_1$  and  $\gamma_2$ .

Thus, for example, test strips of two plates, A and B, developed for five and ten minutes give

Plate	$\gamma_1$ (5 minutes)	$\gamma_2$ (10 minutes)
A	0.8	1.12
B	1.5	2.1

In each case the ratio of the two development factors is equal to 1.4.

$$\begin{aligned} \text{that is } \frac{\gamma_2}{\gamma_1} &= \frac{1.12}{0.8} = 1.4 \\ \text{and } \frac{2.1}{1.5} &= 1.4. \end{aligned}$$

Referring now to Mees and Sheppard's table I. (*P. J.*, Nov., 1904), we find that this ratio corresponds to a  $K = 0.182$ ; which value is, of course, the same for both plates.

Now, however, to obtain  $\gamma\infty$  (the highest possible development factor), we must go to Table II. (*loc. cit.*) and, using the method there indicated, we find the values of  $(1-E^{-K})$  for 5 and 10 minutes to be

$$0.5972 \text{ and } 0.8379.$$

Dividing then the  $\gamma_1$  and  $\gamma_2$  of each plate by these figures we get

$$\begin{aligned} \text{for Plate A } \frac{0.8}{.5972} &= 1.3 = \gamma\infty \\ \frac{1.12}{.8379} &= 1.3 = \gamma\infty. \\ \text{and for Plate B } \frac{1.5}{.5972} &= 2.5 = \gamma\infty \\ \frac{2.1}{.8379} &= 2.5 = \gamma\infty. \end{aligned}$$

We thus see that the constants are

$$\begin{aligned} \text{for A } K &= 0.182 & \gamma\infty &= 1.3 \\ \text{for B } K &= 0.182 & \gamma\infty &= 2.5 \end{aligned}$$

It will thus be evident that though two plates giving very different values for  $\gamma_1$  and  $\gamma_2$  may have the same  $K$ , yet they will have different values for  $\gamma\infty$ , because this depends not only on  $K$ , but also on the actual magnitude of the  $\gamma_1$  and  $\gamma_2$  in each case.

The practical value of a knowledge of  $K$  and  $\gamma\infty$  to the plate consists in the fact that from these numbers he can calculate time required to reach any given development factor. Thus example:—An Imperial Orthochrom plate with a certain development at a certain temperature has the constants  $K = 0.163$  and  $\gamma\infty = 2$ . It is required to know how long it must be developed with the same developer and at the same temperature to obtain a development factor  $\gamma = 1.0$ .

Taking the equation

$$\gamma_1 = \gamma\infty (1-E^{-Kt})$$

and substituting the known values we have

$$1 = 2.15 (1-E^{-0.163t}),$$

from which the  $t$  required may be found as follows:—

$$\frac{1}{2.15} = (1-E^{-0.163t})$$

$$0.4186 = (1-E^{-0.163t})$$

From Table II. (*loc. cit.*) we get that this corresponds to a value  $Kt = .540$ , and dividing this by  $K = 0.163$  we get

$$\frac{.540}{.163} = 3.3 \text{ mins. (say 3 mins. 20 secs.)}$$

as the required time.

I hope the foregoing may be of some help to Mr. Payne and others in making clear the difficulties which are found in the study of the subject.—Yours, etc.

W. B. FERGUSON

Arosa, Suisse, July 20, 1906.

To the Editors.

Gentlemen,—I was glad to see Mr. Arthur Payne's letter, for had come across the same stumbling block in trying in my amateur way to understand and work the H. and D. system, as expounded by Messrs. Mees and Sheppard.

There is, however, one point upon which I should be glad to be still further enlightened, and that is whether the Hurter and Driffield constant of 34 still holds good with the acetylene light standardised to daylight. This was adopted for the standard candle, and I am under the impression that somewhere Messrs. Hurter and Driffield stated that if another source of light were used this would have to be altered.

Possibly Messrs. Mees and Sheppard can kindly enlighten us on this point.—Yours faithfully,

ARTHUR GASCOIGNE.

London, E.C.

### CLOUD PHOTOGRAPHY.

To the Editors.

Gentlemen,—I read with great interest "Some Notes on Cloud Photography" in your last week's issue of the B.J.P.

For some time past I have taken up cloud photography as a hobby, and find it intensely fascinating. I have also taken up the photography of lightning, of which I have several pictures, both of the multiple and single flashes.

Mr. Clayden suggests using a photo-mechanical plate for cloud work. I myself have tried these, but I found that they did not give sufficient tone value, but on the other hand they gave great contrast which is essential in showing the form of the cloud photographed.

About six months ago, I met with an announcement of a process plate that was also orthochromatic, viz., the Wellington Ortho Process plate; these I tried with great success. I found that even without a screen they gave excellent tone values, and in addition great contrast between the whites of the cloud and the clear sky. Although a pyro soda developer is recommended with the plates, I find for cloud work that a hydroquinone developer, such as that recommended for the "Mawson lantern plate," an excellent one.

I have suggested the use of these plates to several gentlemen engaged in meteorological research, who take a great interest in the work, and in each case they have expressed their approval.

With regard to the statements Mr. Clayden makes as regards the photography of lightning, he says, we should not hold the camera in the hand. I must say my procedure is a little different, but with a special aim.

July 27, 1908.]

I have, when taking photographs of lightning, no less than four cameras all working at the same time. Two I have fixed to a rigid support pointing towards different portions of the sky, and two more cameras, one in each hand, both of which are kept in a swinging motion from right to left. All four cameras are started exposing at the same time, and given a definite exposure according to the time of day or night I am exposing; a longer exposure may be allowed at night owing to less risk of fogging the plates. My reason for this procedure is, to try if possible to get a single flash on one plate, and multiple of the same flash on another.

Mr. Clayden suggests the use of fast plates for lightning, but does not say whether these should be of the orthochromatic type or not. I have found from experience that an orthochromatic special rapid is necessary. Some little time ago a storm passed over London, and, as usual, I exposed for the lightning, and although I was certain I saw several very distinct flashes in my view finder whilst exposing (the exposure, by the way, was not sufficiently long to fog the plates), yet upon developing the plates I found no trace of lightning upon them; the reason I attribute to the fact that the lightning was a distinctly non-actinic colour, and the plates not being orthochromatic.

We have our Societies for Survey Records, Architectural Work, and I see a Society is now on foot for Colour Photography. Why not a society for the Furtherance of Cloud and Lightning Photography, with an idea of helping meteorologists in their researches. Should be glad to become a member, if such a Society was started. Hoping I am not occupying too much of your valuable space and time.—Yours obediently,

HOWDEN WILKIE.

37, Engadine Street, Southfields, S.W.

## PROPOSED SOCIETY OF COLOUR PHOTOGRAPHERS.

To the Editors.

Gentlemen,—I have been both gratified and encouraged by the friendly response and general interest which has been accorded to the proposal for the formation of a society of colour photographers, as set forth in my letter published in your issue of the 15th inst., and I take this opportunity of thanking all those who have written me in this connection, and who have sent in their names provisionally, as wishing to become members of the society. A meeting will be arranged to be held in London during the "Royal" exhibition, due notice of which will be given to those whose names I have then received. In the meantime I shall be glad to add to the list the names of both ladies and gentlemen who are working in colour photography, and shall be pleased also to receive any suggestions which may be helpful to the organisers, so that the society may be made to fulfil its purpose successfully.

Replying to the letter of "A Country Professional," I am glad to know that he is taking up colour work, and shall be happy to add his name to my list as a prospective member of the society. He does not sympathise with the suggestion that workers shall be divided into sections for the purpose of portfolio circulation; but I may assure him that he, as a beginner, will have no real cause to object to such an arrangement, for the society will, I hope, endeavour to encourage earnest workers in every possible way. May I remind him that success is nearly always built upon a foundation of failures, and that while one always admires perfect results, their very perfection covers up the methods by which such results were attained, so that all we can do is to admire. But with less perfect work before us, we may see, or have pointed out to us, the cause of failure, and thus acquire a knowledge which will be helpful to us in conducting future experiments in the same direction. This is particularly true of colour photography, and it is hoped that we shall have the co-operation of a few leading workers, who will not be influenced by professional jealousies, but whose first desire is to see this new phase of photography launched upon a successful career.—Again thanking you, in anticipation, I am, yours faithfully,

HENRY J. COMLEY,

Secretary, pro tem.

Surrey House, Stroud, Glos.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

Weiss and Fowke, Victoria Road, Stafford. Two Photographs of the Hon. J. Chamberlain and Mrs. Chamberlain.  
G. Hynd, The Studio, High Street, King's Heath, near Birmingham. Photograph of J. Chamberlain, M.P.  
T. T. Hardwick, Ivy Gables, Rushford Park, Levenshulme, Lancashire. Photograph of W. G. Douglas and A. E. Noon in a Boat Displaying a Conger Eel caught by them at Port Erin.  
Walter Bellamy, 27, Hagley Road, Birmingham. Photograph of the Right Rev. the Lord Bishop of Manchester (Dr. Knize), size 12 in. by 10 in.  
Fred Nainby, Photographer, Challenger Street, Cockermouth. Photograph of Sir John Randles with Foot on Step of Motor Car.  
Louis G. Carpenter, 88, High Street, Ramsgate. Four Photographs of the Ramsgate Pierrots.  
Thomas Albert Scotton, 1, 165, London Road, Alveston, Derby. Photograph of King Edward, on his Way to Royal Agricultural Show at Derby, June 28, 1906.  
Payne & Cuddy, 12, Shop Street, Drogheda. Photograph of Dunleer taken from Tower of Church.

ENLARGEMENT.—Is it possible to make an enlargement from a negative so that the picture or enlargement would be 20ft long?—C. HUNT.

It is, of course, possible to make an enlargement 20ft. long, but a great deal depends upon the negative in the first instance. If the negative were a 10 x 8 then the enlargement would be twenty times, and assuming the so-called critical definition existed—that is to say, the diameter of the disc of confusion did not exceed one two-hundred-and-fiftieth of an inch, it is obvious that with this enlargement the fuzziness would be clearly visible, unless the enlargement were examined from a considerable distance. Theoretically, of course, there is no limit to the enlargement.

A. E. N.—Your print is what is known as a cameo, and is made in the ordinary way, then put into a cameo press, which gives it the cushion or raised up shape, and it is then backed with cotton wool or paper, and mounted by the edges only.

THOS. RILEY.—Certainly, any number less than six are admissible.

E. R. LEWIS.—Three or four houses, at the most. Hood and Co., St. Bride Works, Middlesbrough, or Carl Hentschel, Limited, Fleet Street, or Hamel and Co., Premier Studios, Palmerston Street, Nottingham.

DONE.—The lady certainly cannot claim compensation, nor can she in any way stop publication, provided the print does not libel her. The following extract from the ALMANAC for 1906, where will be found a very useful summary of the law of copyright, puts the facts very clearly:—"Can a photographer display or publish prints from negatives he may take of persons or places? It seems hardly necessary to put the question, for the above clause of the Act clearly states that no one has the right to forbid the representation of any scene or object. If there is any restriction, it falls under common law without reference to copyright. A photograph of Alderman Jones, J.P., obtained in the street of Blankton, without his knowledge, is the photographer's to use as he pleases, and Alderman Jones cannot prevent him so long as the display of the photograph does not transgress the law of libel, by exposing the subject, for example, to such notice or ridicule as may prejudice his commercial, social, or official position. Similarly I may photograph the residence of Alderman Jones, and he cannot prevent my using the view as a postcard, though he may put forward the existence of the postcard as proof that on a certain occasion I trespassed on his estate. It is questionable if he could make much of such a case, but the general position



remains unchallenged—viz., that so far as copyright is concerned, the photographer has the right to photograph anything "photographable, and to sell or exhibit his copies."

**S. R. SHARP.**—You cannot possibly have a great depth of focus with a lens working at F. 4. Still, the only lens which answers to your other requirements is the Zeiss Planar, No. 12, which covers a half-plate at F. 4.

**P.O.P.**—Some months back you had a series of articles on P.O.P. printing and toning in the *BRITISH JOURNAL*. I have mislaid the number. Will you please give the toning bath formula, which was recommended not to give double toning? If I recollect there is no sulphate of potassium used. I have been used to using the albumenised paper, and find great difficulty in getting certain results with the P.O.P. By using the combined bath I find the prints tone too quickly to be fixed properly if left in, the vignettes turn yellow at edges and give poor prints.—**ALBUM.**

The articles appeared in our issues for July 7 and 14, 1905. Three formulae are there given, as preferable to the sulphocyanide bath. Sodium phosphate, 24 grains; chloride of gold, 1 grain; distilled water, 20 ounces. This must be mixed just before use, and it is important to use distilled water. The second bath is: Sodium formate, 15 grains; sodium carbonate, 2 grains; chloride of gold, 1 grain; distilled water, 20 ounces. This must also be mixed just before use. The third formula is the one specially recommended, and it will keep well in the dark as a stock solution. 1. Thiocarbamide, 30 grains; distilled water,  $\frac{3}{4}$  ounces. 2. Gold chloride, 15 grains; distilled water, 4 ounces. To the latter add sufficient No. 1. to redissolve the precipitate first formed the quantity required will be about two ounces. Then add: Citric acid, 30 grains; salt,  $\frac{1}{4}$  ounces, and enough distilled water to make  $7\frac{1}{2}$  fluid ounces in all. Every half ounce of this solution will contain one grain of gold, and may be diluted with water for use. With regard to the combined bath, no formula is given, so we are unable to tell the exact cause of the trouble; it may be due to excess of gold, absence of chloride, or insufficiency of hypo.

**CASTLETON, KIRBY.**—Your retouching is of very poor quality, but what can you expect after only working at it for such a period as stated in your letter. Your work presents no solidity, gradation, or modelling, and the necessary texture is entirely absent. The best advice we can give you is for you to at once place yourself in the hands of an expert teacher, and have proper lessons, either personal or postal, instead of trying to teach yourself—always an unwise and hopeless task.

**COPYRIGHT QUERY.**—I am publishing a number of local views as postcards, and wish to make them copyright. There will be a couple of dozen or more of them, and to make them copyright singly will cost more than I care to pay. Can I, if I mount them in eights on a board, copyright them as one picture?—**ECONOMY.**

No; to secure the copyright each picture must be registered separately.

**LENS QUERY.**—I have a studio 16ft. long and 9ft. wide. What portrait lens should I get? I shall want to take full-length cartes and cabinets, groups, and also large cabinet heads.—**J. WITHERS.**

The lens you ask for has not yet been made. A lens of 6in. focus requires about 13ft. distance for a full-length carte picture, but this will not cover the cabinet size. One of 10in. focus requires 14ft. for a cabinet, but this in the space you have will not take a full-length carte, so that you had better have at least two lenses. A third with a still longer focus would be better for the large heads, as with that you will get more pleasing perspective than with the 10in. one.

**LENS.**—I have a whole-plate portrait lens, bearing the name of Bourquin offered me cheap. Will you please say if he is a good maker.

Bourquin was not a maker of lenses. He was a photographic dealer carrying on business in London many years ago. The lens, no doubt, is of French make, and may be a very good one. But we should advise you to test it before purchasing.

**FACTORIES ACT.**—I shall be greatly obliged if you would reply to the following inquiry in your "Answers to Correspondents"

column: Do my photographic premises, studio, etc., come under the Factories Act? I employ one male operator (age 22) studio, one male operator outdoors (age 21); also, one young lady apprentice (age 22), and one young lady in shop taking orders (age 20). The inspector tells me that the girls are allowed to work only from 8 a.m. to 3 p.m., and must be home one evening off at 4 p.m. each week.—**ABER.**

We should say that your business comes within the Factories Act, and you will not be able to work the girls longer than from 8 till 8, with suitable hours off for meals. Surely this is long enough hours for young people to work. They must also have a half-holiday each week, as well as all Bank Holiday.

**A GRIEVANCE?**—A few weeks ago I photographed a lady's child and submitted untuned proofs in due course, which were paid for at the time of sitting, but which were not approved. I was therefore, somewhat surprised a week ago to see exhibited in a local photographer's window a whole-plate enlargement of my carte de visite portrait—presumably taken from one of my proofs. I have written the lady to request the photographer to remove from his window what is obviously not his work, however good, bad, or indifferent it may be; but the enlargement has not yet been removed. The photographer himself has not yet approached. I believe I have no redress. (1) Is this so, or not? (2) If so, what would you recommend me to do?—**RENE.**

1. You have no remedy, and why should you have? You have been paid for taking the portrait, and the one who paid for it has, clearly, the right to do as she likes with it. If she likes to have an enlargement of the portrait shown in another photographer's window you cannot prevent. 2. You can do nothing.

**VALUE OF BUSINESS.**—I would be glad if you could give me a little information as regards the value of a business which I am compelled to sell owing to ill-health. My business brings in between £400 and £500 a year, and I reckon the profits at about £250 to £300. The class of work I do is considered middle-class, and the population is what is called a floating one—always changing. My rent and rates are £40, and I have a lease of eighteen years to run. The average rent of other shops in the same street is £65. I would be glad if you could give me a little information on this.—**SURREY.**

It is without our province to value photographic businesses, as so much must necessarily depend upon local conditions, the prices charged, the cost of labour, the amount of opposition, and so many other things. If you consult the advertisement columns of the *Journal* which are devoted to businesses for sale you will doubtless be able to form some idea as to what yours is worth in the market.

**GERMAN DUTY ON PLATES.**—Can you inform me if the duty on photographic plates (unexposed) taken to Germany is very excessive. I propose taking a holiday in Germany, and would like to take plates with me, if the duty is not too heavy.—**C. E. FOWKE.**

The duty is about 30s. per cwt., but, as a rule, if the plates are only taken for personal use, and not for sale, there is not any trouble with the Customs. Many English plate-makers have agents in Germany.

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## SUMMARY.

Photographers' and assistants' agreements should be based on the principles of equity, and not be so wide as to become invalid. (P. 603.)

The preparation, cutting, staining, and mounting of specimens for photomicrographic work opens up an extremely interesting field for photographers, which forms a welcome relief from everyday work. (P. 604.)

Translucent and opaque head screens frequently obviate the necessity of shifting the blinds in the studio. (P. 602.)

M. Goderus tilts a strong lance against the generally accepted axiom that the images in the stereoscope are superimposed. The effects obtained he ascribes simply to mental impressions. (P. 606.)

The action of ink on P.O.P., and a method of photographing burnt documents, and a new dodge for invisible writing. (P. 608.)

An able criticism from an artist's point of view of Herr Dührkoop's work—which was recently on exhibition in our offices—suggests also how photographs and pictures should be looked at. (P. 608.)

Mr. Herbert Ives's improvements in the diffraction process of colour photography render this process much simpler and more practical. (P. 609.)

A patent which gives photographically the effect of the old slat advertisement, which showed different wording according to the angle it was viewed. (P. 613.)

An important case of implied contract, which is likely to carry considerable weight in commercial dealings, was fought in the Court of Chancery this week. (P. 615.)

Japine platinotype comes out most satisfactorily under tests. (P. 614.)

The question of assistants' certificates still attracts attention, but this week a disgusted employer has something to say on the other side. (P. 617.)

## EX CATHEDRA.

### Lens Panels.

One of the minor worries of the photographer who wishes to use or test various lenses is the provision of lens panels. Very seldom does he find two different lenses that will fit the same flange, or two different flanges that will fit the same panel, and the provision of a new panel is often necessary. For temporary purposes a millboard panel will serve, though one built up of several thicknesses of thin card, glued or pasted together and allowed to dry under pressure, is somewhat better. A wood panel is best for permanent use, and thin mahogany fret-wood is perhaps the most desirable material. If millboard or card is used there is generally some difficulty in fixing the flange with ordinary screws, and it is usually most convenient to screw the lens direct into a hole cut in the card, and so dispense with the flange altogether. Cutting the hole is, however, not the least of the difficulties, and it is one that has to be surmounted whatever material is employed. The camera maker generally cuts it in a lathe, but if a lathe is not available we have to fall back on more primitive methods. A centre-bit is of course most effective, but a centre-bit of the right size is seldom available, while the expensive variety known as adjustable centre bits are very little use. They require a lot of power when set to cut large openings, will not feed themselves through thin wood unless it is backed by something much thicker, and, worst of all, generally split the panel. The fret saw is tedious and unsatisfactory, as it is by no means easy to saw a perfectly circular hole, and hammer and chisel is slow and produces a rough hole that requires a lot of after-trimming. For a long time, however, we have used hammer and small chisel as the best of these several methods, and only quite recently have we hit upon a better method that is equal to the lathe in point of effectiveness and superior in the matter of time. We now use an ordinary washer cutter. This is a brace tool, costing 1s. 9d., and intended for cutting holes or complete washers in leather. If the knife is kept sharp it works perfectly in thin wood or in millboard, and produces a clean hole of any diameter up to five inches, with a very few turns of the brace. The hole is a bevelled one, and if it is bored from the back of the panel the bevel is just the kind required for a wood panel. But if the lens is to be screwed directly into a card panel the hole should be bored from the front, as the bevel then assists the screw in biting into the edge of the board. It may be noted that panels made of thin card, glued together, and dried under heavy pressure can be sawn, cut, sandpapered, and even rebated in just the same way as wood. They will not take a wood screw well, but if rebated panels are required and wood is not available, the built-up material is far superior to millboard.



### Film Negatives In Studio Work.

So far the film has not supplanted the glass plate for studio work, and indeed the advantages of a firm support for the negative image are numerous. It is for example much easier to retouch a glass plate negative than one on a film. Still, we think many of the advantages of glass are more imaginary than real; the convenience in handling, for instance, being rather a question of use. Film negatives might be varnished more rapidly than glass plate negatives, and, of course, the freedom from risk of breakage is an important point. In one respect, however, the film negatives scores unmistakably. It offers the most convenient method of making carbon prints, the single transfer process being employed, printing through the film, while at the same time the negative is equally available for the platinum or other processes for which its contrast and gradation might be suitable. Films may now be obtained at a cost very slightly in advance of that of plates, and in such a form that they may be employed in the ordinary dark slide. In making experimental negatives on cut films we have found one of the difficulties is to keep the films sufficiently flat and in the proper plane. The depth of a wide aperture portrait lens is so slight that any buckling of the film is quite sufficient to cause out of focus areas. By pressing it forwards against a sheet of thin patent plate glass perfect flatness would be ensured, but a slight increase of exposure would be necessary, as there would be a loss of light through reflection and absorption, and, of course, one of the slides would need altering slightly, so that the sensitive surface occupied the same plane as the ground glass.

### The Head Screen In Lighting.

Those portrait operators who have not used an ordinary head-screen, covered with tracing cloth or butter muslin, as an aid to lighting head and shoulders of half-length pictures, have not yet found out to what an extent they may save the time and trouble hitherto spent on manipulating the roller or curtain blinds of the studio. Not only is the saving of trouble considerable, but the end gained is greater, for nothing is more distressing to the sensitive sitter than a lot of noise and bother in making alterations of blinds or furniture, and if by simply placing the head-rest in various positions the necessary modifications can be made in the lighting, the sitter is unconsciously grateful and the expression is correspondingly improved. If two head-screens are at hand, one covered with a very diaphanous material, and the other with something comparatively opaque, say brown holland, it should be possible to arrange almost any lighting without touching the blinds, assuming that they have been previously placed in a normal position, and that the type of sitter is not very abnormal. The diaphanous screen may be placed between the head and the skylight, and will soften the lighting to almost any degree, the nearer the head the screen is placed the softer and more delicate the illumination. By removing this screen altogether and placing the more opaque one over the head, the shadow side may be made darker, and so the contrast of light and shade apparently increased. One great advantage of lighting in this way is that the raising of dust by moving the blinds is largely avoided during the time the sitter is in the studio.

### Implied Contracts.

The report of the case of *Doff v. Sachs*, which appears elsewhere, is somewhat interesting, and we think is of some importance, too. Briefly, a photographer is commissioned by a firm of postcard publishers to photograph a certain number of members of the theatrical profession, and at the same time takes the opportunity to secure a series of negatives for his

own use. An action by the postcard publishers to stop publication of these photographs fails; the defendant wins the day with costs. Whether the photographer is to be congratulated must be purely a matter of personal opinion, but there is no question that this decision, if not upheld on appeal, may considerably militate against the profession generally. It is a case of sufficient importance to be widely reported, and no doubt the attention of other postcard publishers will be specially directed to it, with the result that photographers may in the future have to submit to more stringent contracts in accepting orders for this class of work, or lose it altogether. Nor does the decision affect only this work; it must apply to all orders, for Mr. Justice Warrington's decision means that an order implies no contract to execute this and this only. The decision opens up innumerable possibilities of trouble. There is no parallel apparently between this and the *Crooke-Irving* case, for in the latter special permission was accorded by Sir Henry Irving for extra sittings, although the original sitting was for a third party.

### An Epidemic of Fading.

We have received during the last week or two a large number of prints, chiefly postcards, on P.O.P., which all seem to suffer from the same trouble, namely, more or less distinct evidences of partial fading. These marks are in nearly all cases accompanied by that peculiar coloration, or discoloration, of the image which is characteristic of sulphuration. In several cases we have been at some pains to find out the method of working, and apparently the procedure has been to tone with bath which have been allowed to stand for some time to ripen or else have been made with hot water and then used while cool. The fixing bath has, however, been used freshly made. On further inquiry it was found that toning took place fairly rapidly, and that it was assumed that fixing would be also accelerated. Working precisely on these lines, we found experimentally that a toning bath made up and allowed to stand for twenty-four hours was exactly ten degrees above the fixing bath. The obvious lesson to be learnt is that the fixing bath, when freshly made and consequently cooled down, should be given time to do its work thoroughly, and so that the comparatively insoluble hyposulphites of silver may be dissolved.

### The Washing of Postcards.

There is one point which frequently seems to be forgotten by postcard users, and that is their thickness. The result of this is that the washing in between and after operations is by no means so thoroughly performed as it should be. A very ready test on this point can be made by faintly printing a P.O.P. card, bromising in the usual way, and then developing with an alkaline developer and immersing in a gold bath. It is really astonishing how long one may wash and yet obtain the characteristic purple tint on the back due to the precipitation of metallic gold. If an experiment be carried out on these lines, and the card be subsequently split, which is by no means a difficult matter, it will be found that the interior layers are distinctly tinged, even although the outer surface is quite free from any purple tint. The thickness of the card conduces to this result, and one has also, of course, the somewhat impermeable baryta coating, and then on that the gelatine of the emulsion.

### The End of The Picture Season.

The picture season, so far as auction sales of the finest works are concerned, is now over. It has been a notable one for the exceedingly low prices that pictures of the Academy type have realised at sales; in some cases less than a quar-

the sum they sold for a few years ago. It is also noteworthy by reason of the exceedingly light prices at which works by some of the old masters changed hands. Perhaps the most notable thing in connection with the past season's sales is the extraordinary high prices that have been given for old engravings, in some instances much more than for well known paintings by leading R.A.'s. As an example of this we may mention that a couple of months ago, at Christie's auction rooms, an impression of Walker's plate of Mr. Masters, after Romney, fetched £30, while the week before, at the same sale rooms, F. Odhams' well known picture the "Raising the Maypole" was sold for only 400 guineas. In 1873 this same picture sold 1,470 guineas. Last week, at the same rooms, a fine etching of J. R. Smith's "Lady Caroline Montague as a child" was knocked down for no less a sum than £700. The past picture season has served well to illustrate the great fluctuations there are from time to time in the picture market.

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#### Fogging Under-Exposed Prints.

It is difficult to understand why there is a greater tendency for an under-exposed or an unexposed plate to fog than for one which has had the normal full exposure. Yet that such is the case we have noticed over and over again, and no doubt every observer who has experienced the same thing. It might be argued that an unexposed plate fogged through undue exposure to the light of the developing room, or that in some way it had been fogged in the camera by stray light. But it is quite possible to take suitable precautions to avoid either stray light or unsafe dark-room light and still observe the phenomenon. We have developed six or eight quarter-plates exposed in a hand camera, placing them all in one dish, applying the developer and covering the dish. A plate accidentally unexposed or taken fresh from the plate-box and placed amongst the exposures will, after the expiration of five minutes' development, usually show a fairly thick veil of fog, while the whole of the exposed plates may have produced negatives quite clean and bright. It has been suggested that this fogging only occurs with plates which have a predisposition to fog, but we have noticed it with clean working plates of moderate speed. A somewhat similar phenomenon has also been brought to our notice recently in the case of testing emulsions by the Hurter and Driffield system. A series of strips when developed with the standard pyro developer and a distinctly high fog reading, but plates coated with the same emulsion exposed in the camera were as clean and as brilliant as could be wished.

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#### Enamelled P.O.P.

For certain classes of work the enamelled-surfaced print will always be in demand. Not only in portraiture, but where the detail is required in some kinds of technical work the glossy bromide or the enamelled P.O.P. answer the requirements admirably. Twenty years ago this class of print was produced by enamelling the albumenised paper print with collodion, a piece of patent plate glass being French-chalked and coated with thin enamel collodion, in contact with which, under a warm solution of gelatine, the albumen print was placed, the excess of gelatine being squeezed off. The modern enamelled P.O.P. print is simply produced by squeezing to a chalked glass or a ferrotype plate. The albumen print if backed with a fine quality of waterproof paper attached with an adhesive not likely to become acid was protected from the deleterious action of the air on both sides, and its chances of permanence

increased. The collodion surface was to a great extent waterproof, or at all events, any chance splash of water might be wiped off and a moist finger would not injure the surface. The gelatine surface of the P.O.P. is exceedingly liable to injury from moisture, and it is difficult to satisfactorily enamel such prints with collodion. We have found that if the print is simply laid down on the collodion as it comes from the wash water there is a certain amount of risk of the film of collodion peeling partially after the print is dry. This risk is increased if the prints have been through a hardening bath of either alum or formaline. The only reliable method seems to be to thoroughly formaline the prints after toning, fixing, and washing, so as to render them insoluble in a hot gelatine solution, and to treat them as the albumenised paper prints were treated. Even then it is somewhat doubtful if the adhesion of print and collodion film is as perfect as it is with albumen, which is of a more porous nature than a tanned gelatine film.

#### PHOTOGRAPHERS' AND ASSISTANTS' AGREEMENTS.

EMPLOYERS when engaging assistants, particularly if they have to take an important position in the business—say, as manager of a branch, for example—very frequently make it a condition of employment that the employee signs an agreement that when he leaves the service he will not commence business for himself, or enter the service of another photographer, within a certain radius of the place of business. Such agreements usually stipulate that in the event of the employee breaking this part of it, he is to forfeit to his late employer a certain sum of money by way of damages. This is but fair, if the agreement is an equitable one, as the employer is justified in protecting his interests. If, say, an operator-manager were put, we will imagine, to manage a branch business, and, after he had well established himself with the customers and the district, were to start a business on his own account, or, perhaps, enter the services of a competing photographer, it is possible that it might work considerable injury to the late employer's trade. Such agreements are reasonable enough, supposing they are framed in a reasonable way; but sometimes they are not.

Not infrequently they are drawn out by the employer himself, and are made far too arbitrary, and too far-reaching. In some instances the employee, being very anxious to obtain an appointment, does not very carefully read and digest the conditions imposed; or they may not be clearly understood by him at the time of signing. Hence he does not fully realise the restriction imposed until, perhaps, some disagreement arises. Then he finds himself in an unpleasant position. Copies of some of these agreements have, at times, been sent us for perusal and to have our opinion thereon, and we can say that some of them have been of a most unreasonable character, as they bind the servant in an inordinate manner. Now, an agreement must be equitable on both sides, for it is one of the maxims of equity that he who would have equity must first practise equity to the other party.

We will here quote a case to show that agreements may be made that are too exacting, and thus become void in law. It was tried quite recently in the Lancaster County Court. Incidentally we may here mention that County Courts have jurisdiction in equity where the sum in dispute does not exceed five hundred pounds. Briefly the case was this. A firm of drapers and house furnishers in Lancaster sought an injunction against a former manager from carrying on business with his wife, he having signed



an agreement not to enter into the service of any person or firm, or to enter into any business in opposition to his late employers, within a radius of ten miles of Lancaster. In the event of his doing so he agreed to forfeit a year's salary, £120. The defendant is now carrying on business with his wife as a draper within a couple of hundred yards of his late employer's shop. The defence was that the defendant was his wife's manager, and that the agreement was void because it was too wide, being in restraint of trade, and against public policy. The judge held that the covenant was greater than was necessary to protect the plaintiff's interests, and that the agreement was invalid and could not be enforced. We have quoted this case to show that agreements for services may be framed too wide and so become invalid, and when that is the case a late servant, if he commences even in close proximity to the premises of his late employer, cannot be restrained because the agreement made is not a valid one.

The question which now arises is what is a reasonable restriction? That must necessarily depend, to a large extent, upon circumstances. If, for example, a man signs an agreement not to commence business on his own account, or enter the service of another in, say, a small town of perhaps six to ten thousand inhabitants, or a couple of miles round it, the conditions would be very different from those obtaining in a large town, say London. In the former case it could not be considered an undue restriction of trade, but in the latter it certainly would, and such an agreement would be invalid and could not be enforced. In the copy of an agreement, submitted to us some time ago, the operator was prohibited from following his profession in three adjoining counties, and, as there was no time limit mentioned, it endured for all time.

Such an agreement, though duly stamped, as this was, obviously invalid on the face of it, as it was undoubtedly an undue restriction of trade, and purported to prevent the employee from getting his living within far too wide an area.

The object here is to point out to employers that framing agreements with servants when engaging them if they make the stipulations too wide they cannot force them, and thus they defeat the object they have in view. In all such agreements there should be a time limit mentioned, as, for instance, say, a year from the time the employee leaving the service, otherwise it might be read that it was for ever, and that might possibly be sufficient to invalidate the agreement. The employer's interests, as a rule, would be sufficiently protected if a photographic employee were prohibited from setting up business within a year or so of the time of his leaving, by that time he would be almost forgotten by the majority of the customers. We venture to say that there are many photographers' agreements in existence at the present time that could not be enforced in a court of law owing to their inequitable nature. As just said, agreements must be equitable to both parties. If, for instance, an operator were engaged at a weekly wage, and signs an agreement to start business, etc., while at the same time he is liable to be discharged at a week's notice, such an agreement is not an equitable one, as it is all one-sided. If the engagement were for a definite term, say for one or more years, it would be more in accord with the terms of equity inasmuch as the servant would be secured employment for the term agreed upon, unless he were discharged through some fault of his own, such as misconduct or neglect of duty.

## HOW TO PREPARE AND PHOTO-MICROGRAPH BOTANICAL SPECIMENS.

To gain experience in the manipulation of his apparatus, and at the same time become familiar with the preparation of microscopical material, the would-be photomicrographer cannot do better than turn his attention to the study of plant life. The vegetable kingdom will supply him with examples of the simplest as well as the most highly developed forms of structure, all requiring careful examination and consideration, forming most suitable subjects for photomicrography. Specimens of the *phanerogamia*, the flowering and seed-bearing plants, are always near at hand, and afford a never-ending source of interest to the photomicrographer, yielding him a rich store of beautiful and easily prepared objects.

To thoroughly grasp the importance and uses of the microscopical structure of the plant, it is necessary to become familiar with its life history, to seek it growing in its natural environment, and there observe the parts that the various organs of the plant—the stem, roots, branches, foliage and floral leaves, and seed—have to play in the battle of life. The photomicrographer should, when out collecting material, carry a camera with him, that he may photograph the plant growing in its natural environment, for such photographs will help him to realise the why and wherefore of the specialisation of the microscopical structure of the plant.

The apparatus required for mounting and preparing botanical specimens for photomicrography need not be very elaborate or expensive. For cutting the sections of stems, etc., a good razor and some form of microtome will be required, together with a supply of paraffin wax, pith, or carrot, for embedding the object in the "well" of the microtome.

Methylated spirit will be wanted for hardening and fixing purposes; and for perfectly bleaching the material preparatory to staining, the following bleaching bath:—

Dry chloride of lime ...	...	...	2 oz.
Common washing soda ...	...	...	4 oz.
Distilled water ...	...	...	2 pints.

Mix the lime in one pint of water, and the soda in the other. When the soda has dissolved mix the two solutions together, shake well, and let it stand away from the light for twenty-four hours. Filter the clear fluid, and keep it in a glass stoppered bottle in a dark place.

A useful collection of stains for general purposes are:—Acid aniline green, borax carmine, eosin, hæmatoxylin (logwood), methyl aniline, and rosaniline violet.

According to the nature of the specimens, and the manner in which they have been prepared, so they may be mounted in either Canada balsam, Deane's medium, or Farrant's medium—the last two being particularly useful for delicate cellular tissues. Should the tissue be very soft in texture it may, with advantage, be allowed to soak for a day or two in the following bath before it is mounted in Deane's medium:—

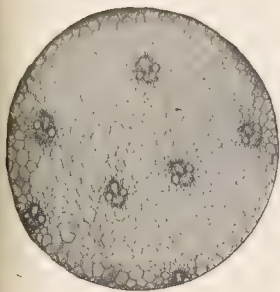
Pure glycerine ...	...	...	2½ drachms.
Rectified spirit ...	...	...	5 drachms.
Distilled water ...	...	...	5 drachms.

When the soaking has been completed, the specimen is drained and mounted.

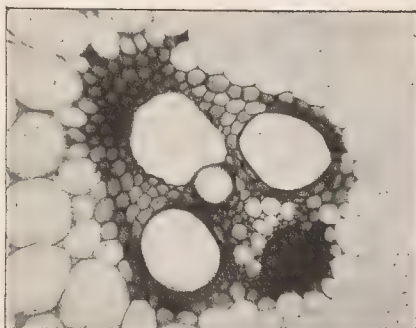
All specimens to be mounted in Canada balsam must first be thoroughly freed from every trace of moisture (dehydrated),

which is best accomplished by soaking in several changes of methylated spirit and absolute alcohol. The freshly-gathered leaves, stems, roots, etc., of species of the phanerogamia intended for cutting into sections, staining, and mounting in Canada balsam, should be cut into moderately small pieces, and placed in a glass jar containing a liberal supply of methylated spirit, which must be changed regularly every day until no colour comes away, when the specimens will be ready for further treat-

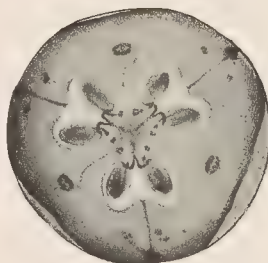
then wash in methylated spirit. Next remove the section to a bath consisting of one part hydrochloric acid to twenty parts methylated spirit, in which it should remain until bright scarlet in colour and any excess of stain has been removed, after which wash in clear methylated spirit. The section is now placed for ten or twenty minutes in the alcoholic solution of aniline green, after which it is well washed in methylated spirit, and if over stained soaked in it. The specimen is then dehydrated in methy-



Transverse section of stem of maize  
×10.



Closed collateral vascular bundle from stem of maize  
×250.



Section of the three celled ovary of the tulip  
×10.

ment. Although soaking in methylated spirit dissolves out most of the colouring matter, a large proportion of the specimens will require further bleaching ere they can be properly stained. Such specimens must be soaked in changes of distilled water until freed from all trace of spirit, and then placed in the bleaching bath already described. Bleaching successfully accomplished, the specimens should be washed in water until no trace or smell of chlorine remains, when, after a final wash in distilled water, they will be ready for staining.

Paraffin wax is, for most purposes, a more satisfactory imbedding medium than pith or carrot. Take 8oz. of pure paraffin wax, and 2oz. of lard, and with the aid of gentle heat melt them together. Half fill the well of the microtome with this mixture, and insert in it, in the desired position, the specimen for cutting into sections, and then fill up with more of the melted wax mixture. When the wax has cooled and set firm, the sections can be cut, the superfluous wax clinging to them being got rid of by immersion in turpentine, or oil of cloves.

Young stems, and ovaries that do not contain much woody tissue, stain well with hæmatoxylin, after they have been properly bleached and cut into sections, and form most interesting and beautiful subjects for photomicrography. To stain, take 30 drops of solution of hæmatoxylin and add one ounce of distilled water. In this dilute stain immerse the sections for ten or twenty minutes, until the required depth of colour has been obtained. Then wash the section in distilled water, and then in ordinary tap water until the colour becomes blue. Place the section in strong methylated spirit for at least fifteen minutes, then into absolute alcohol to thoroughly dehydrate; place it in oil of cloves for ten minutes to clear, wash in turpentine, and mount in Canada balsam.

The most effective photomicrographs of sections of roots, stems, ovaries, and leaves, will be obtained by double staining the specimens. The following I have found give very good results:—Dissolve two grains of Grüber's aniline green in one ounce of methylated spirit. Place the section to be double stained first in a watch-glassful of borax carmine for six to eight minutes;

luted spirit and absolute alcohol, cleared in oil of cloves, rinsed in turpentine, and mounted in Canada balsam.

Eosin and hæmatoxylin double stain sections of roots, stems, and ovaries finely. The section is first stained with hæmatoxylin, and then placed for a few moments into a dilute solution of acetic acid and distilled water. It is then washed



Transverse section of stem of pine showing one  
year's growth ×10. Example of double staining.

thoroughly in several changes of distilled water, to remove every trace of acid, after which it is placed in ordinary tap water for eight or ten minutes. Now place the section in a 1 per cent. solution of eosin in alcohol for five or six minutes, wash well in methylated spirit, dehydrate in alcohol, clean in



oil of cloves, rinse in turpentine, and mount in Canada balsam. Sections of the stem of the vegetable-marrows should be stained with eosin to show the sieve tubes and plates. For differentiating sections of stems of monocotyledons, resaniline violet gives beautiful results. It is composed of equal parts of methyl-violet and fuchsia (magenta), mixed and dissolved in alcohol. It is a useful stain to show up the stratifications of cell walls, etc.

Supposing that we have successfully prepared our sections, let us next consider how we can obtain the most satisfactory and truthful photographic rendering of them. Backed orthochromatic plates must always be used, and I would strongly advise factorial development with pyro-soda minus potass bromide, as giving the ideal photographic negative—clear, bright, with long scale of gradation. The pyro-soda formula I use has a factor of 12; that is to say, supposing the image takes thirty seconds to just appear, development is then continued for six minutes—the dish being covered with a piece of board during the whole operation. An orthochromatic screen is certainly desirable if fairly true colour rendering is aimed at. Personally I prefer a moderately deep one, about a 10 or 12 times, but the depth of screen must be governed by the brand of plate employed.

A very great deal of the ultimate success of the photomicro-

graph depends upon the careful selection of the most typical and perfect section and to the selection of suitable magnification. In all branches of photomicrography there is one correct magnification for each subject, and a magnification above or below that will not produce such a perfect or pleasing picture; therefore, it is very important to gravely consider and decide the magnification the subject is to receive, and in this practice and experience are the best teachers. As some rough guide to the tyro the following list of magnifications may be helpful. Stems and ovaries to show good appearance from 10 to 30 diameters. To show cambium layer in transverse section, 40 to 50 diameters. To show an isolated vascular bundle in a transverse section of the stem of *Zea mais*, a magnification of 250 diameters will generally give the best result; while to isolate a sieve plate in the vascular bundle of cucumber stem 412 diameters will give a fine picture, showing the minute perforations of the plate. The various cell contents require between 250 and 500 diameters.

Working in the field with the camera, and at home with camera wedded to microscope, the photomicrographer will find the study of plant life and the record of its many wonders, by the aid of photography, a most fascinating hobby that will keep him busy at all seasons of the year.

F. MARTIN-DUNCAN.

## THE INTERNATIONAL CONGRESS OF PHOTOGRAPHY.

Almost unknown in the United Kingdom, the International Congress of Photography is a body which obtains a large share of recognition on the Continent, where its meetings have hitherto taken place. In aim distinctly scientific, the Congress may claim to have reduced any human passion for notoriety which it may have possessed in its early days, for its proceedings gain publicity in the press after a time, which is incomprehensible in these days of hurry, not only in the lay press, but in circles which are avowedly sectional or scientific in their province. Hence it is that the full report of the Congress, which met in July, 1905, in Liège, only came into our hands a few weeks ago. We had obtained access to a partial account of the session from one or two of the Continental journals, and an article in our issue of March 2 last gave certain recommendations of the Congress in reference to standards in plate speeds, colour sensitiveness, and other photographic values. Now, however, we may reprint two of the papers read in July of last year—viz., one on "The Superposition of Stereoscopic Images," by M. A. Goderus, and one on certain points in photography applied to criminology, by Dr. Reiss, of Lausanne. In doing so we may express the hope that the executive of the Congress will wake to the fact that their procrastinatory methods appear inexorable. A reasonable delay in the publication of papers purporting to be of scientific value is naturally an evil which is readily overlooked, but we imagine that any reading public will expect to see in print the deliberations of a midsummer congress at any rate before New Year's Day.

### The Superposition of Stereoscopic Images.

In all general treatises on photography, in works on physics, in dictionaries, and in special treatises on stereoscopy, even the most recent, we are taught that the illusion of relief is produced by the superposition of two stereoscopic images, either by the aid of an arrangement of mirrors, by prisms, or by lenses, which act as convergent prisms, as their centres are further apart than the pupils of the eyes. It is said looking thus through the margins of the lenses they act as prisms, and cause the stereoscopic images to deviate one to the other so as produce superposition.

The classic figure which one finds everywhere is the following:—It is said that the eyes *OO* looking each at one of the stereoscopic prints *AB*, *A'B'*, and the superposition is effected by the lenses or prisms in *A'B'*.

This is an absolute error, which has obtained such a hold of men's minds that it has induced the superposition of material images, or

when the two images are printed in red and blue, and viewed through red and blue spectacles.

The merest common sense tells us, however, that to see the exact reproduction of nature in the stereoscope it is necessary that the eyes should look in this instrument as they do in nature. A single example will show us how little the theory criticised will realise this desideratum. When we look at a spire of a tower which just emerges on the horizon, the visual rays are practically parallel. It cannot be sustained that there is convergence towards the tower, because visual

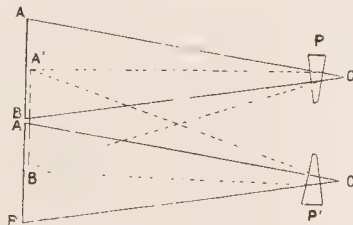


FIG. 1.

convergence supposes the application of attention to a point situated relatively near the eyes, and which cannot be applied to a surface larger than the separation of the eyes, which is 6.5 cm. Supposing our tower on the horizon is stereoscopically photographed, and supposing that the two prints are printed one on top of the other in blue and red, and looked at with a pair of blue and red eye-glasses, the tower will be represented as a sort of pencil-point about 30 centimetres from the eyes, upon which the optic axes will converge, instead of remaining parallel as in nature. We shall not, then, see the stereoscopic effect as it is seen in nature, because the axes converge instead of remaining parallel.

One may object, however, that the illusion is perfect. I reply that this statement is too absolute, and that one only believes that one sees the relief as it is in nature, for want of having the model at one's side to judge of the difference of perspective. No one can believe the relief to be true if, instead of printing the images in red and blue one on top of the other, they are printed side by side, or so that one partially covers the other, but in such a manner that the image of the tower in the right picture is separated 6.5 cm. from that in the

picture. In looking then at the tower through blue and red glasses, the optic axes will remain parallel, as in nature, and one will have the exact perception of real relief, if the two images are placed at such a distance from the eyes as to occupy the same angle on the retina as the image occupied in nature. To obtain this result, it is usual to employ lenses which enlarge the images, for these are made with lenses of short focus, and cannot be seen at the convenient distance except by myopic eyes. A diagram will enable us to comprehend more easily the logical truth of our thesis.

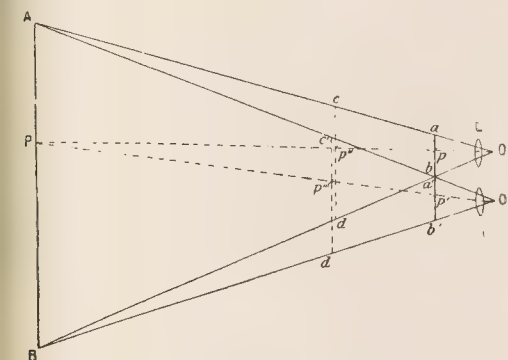


Fig. 2.

The dimensions of this printed page will not permit us to represent a distinct landscape and parallel vision. Let us take an interior AB in which the axes OP, O'P converge to a point P, the face of a clock, for instance. It is well known that a design, a picture, a photograph, is that in which one has applied perspective in one plane; that is to say, the right eye O sees the subject AB as if all the subjects were drawn on a transparent glass placed at ab or cd. It will be seen that the angle AOB occupied by the subject remains the same, at whatever distance the projection of the image is produced. The left eye, seeing the clock face P, sees the picture as though drawn at a'b' or c'd'. It will be immediately seen that two images, which are supposed to be projected at ab and a'b', are not superimposed at all, but just side by side as the stereoscopic images, and that the images pp' of the clock should not be superimposed, but should be on the straight lines op, op', which converges, like the axes of the eyes, towards the point P.

The largest dimension possible of the stereoscopic photograph of the interior should be ab', and the separation ought to be pp', that is to say, slightly less than the separation of the eyes, seeing that we are imagining an interior AB not far off, and in which the convergence of the optical axes is obvious. If the point P represented a tower on the horizon of a landscape, the visual rays would become parallel, and the separation pp' should be equal to that of the eyes of the observer, but it ought never to be more according to theory.

As the images ab, a'b' are placed too near our eyes to be seen, they are enlarged by means of the lenses LL, and then the virtual images cd, c'd' are seen partially superimposed from c' to d, and then the images p<sup>11</sup>, p<sup>111</sup> of the clock are slightly nearer than pp', in such a manner as always to be found on the straight lines OP O'P. We project then the two images p<sup>11</sup> p<sup>111</sup> in P, where they are superimposed in our minds, as though actually situated in P.

We ought not to forget that when we look into a stereoscope, we do not see one or two images, but really the illusion of reality, and that this illusion causes the superposition of the images of different objects in their respective planes. In fact, two stereoscopic images cannot be superimposed, because they are different from each other. If they are mounted so that the points on the horizon are separated by 6.5cm., the exact distance, the drawing of the objects in the foreground planes are less separated than the eyes looking at the foreground planes ought to converge to see them distinctly.

Let us start the parenthesis to satisfy the curiosity of those who may ask why the stereoscopic prints ought to be mounted in the inverse order of the negative, that is to say why the right-hand print should be placed to the left and vice versa. Here we have a poor

explanation, which is found in all books. It is evident that the right-eye O ought to see the image ab, as the left eye O' ought to see the image a'b'.

But how is this to be arrived at in photographing AB by the aid of two lenses placed at OO', and having a focus equal to op? We have to produce beyond OO', two negatives of the subject AB, in which the objects will be found with the top at the bottom and the legs in the air. As one must print a double image before placing it in ab' for seeing it, it is necessary to reverse each of the two stereoscopic images to present them reversed from top to bottom. This cannot be done without separating the one from the other and reversing each in its turn. That means mounting the left print on the right, and vice versa; but this is not the same thing. Actually the print produced by the lens at O ought to be viewed by the eye placed at the same point O, and reciprocally the print produced by the left lens O' ought to be viewed by the left eye at O'; and to mount on the right the print of the left means making the prints take a half-turn about their centres to inverse the reversal produced by the lens. Mounting the right-hand print on the left is a dodge which completely fogs the comprehension of the mechanism of stereoscopy, for this leads one to believe that the left eye sees the right hand print, and vice versa, which is absurd.

Let us now see what is the origin of this false idea of the superposition of the pictures by means of prisms or other subterfuges.

1. It has been proved that the play of the accommodation muscles of the eye and the mental superposition of the pictures are sufficiently elastic to permit us to go beyond the limits which ought to be traced by nature. 2. It has also been remarked that we may increase the angle AOB, that is to say, see, stereoscopically, a larger quantity of the horizon in ab, a'b', if the lenses OO' are separated rather more than the normal distance of the eyes, and this is why our stereoscopic cameras have a separation of 7.5 cm. instead of 6.5 cm., which ought to be the normal. But, then, the pictures should also be separated by 7.5 cm. from centre to centre, and they should not then be seen with divergent vision, that is to say, not by squinting. Some people attain this result by exercise, and it is less difficult than one would believe after the first trial. But it is useless to make these efforts because one can place between the eyes and the pictures two prisms, conveniently placed. These do not cause superposition of the images, but merely provoke a slight deviation towards the centres, just as though they were only separated by 6.5 cm. or slightly less if the foreground planes are considered. 3. As objects are seen in the stereoscope as one, it has been concluded that the two images were superimposed, as in our first diagram. It has been entirely forgotten that in the stereoscope we do not see more than the pictures, but that in our brains the illusion which they produce of the same objects exists, not on one plane, but in three dimensions in their respective planes.

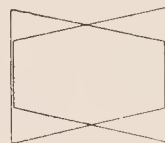


FIG. 3.

The perfect superposition of images by means of prisms is impossible, for the image of a square, deviated by a prism, becomes a trapeze, and the two trapezes, which ought to superpose, having an inversely symmetrical form, cannot combine, for the small side of the one falls in the large side of the other, and the other two sides cross one another, as shown in the figure.

If the half-lenses forming convergent prisms, which are used in stereoscopes of the better class, are to cause superposition of the pictures, it is necessary to look through the thin part of the glass, where the effect of prismatic deviation is strongest. If it is said, on the other hand, that the thin edges of these instruments are in contact and the pictures are viewed through the thick parts of the lenses, the effect with all good stereoscopes is merely that the centres



of the achromatic lenses enlarge the images, and that they impinge the one on the other, as in  $cd^1d^1$  of the second figures; but the two images  $p^{11}$   $11'$  of the clock P are not superimposed. The brain,

when directing the vision in the two directions OP, O<sup>1</sup>P, perceives by the aid of the two images,  $p^{11}$   $p^{11'}$ , not superimposed, an illusion of one reality P situated in P.

A GODFREY

## SOME PROBLEMS OF JUDICIAL PHOTOGRAPHY.

M. Bertillon was the first to point out that when certain inks were used for writing and that when the paper, as soon as the characters were dry, was pressed into contact with another sheet of paper, there was produced on the latter an invisible impression which could be rendered visible by heat. Later, I completed the work and found that the effect was produced by the acid in the ink acting on the sizing, and that neutral and basic inks did not act in the same way.

Experiments were made to find a method of reproducing the invisible image without in any way damaging the documents. The paper which was suspected to contain the invisible image was pressed into close contact with a piece of P.O.P. and left in contact in the dark for from six to twelve hours. The sensitive paper was then exposed to light till it was blackened, and the writing was then clearly legible in metallic characters on a dark ground.

The defect of this method was that the characters were faint and could not be easily photographed, so another method was tried. The papers were pressed into contact as before, then the P.O.P. was exposed till the ground turned a reddish violet and then physically developed. The ground blackens, but the characters gradually appear with a metallic sheen and development should be continued till they are quite legible. The developer used was a 1 per cent. solution of pyro plus 10 per cent. of glacial acetic acid. To obtain black proofs on a white ground it is only necessary to place the back of the P.O.P. in contact with the paper containing the invisible characters.

### Photographing Burnt Documents Written in Pencil.

The burnt document should be fixed on a flat piece of wood in a dark room and placed in front of the lens at an angle of about 30 deg. It should then be illuminated by a powerful incandescent gas lamp so that the light falls on the document at an angle about 80 deg. The lamp should be placed at the end of the box which is furthest from the lens. If now the image is examined the ground glass the writing will be seen as luminous, though faint lines. On the negative the characters will appear black on a grey ground. It is necessary, of course, to use a yellow sensitive plate and from the position of the document very small diaphragms must be used, and hence follows a very long exposure. In the position the writing will appear in white on a dark ground. This method of great value.

### Invisible Writing on a Black Ground.

There are several commercial picture postcards which bear the pictures of old masters surrounded by a black frame. Recently a case was met with in which a criminal had used this black frame on which to write a message to his accomplice. As a matter of fact if this black frame is written on with black ink, the writing completely disappears when dry and passes through the post without comment. To decipher the message I gave the card a coating of water colour varnish, and the writing immediately became visible and could be easily photographed.

R. A. REISS.

## HERR DÜHRKOOP'S WORK.

The following is a brief synopsis of a lecture given by Mr. John Fisher, Hon. A.R.C.A., London, upon Herr Dührkoop's collection of portraits before the Bristol Photographic Club:—

Mr. Fisher commenced by saying that the standard set by the pictures was so high as to be quite bewildering. In fact, he thought that to a true artist their effect would be almost discouraging for that very reason, but that to a true student their effect would be highly encouraging and stimulating, on account of the possibilities they revealed. The standard of artistic quality in some of the portraits was such that much careful study was required in order to properly appreciate them. In hastily glancing round an exhibition it is often the case that the best pictures do not assert themselves so forcibly as some of the others. Generally those which produce the greatest impression at the first glance are what may be termed "Almanac" pictures, or pictures which would make a good advertisement.

In examining a collection of pictures it is necessary first of all to dismiss from the mind those which are either aimless or too attractive, and then to approach the remainder analytically. Ask yourself the questions—Why does it please or displease me? What does it mean? Do I understand it? Don't condemn immediately. Stand before a doubtful picture until its meaning and the intention of the artist begin to dawn upon you.

Herr Dührkoop's work showed that he was a cultured artist, a man who went straight to Nature in her simplest form, and who was quite independent of accessories, or rather a man who knew exactly what accessories were required, and how much they required to be emphasised or subdued. Indeed, Herr Dührkoop impresses the beholder with the purposeful nature of all the objects he includes in his portraits.

The only way in which a student can acquire a knowledge of art is by constant association with what is acknowledged to be good

in the pictorial world, and it was readily apparent that Herr Dührkoop had studied and been influenced by the paintings of some of the world's greatest artists. In portrait work it was essential to study the inner character as well as the outer characteristics of the sitter. Your sitter has some special interest; find it out and introduce a secondary object into your picture suggestive of it, and, if possible, discover yet another interest to form a tertiary object in your picture. The study of good work by good artists will enable the student of art to understand what is meant by this association of primary, secondary, and tertiary interests in a picture, and the great value of this combination from a pictorial point of view.

To become an artist (photographic or otherwise) the student must, firstly, "Learn to see"; secondly, "Learn to memorise"; and thirdly, "Learn to produce." These three stages must be passed through in the above order, otherwise the student's work will never reach a high level.

These remarks are well illustrated by Herr Dührkoop's work, for he is such a thorough master of the means at his disposal (lighting, tone-value, composition, and technique), as well as an artist, that his pictures are full of poetical feeling, raising them to the level of real works of art.

The correctness of his tone-values give, in some of his examples, a wonderful suggestion of the natural colours of the objects portrayed. Sharpness or fuzziness in a pictorial photograph were immaterial, provided that it had correct tone values, suggested colour, and gave relief to the object taken.

Dührkoop in his prints obtained very pronounced light and shade effects without the least harshness, and in many cases the extreme high light on a collar or cuff was the making of a picture. His scenes were all ordinary every-day scenes, but carried out with consummate ease, grace, and naturalness, and while he always obtained

the artistic effect he wanted, he at the same time always retained truth to Nature. This is the only satisfactory way, for where the artistic effect is produced by violating truth, then the lie surely comes home to roost, spoiling all pleasure in that picture.

Mr. Fisher thought that the members would greatly benefit by working on the following lines. Let the club obtain a copy of "The Hundred Best Pictures," exhibit a certain number of them at one of the club meetings, and let members vote as to which picture appeals with the strongest interest to them. Then let each member prepare a print based upon the chosen picture (that is, a print expressing the same sentiment in a similar way, but not being a

slavish copy of the original), and then send all the prints into the Folio on a certain date, or exhibit them at a club meeting.

In this way all those participating would learn much in respect to lighting, composition, tone-values, and sentiment. A smaller number of photographs might result, but the use of mind in their production would be stimulated.

In portrait work the operator is often a victim, for he may have ideas, but be unable to carry them out owing to lack of sympathy in the model. Therefore photographers were advised to search persistently until they found a sympathetic model, and when found to cultivate him (or her), for a model in harmony with the operator will go a long way towards making a real picture.

## IMPROVEMENTS IN THE DIFFRACTION PROCESS OF COLOUR PHOTOGRAPHY.

(A paper read before the Franklin Institute, Philadelphia.)

The diffraction process of colour photography, invented by Professor R. W. Wood, of John Hopkins University, in 1899, is an application of the well-known three-colour method of reproducing colours by photography. This method depends primarily upon the observations of Young, Helmholtz, and Clerk Maxwell, that all the colours of the solar spectrum may be counterfeited to the eye by mixtures of three narrow bands of colour from the spectrum. These colours are red, near the Fraunhofer line C; green, near E; and blue, near F. For instance, red and green mix to give the eye a sensation of yellow indistinguishable from the true yellow of the spectrum; red and blue mix to give purple; and the three colours acting together produce a white whose difference from ordinary white light can be detected only by analysis with a spectroscope. What applies to spectrum colours applies equally well to the varied hues of nature. The colouring of such an object as a basket of fruit can also be duplicated to the eye by mixtures of the three primary colours. The tint of an apple, by a large proportion of red, less of green and blue; of a lemon, by nearly equal parts of red and green; of grapes, by a large proportion of blue.

The three-colour process can be reduced to two problems; first, the production of three photographic negatives, each of which shall be an exact record of the amount of one of the primary colours requisite to mix with the others and counterfeit to the eye the colour of the object photographed; second, some means of furnishing each record with its appropriate colour and combining it with the others.

The solution of the first problem has been arrived at from experimental quantitative determinations of the mixing proportions of the primaries to produce the other colours. From these determinations three-colour screens can be prepared, which, when used with suitable photographic plates, will yield three (black and white) negatives, each having the desired destitution of light and shade to form a record of one primary colour. The negatives thus obtained are the basis of all three-colour reproduction methods.

Numerous means have been suggested and tried for combining the three-colour records with their corresponding colours. They may be placed in a triple lantern, each illuminated with its proper coloured light and projected, superposed, upon a screen. The superposition may be effected by a system of mirrors, as in the Kromskop; but the use of three thin transparent films properly coloured; by triple printing on paper, after the manner of much of the present-day magazine illustration.

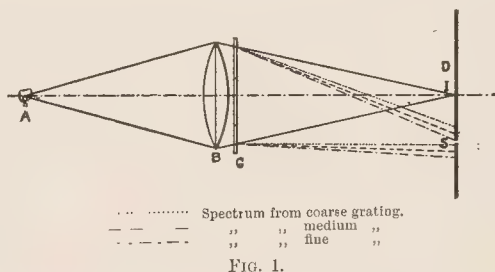
A process which must be noted somewhat in detail because of its direct bearing on the recent development in diffraction colour photography is the so-called Joly process.\* Combination of the colours is effected in this by breaking up the three-colour records into narrow lines, arranged in succession, a line of the red record, a line of the green, a line of the blue, and so on, repeating across the picture. This triple record, whose lines should be close enough together to be indistinguishable by the eye, is mounted over a triple ruled colour-screen—a line of red pigment, a line of green, a line of blue, similarly

spaced to the lines of the picture. The result, if the lines are fine enough—a condition never yet attained in the actual working of the process—is that the eye blends the lines to form a structureless colour picture in the form of a transparency.

The diffraction process, which is the subject of this paper, departs widely from the other methods. Its distinguishing feature is that for the production of the primary colours to view the records use is made of the diffraction grating, that is, of a transparent polished surface, usually of glass, ruled with fine parallel straight lines, several thousand to the inch. It is the property of a diffraction grating that if a bright line or point of light is viewed through it, not only will the light source be seen, but spread out to either side will be a series of spectra, those nearest the source being called spectra of the first order, the next, of the second order, etc. If the number of lines to the inch on the grating be increased the spectra are thrown farther from the central image, and vice versa.

The power of a grating to produce colour is taken advantage of in the following way: Suppose we have a convex lens forming an image on a screen of a bright source of light, such as a gas flame. If the eye is placed where the image is formed the lens is seen uniformly and brilliantly illuminated. Suppose now a diffraction grating is placed over the lens. In addition to the image formed as before there will be produced a series of spectra. If the eye is placed in one of these the lens will, as before, appear illuminated, not, however, by light of the colour of the source, but by the colour of light striking the eye.

If now we can make one of our colour records in the form of a diffraction grating of varying strength to correspond to the desired differences in the amount of the primary colour, and place it over a



lens, points can be found in the lateral spectra in which the lens (and the grating in coincidence with it) will appear as a coloured picture. Further, since, as we have seen above, the distance of the spectra from the central image depends upon the fineness of the grating spacing, it is a simple matter to choose three gratings, one of which will send red to a chosen point, the second green, the third blue. Hence if we can make the three primary colour records in the form of three diffraction gratings of three properly chosen spacings,

\* First published, as a matter of fact, by Louis Ducos du Hauron in 1869.



each may be seen in its proper colour by placing the eye in one of the diffraction spectra formed as above described.

In Fig. 1 we have represented the conditions for viewing diffraction colour pictures. A is a source of light, B a convex lens, in front of which are three gratings G. On the screen D fall the central image I, and three spectra (only the first order spectra on one side are represented) so placed that the red of one, the blue of another, and the green of the third are superposed on the slit S, at which the eye is placed.

In Fig. 2 we have represented diagrammatically a diffraction colour picture of a red flower with green leaves on a blue ground. The coarse spacing of the lines in the flower represents a grating to send red light to the eye, say 2,400 lines to the inch, the medium spacing of the leaf one to send green to the eye, say 3,000 lines to the inch, the fine spacing of the background one to send blue, say 3,600 lines to the inch. Mixed colours would be given by two or three gratings acting together.

To produce such gratings by photographic means the bichromated gelatine process, which lends itself well to the copying of minute structures, was used. In contact with a surface sensitised in this way was placed a glass grating; the image of the corresponding colour record was then projected upon the surface for a sufficient time to

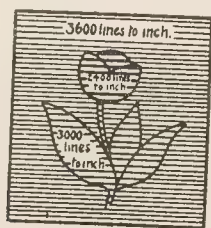


FIG. 2.

give a full exposure. The grating was removed, another substituted and exposed under its corresponding colour record, and so with the third. In this way all three grating pictures were printed, one on top of another,\* forming a picture which by diffused light was transparent and quite invisible, showing its colour only when viewed with the proper combination of lens and bright source of light. From the pictures made in this way copies could be made by simple contact printing on bichromated gelatine. Since a direct copy of a grating is still a grating, i.e., a series of lines, the process is a positive one and copies are not reversed in light and shade as in making copies of ordinary photographs.

It is obvious that quite apart from its scientific interest the diffraction process promises very real advantages. For instance, the colours used are beyond question pure spectrum colours, and so there is no need to depend on dyes or coloured glasses; also the ease and cheapness with which copies can be made places it in a class by itself among three-colour processes. So perfect indeed did the process seem theoretically when first published that there was every reason to expect results fully comparable with the best of other methods.

This early promise was not fulfilled. A few pictures were obtained, interesting as scientific curiosities only. No dependence could be placed in the results; some colours reproduced well, others did not; occasionally a good picture would be made, but the same procedure applied to another subject brought no success. Six years after its publication the process had made no progress and seemed fated to rank as a failure.

Last summer, through the courtesy of Professor Wood, the writer was lent a number of diffraction gratings, ruled on the Rowland dividing engines at Johns Hopkins University. Experiments with these revealed a fundamental defect in the above-described mode of making diffraction pictures. By finding means to overcome this defect results have been obtained of a remarkable degree of perfection.

The defect referred to is that the three gratings, in order to get their joint effect, were superposed, being, as we have seen, printed one on the other. In so doing the assumption was made that the

effect of superposing gratings was to add their separate effects. A matter of fact, additional disturbing effects are introduced, partly due to the inability of the gelatine surface to take several gratings impressions without mutual blotting out, and partly—chiefly, in fact—to the forming of a new compound grating. That is, if two gratings of different spacings are superposed, the two spacing periodicities get in and out of step with each other, and this new periodic structure forms itself a diffraction grating. The new grating then forms its own series of spectra, which subtract light from the original one. Therefore when the two gratings are superposed, the eye, instead of receiving a double quantity of light, receives much less than the double quantity. Even more serious than this loss of light is the fact that the new spectra due to the two gratings together frequently fall in such a position as to introduce false colours. This is well illustrated by taking two gratings of different spacing and placing them on one another at right angles. Two sets of spectra will be formed, one by each grating, and parallel to it, and, in addition, a number of diagonally disposed spectra. As the gratings are turned into the same straight line all the spectra turn, and the additional diagonally placed spectra take up positions between the spectra formed by the original gratings. Consequently, while the eye may receive red from one grating and blue from another, one of the spectra due to the two together may send some other colour, such as green. This case actually occurred frequently, a pink rose reproducing as green, and red and blue colour discs superposing to give green instead of purple.

These observations made clear the necessity for some method of obtaining the effects of the three gratings other than by superposition. It was at once seen that this could be accomplished by a procedure similar to the Joly process, namely, by having the grating elements in narrow juxtaposed strips. Some experiments had already been made by Professor Wood with Joly pictures, not, however, with the specific purpose above mentioned, but rather to illustrate the possibility of making such pictures with very much finer colour lines than it is possible to do by ruling alternating coloured pigment lines to the observing screen. The mode of procedure involved laboriously ruling a special grating consisting of several lines of one spacing, followed by several of another, and then several of the third, repeating all the way across the plate. The width of each strip of lines was made to correspond to the width of an element of the Joly picture. From this grating a print was made on the special-line picture, which had been previously flowed with gelatine. This in turn was used to print gelatine copies.

A practical disadvantage of this plan, aside from the use of the special grating, is that one is restricted to the use of original Joly pictures of a certain definite spacing of line, determined by the limitations of the process employed in their production. A much more serious defect arises, however, in this way: The "Joly lines," if made, as they should be made, several hundred to the inch, themselves form a diffraction grating, which, as it is parallel to the three principal gratings, forms spectra superposed on those depended on to reproduce the colours of the object. This is quite as serious a defect as that arising from superposed gratings, and is sufficient to condemn the procedure.

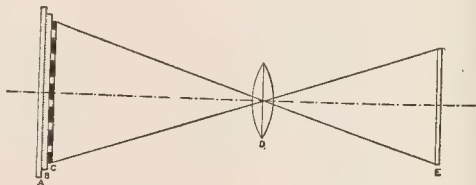


FIG. 3.

From a consideration of these various difficulties it followed that some means of breaking the picture up into lines was imperative, and that that means should not involve the use of a special grating, nor of special Joly original pictures, difficult to obtain, and, most important of all, the narrow colour strips or Joly lines must be arranged in some way so as not to give disturbing grating effects.

All of these ends were achieved by the following procedure:

In Fig. 3, which represents the method of making the improved diffraction pictures, A is the bichromated gelatine plate, rigidly

\* In practice it was found impossible to get three impressions on one gelatine surface, and so two were made on one surface and the third on another, the two surfaces being afterwards placed in contact.

in position; B is a glass diffraction grating; C is a line screen, with at least two hundred lines to the inch, with the opaque lines twice the width of the transparent;\* D a lens, and E a positive four-record to be copied. The latter is an ordinary three-colour negative containing no lines or structure,† and the grating is an ordinary continuously-ruled one. With, say, the red record at E, and a corresponding grating at B, an exposure is made, resulting in a series of narrow strips. A second positive is then placed at E, the corresponding grating at B, and the ruling C moved the width of a transparent portion. A second exposure is then made, the opaque lines shielding the previously exposed surface, and a similar treatment given to the third positive. There results finally a picture made of alternating strips of three different gratings.

To eliminate the grating effects of the narrow strips of gratings considered as lines, the device is used of making the strips (Joly lines) at a right angles to the diffraction grating lines, so that the spectra produced by them are thrown off in another direction and do not enter the eye. Although the device is simple it is of extreme importance, and its adoption is rendered possible only by the plan described for making the pictures. The difficulties in the way of using a special grating with the three gratings disposed in a similar manner are practically insuperable. It is obvious that the strips of grating can be made as narrow as desired, easily narrow enough to be indistinguishable as such by the eye.

Fig. 4 gives an idea of the appearance of the finished picture under

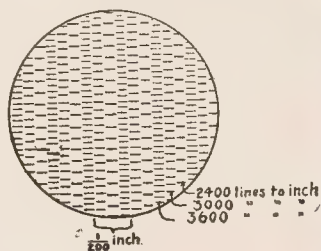


FIG. 4.

a microscope. The short, fine lines are the diffraction grating lines furnishing the three primary colours; 2,400 to the inch for the red, 3,000 for the green, and 3,600 for the blue. The broad strips at right angles to the grating lines constitute the "Joly lines," which there should be at least 200 groups of three to the inch.

When viewed with a lens and bright source of light the pictures made in this way are entirely free from the formerly-obtained defects. The colours are pure and brilliant, and, unlike ordinary Joly pictures, the colours lines are too fine to be visible. The results, indeed, approach those obtained with the Kromskop.

As a further modification of the original method the writer has found it possible to dispense with three gratings and obtain the colours with a single grating spacing properly used. To do this the source of light must be a rather long slit. Viewed through a grating the slit, of course, gives long spectra parallel to its length. If now the grating be rotated about, the perpendicular dropped from it to the slit, the spectra move in toward the slit. [The accompanying diagram shows the slit parallel to the length of the slit is compensated for by the slit being long.] So, by suitable rotation any desired spectrum colour may be obtained at a chosen point. Starting with a grating of 3,600 lines to the inch to give the blue when parallel to the slit, a rotation of about  $21\frac{1}{2}$  degrees will give the green, of 42 degrees the red. In the absence of suitable dividing engines to rule three properly-proportioned gratings this affords an exact and easy method of securing the three colours. It has the fourth advantage, that in printing copies such difficulties as securing perfect printing contact will affect all three colours alike, which is not the case with gratings of different degrees of fineness.

\* The opaque line screens were ruled by Mr. Max Levy, to whom, for his interest and generous assistance, the writer is greatly indebted.  
Positives from negatives made for the Kromskop were used.

Fig. 5 shows a portion of a picture made in this way with one grating spacing.\*

With these improvements probably the last word has been said on the diffraction pictures themselves. A very important improvement

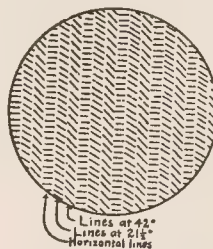
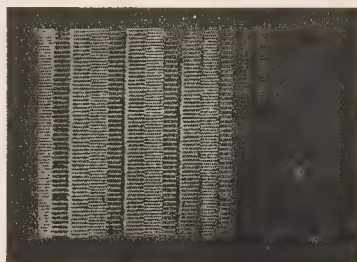


FIG. 5.

in the means for observing them, due to the writer's father, Mr. Frederic E. Ives, must be described.

The lens and bright light used by Professor Wood do not form at all a convenient arrangement, nor is it desirable to use artificial light. A convenient apparatus, easily set up, not liable to get out of order, and suitable for daylight use, became desirable as soon as the pictures are perfected. The instrument about to be described



was devised a few hours after the first pictures were obtained, and admirably fulfils its purpose. The greatest difficulty attending the use of daylight is that of getting sufficient light—the illumination of the sky, toward which an instrument would naturally be pointed, is far from intense enough. This will be appreciated when it is remembered that only a very small portion of the original light is diffracted, perhaps ten per cent. at most. This difficulty has been overcome in a novel manner. Instead of depending on a single slit, as the narrow source of light, a series of slits is used, each furnishing one spectrum. In this way, with four slits, two first order and two second order spectra are utilized, yielding probably three times the light obtainable from a single slit.

Fig. 6 gives the instrument in section. A, B, C, D are the four slits; M a mirror; L<sub>1</sub> and L<sub>2</sub> lenses; P the diffraction picture; and S the slit through which the picture is observed. The lenses, of course, form an image of each slit at A<sup>1</sup>, B<sup>1</sup>, C<sup>1</sup>, D<sup>1</sup>; from each of these images, however, a certain amount of light is diffracted by the picture P; from B and C first order spectra fall on S, from A and D, second order. The use of second as well as first order spectra is a distinct advantage in that, as gratings never give a perfectly uniform distribution of light and colour, certain desirable qualities of the picture are found in one order and not in the other, while if both orders are used the resultant evening up of qualities produces particularly satisfactory results.

By disposing the grating lines in a horizontal direction and using

\* After working out this idea the writer learned that some years ago Mr. Thorp of Manchester, suggested the use of a single grating spacing to secure all three colours. Mr. Thorp's plan, however, was to use three sources of light and merely rotate the gratings until they "found" the source and each cleared the source belonging to the other two. He found a rotation of ten degrees convenient. As far as the writer knows this is the first publication of a plan to secure any desired colour by rotation through a definite angle to be calculated from the wave length.



horizontal slits as sources the pictures may be viewed by both eyes, a desirable condition for convenience and comfort.

As an instrument the "Diffraction Chromoscope" is simplicity itself. It is, in fact, used much as the old stereoscope.

There are no adjustments; to use, it is merely placed before a window or Welsbach light and the pictures dropped to place. On looking into the eye slit before the introduction of the picture nothing

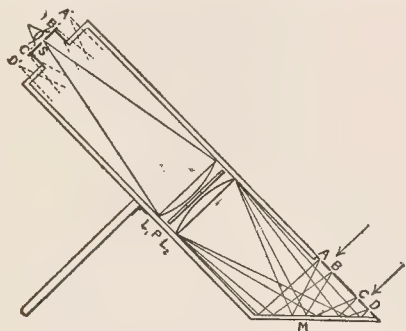


FIG. 6.

is seen, the inside being perfectly black. The pictures themselves are transparent, colourless, and appear as plain pieces of glass under ordinary conditions of illumination. On placing them in the instrument the colours immediately flash out, a transformation which seems almost magical, affording a scientific demonstration of rare beauty.

Aside from the obvious use of the apparatus for scientific purposes it is expected that its simplicity and the perfection of the results will ultimately lead to many important uses. Now that the long standing obstacles in the way of success have been removed the process should develop rapidly. Such further steps as application to lantern projection and means for making the pictures directly in the camera are under consideration.

HERBERT E. IVES.

## Photo-Mechanical Notes.

### Moiré Effects.

Russ, of Munich, has been examining the moiré effects obtained by the superposition of cross-line blocks in three-colour work, and gives the following figures in explanation. Fig. 1 shows the effect of two cross-lined screens, in which  $a\ b$  and  $a'\ b'$  are the dots of two

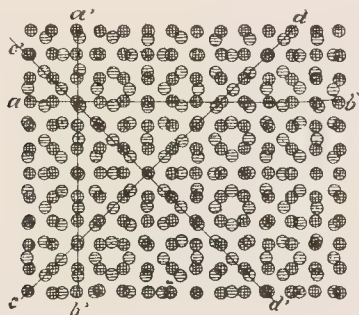


Fig. 1.

colours,  $c\ d$  and  $c'\ d'$ , the former being marked with crossed lines and the latter with horizontal lines. Rosettes and stars enclosed in larger squares are formed; if one of the inks is pale this will not be very troublesome, but if both are rich in colour, then the pattern will be very distinct.

Fig. 2 shows the effect of dots crossing one another at an angle of about 15 degrees. The dots then arrange themselves small squares, enclosed in larger ones, with the corners cut off. In this figure it will be seen that the dots arrange themselves into leaving considerable intervening spaces of white paper without dots, so that the effect is the same as though a much coarser screen had been used. When three blocks are used, incorrect posi-

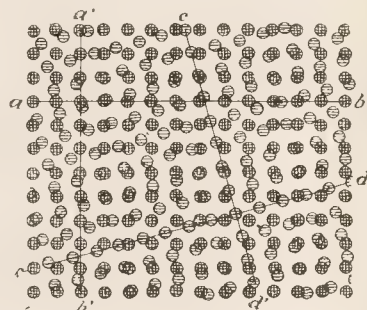


Fig. 2.

the cross-lined screens will always give rise to the most striking moiré effects, and particularly those with broad banded effects. Generally, too, it will then be found that yellow ink partially lies between the superimposed dots, which the black moiré effects, with the result that yellowish and green tints are formed. Frequently, too, some of the red is superimposed on the yellow, and this gives rise to brownish bands. In order to avoid these effects the dots must be so arranged that the colours are evenly distributed over the smallest spaces, and it was soon found that an angle of 30 degrees was the best with three cross-lined screens. Then very small star effects are produced, which are not so irritating. The stars immediately disappear if, instead of a cross-lined screen, a single line be used, an effect which is aimed at when a line screen is used with a cross-lined screen. The angle of the lines may then be 60 degrees. This effect is not possible with a line stop and cross-lined screen without great loss of detail, and only very fine

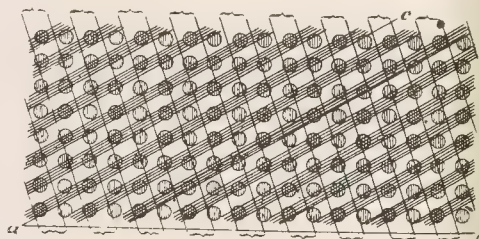


Fig. 3.

originals can be thus reproduced. Line-screen blocks are much more difficult to etch than cross-line, and care should be taken to arrange the stops that the dots are rhomboids and strung together like pearls on a string, and this effect should be carried as far as possible without loss of sharpness. This pearl string formation is easy to etch, and gives a much quieter effect. When the cross-lined screen is used the etcher or fine etcher must be very careful in etching the blue and red plates, or the line formation will be lost. When the lines are superimposed over cross-line screens a fine moiré is also formed, as will be seen from Fig. 3; although the direction of the lines  $a\ c$  forms an angle of 30 degrees with the dots  $a\ c$ , and brighter and darker zones are formed. These are best seen when the figure is examined in the direction  $b\ c$ . It will be seen that the distance is double that of the original distance.

### PHOTO-MECHANICAL PATENTS.

PHOTO-MECHANICAL PRINTING.—No. 23,990. 1905. This invention is a process of photographically preparing two metal rollers of

plates for combined mechanical printing, which comprises the following transactions in combination: making two counterpart sheets, each of which is partly transparent and partly opaque; making two counterpart developed gelatine plates, with those counterpart sheets, respectively; applying ink to the depressed surfaces of those two plates; transferring ink from those depressed surfaces, respectively, to the respective surfaces of two metal rollers or plates; and etching away the naked surfaces of those two metal rollers or plates. A solution of gelatine is mixed with ammonium bichromate and alcohol, which is poured upon matt celluloid, fastened with fish-glue to a steel plate, and then dried by heat and again coated and dried. This is then printed on and immersed first in warm, and then in cold, water; an image is thus obtained in relief, which may be hardened with chrome alum. The celluloid bearing the image is then stripped from the steel plate, and a mixture of glycerine, citric acid, potassium nitrate, and chrome alum applied, and after removing excess of moisture the plate is inked up with an ink composed of asphalt, rosin, beeswax, mastic mutton tallow, and commercial crayon ink. A copper roller is passed over the inked surface and the fatty ink is transferred to the same. An enamelling powder of rosin and shellac is applied and melted by heat, so as to form a resist for the etching solution. The claim is for the process of photographically preparing two metal rollers or plates, for combined mechanical printing, which comprises the following transactions in combination: making two counterpart sheets, each of which is partly transparent and partly opaque; making two counterpart developed gelatine plates, with those counterpart sheets, respectively; applying ink to the depressed surfaces of those two plates; transferring ink from those depressed surfaces, respectively, to the respective surfaces of two metal rollers or plates; and etching away the naked surfaces of those two metal rollers or plates. Henry Lewis Reckard, 101, Beekman Street, New York, U.S.A.

## Patent News.

*Process patents—applications and specifications—are treated in Photo Mechanical Notes."*

The following applications for Patents were made between July 6 and 21:—

**MAGAZINE CAMERAS.**—No. 16,148. Improvements in magazine photographic cameras. Walter James Gilchrist and Johns, Son, and Watts, Ltd., 73, Cheapside, London.

**CAMERAS.**—No. 16,198. Improvements in and relating to cameras. Charles Edmund Peczenik and Augustus John Gratte Maskens, 27, Chancery Lane, London.

**CAMERAS.**—No. 16,253. Improvements in and relating to photographic cameras. Octave Edouard Jules Joublin, 27, Chancery Lane, London.

**PHOTO-PRINTER.**—No. 76,390. A continuous non-slipping photo-printer. Harry Harry Vickers, Finsbury Square Buildings, London.

**RAPID PRINTING APPARATUS.**—No. 16,507. Photographic apparatus for rapid printing of midgets and other photos. Alfred Gabriel Tooth and John William Riley, 4, Hillingdon Mansions, Elephant Castle Hotel, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**PRINTING FRAMES.**—No. 20,563. 1905. This invention relates to an ordinary printing frame, provided with a window of glass or other transparent or semi-transparent material, part of which is obscured, and with a negative carrier, by the shifting of which, relative to the obscured window, various selected portions of a picture can be printed in varied shapes without the necessity of masks or change of printing frame. The claim is for the

combination of a rectangular mask having a rectangular window space or opening at one end or side thereof, suitable to the size of the photographic negative to be printed from, coupled with a rectangular negative carrier of the same size as the before-mentioned mask, with an opening cut at one end or side thereof, suitable to the size of the window space or opening in the mask. Ernest Christopher Elderton, 137, Osbaldestone Road, Stoke Newington, Middlesex.

**PHOTOGRAPHIC PRINTING.**—No. 91, 1906. This invention relates to the production and display on what seems to be to the casual observer the same surface, of two photographic views, either one of which can be brought into view at the will of the observer. To effect this, a sheet of photographic printing paper is fastened by means of shellac and alcohol, or other adhesive insoluble in water to a sheet of cardboard. The cardboard, with the paper attached, is then passed between two rollers, one of which is smooth and the other cut into sharp, parallel corrugations, either lengthwise or around the



Fig. 1.

circumference of the roll, so that the sensitive paper comes into contact with the roller having the corrugations. This operation leaves the paper upon the card in the shape illustrated by Fig. 1. The corrugated paper so prepared is placed in contact with a photographic negative in the ordinary manner in a printing frame. It is then placed in a receptacle impervious to light, except for an aperture at one side, through which the rays of light approach, and meet the corrugated printing paper, attacking and printing the same only on the sides of the many corrugations which face towards the aperture from



Fig. 2.

which the light comes. This negative is then removed, and against the paper is placed a second negative in the same manner. Now shift the printing frame so that upon exposure the light will meet the other and opposite sides of the corrugations in the paper, and in this manner the second picture is printed upon the sides of the corrugations opposite to those already exposed and printed. After the exposure, the fixing and toning of the photograph or two photographs is done in the usual way. Both pictures being on the same sheet, they are toned, fixed, and developed at the same time. The above description refers to the use of the invention for producing upon the same sheet two different photographs, either one of which may be brought to view. For stereoscopic purposes the corrugations in the paper should be more pronounced and deep, as indicated by Fig. 4 of the drawings. For this two negatives of the same view, taken from slightly different positions, are used; one negative being then used, as above described, for printing on one side of the corrugations, while the other negative is used for printing upon the opposite sides of the corrugations. The same sheet will disclose two views of the object corresponding to the two impressions upon the retina of the eyes. The sheet with the two photographs thereon, being held at a proper distance from the eyes, so that one



eye sees the photograph only on one side of the corrugations, while the other eye sees the photograph only upon the other side of the corrugations, the usual stereoscopic effect will be produced. The claims are (1) a sheet of cardboard provided with small parallel corrugations, having a sensitised sheet thereon and produced under non-actinic rays, having upon the sides of said corrugations facing in one direction consecutive portions of a photograph produced by a negative in a special position, so that when viewed from said side the consecutive

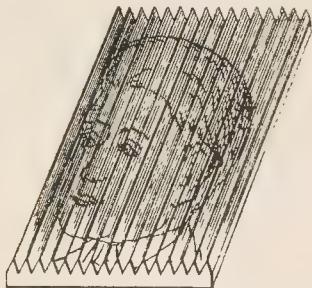


Fig. 3.

portions combine to disclose a complete photograph, and having upon the opposite sides of said corrugations consecutive portions of another photograph produced by another negative in another position, so that when viewed from said opposite side the consecutive portions of said second photograph combine to disclose a second photograph complete to the observer, substantially as described; (2) the process of printing photographs, which consists in exposing to the light through a negative, corrugated paper consisting of a sensitised paper upon cardboard so that the view will be printed in sections only on the sides of said corrugations facing in one direction, and next exposing the same paper through a second negative, so that the second view will be printed in sections only on the opposite sides of said corrugations, substantially as described; (3) means for the display of duplex photographs so that a picture displayed upon the sides of the corrugations facing in one direc-



Fig. 4.

tion, with a second picture displayed upon the sides of the corrugations facing in the opposite direction, is seen alternately by a light so arranged as to throw its rays on the first picture, and by a second light so arranged as to throw its rays on the second picture, substantially as described. Hiram Codd Deeks, 486, Broadway, Paterson, New Jersey, U.S.A.

#### CATALOGUES AND TRADE NOTICES.

L. GAUMONT AND Co., of 22-27, Cecil Court, W.C., have issued new price-lists of the chronophone, which is a combination of the phonograph and cinematograph, and also of some new and up-to-date cinematograph films.

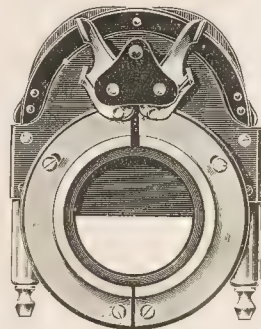
J. EPSTEIN AND Co., of Rupert Street, Bristol, have opened a new department for 20 by 16 enlargement frames, and can now offer them at greatly reduced prices. They are also offering a special sample case of these frames, which is well worth attention.

THE annual beanfeast of the employees of J. H. Dallmeyer, Limited, was held last Saturday at Brighton, and a most enjoyable day was spent on the beach and in the afternoon in a drive to the Dyke.

## New Apparatus, &c.

The "Skyshade" Shutter. Sold by T. Emil Busch Optical Company, 35, Charles Street, Hatton Garden, E.C.

The design of this shutter is to give a longer exposure to foreground than the sky, which is effected by a leaf or blade which rises slowly from the bottom to the top, and then falls rapidly so that when set to a slow exposure the foreground would receive a full exposure, whilst the sky would probably only receive one-eighth of that. It has a range of speed from 1-100th to 1 second.



and by setting the one indicator at 1 second and the other "time," the blade will rise and remain at the top till the bulb is released again. Having two regulating levers, each with independent mechanism, a great variety of exposures can be given. A very ingenious clamping ring, actuated by two levers, is fitted which enables it to be adapted to any lens.

The shutter is excellently made, and is a useful accessory to the practical worker.

IN our notice of the Zeiss Stereo-Palms in our issue for 13 ult. we stated that the Tessar or "Wray" lens could be easily inserted on its panel; the last lens should have been the "Unar."

## New Materials.

Japine. Made by the Platinotype Company, 22, Bloomsbury Street, Oxford Street, W.C.

This new variety of the platinotype paper, which created considerable attention at the Convention, has been sent us for trial and has given us some excellent results. It is sent out in two varieties—semi-matt and glossy—and the colour of the prints is rich sepia.

As with all other platinotype papers, it must be kept quite dry and it is exposed till all details, except in the highest lights, are visible. A special "Japine" developer is issued, which should be dissolved in hot rain or distilled water, and then about one-third of the bulk of pure glycerine should be added. This developer will keep indefinitely in the dark, and is used at a temperature from 100deg. to 120deg. F., or it may be used cool at 80deg. Certainly the higher temperatures give the richer results, and except for very thin and flat negatives, these will probably be preferred by the majority of users. The duration of development is from two to four minutes, according to the temperature, and the print should then be immersed in the usual three clearing bath of hydrochloric acid, then washed in four or five changes of water for about twenty minutes. The prints must then be immersed in a 5 per cent. solution of glycerine.

We have carefully tested this paper both by printing under negatives in the usual way, and also under H. and V. squares, with densities ranging from bare glass to 3.01—that is, with a range

capacities from 1 to 1,024, which is far wider than is ever met with in practice, and we find that with the glossy paper the full range of gradations is recorded. With the semi-matt paper the shadows are not quite so luminous, and consequently the scale runs a little shorter.

Our attempts to solarise the paper, notwithstanding continuous printing in the sun, have failed. It can be worked exactly like old platinotype papers, and is amenable to brush development precisely the same way. The surface will take water colours excellently.

To sum up, Japine platinotype paper is a new material of distinct character that possesses a scale of gradation and luminosity in the shadows which we have rarely seen equalled. There is nothing to learn for platinotype workers; there is great latitude in printing, and the colour obtained is an exquisite rich sepia. Considerable control over results is also obtainable by variation in the temperature of the developer, and by this means it is suitable for every class of negative.

#### FORTHCOMING EXHIBITIONS.

August 6: Andover and D. H.S.—Sec., W. I. Gradidge, Jubilee House, Andover.

September 14 to October 27: The Photographic Salon.—Sec., Gerald Craigie, 5a, Pall Mall East, London, S.W.

September 20 to October 27: Royal Photographic Society.—Sec., McIntosh, 66, Russell Square, Bloomsbury, London, W.C.

October 6 to 13: Bristol Photographic Club.—Sec., J. S. Guthrie, Berkeley Square, Clifton, Bristol.

October 17 to 20: Rotherham Photographic Society.—Sec., H. C. Cunningham, Tooker Road, Rotherham.

Rotherham Photographic Society.—Annual exhibition. "Open." October 17 to 20. Entries close October 8; exhibits, October 13.

November 16 to 21: Southsea Amateur Photographic Society.—Sec., F. S. Hoyte, "Lismire," Stafford Road, Southsea.

November 20: Sefton Park Photographic Society.—Sec., A. W. Carr, 34, Loudon Grove, Liverpool, S.

November 27 to 30: Hove Camera Club.—Hon. Sec., W. H. Bone, Sackville Road, Hove.

December 11 to 15: Southampton Camera Club.—Hon. Sec., S. G. Barber, "Oakdene," Highfield, Southampton.

1907.

February: Birmingham Photographic Society.—Sec., Lewis Lloyd, Trich Union Chambers, Birmingham.

February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge.

March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.

April 29 to May 14: Photographic Society of Ireland.—Sec., R. Mason, 35, Molesworth Street, Dublin.

October 24 to November 14.—West of England Exhibition (Photographic) Section. Entries close October 1. Sec., A. D. Breeze, 41, Lion Street, Plymouth.

LUDICROUS incident, in which the dramatis personæ were a giraffe and an amateur photographer, occurred at the Zoo last week, being only relished by the few spectators. The man with the camera was preparing to take a snapshot of the mighty quadruped behind the bars, and with this object had obscured his head beneath the giraffe's cloth. His surprise, however, may be better imagined than described when, just at the crucial moment, the stiff-necked creature, in a supreme effort, reached over the bars and made a grab at the man on his head.

THE annual excursion of the Lancashire and Cheshire Photographic Union will take place on September 8 to Liverpool, whence several parties by boat and rail. The Oldham Photographic Society has rejoined the Union, which now numbers about 3,300 members.

At the Campbell College, Belfast, the first prize scholarship award has been made to J. C. T. Burgess, and the second to C. R. L. Witt, for photography.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

August.	Name of Society.	Subject.
4 .....	Aberdeen Photographic Assn.	Outing to Banchory.
4 .....	Worthing Camera Club .....	{ Outing to Steyning, Wiston Park, Chancerybury.
4 .....	Aberdeen Photo Art Club .....	Outing to Miltimer (Corby Linn).
6 .....	North Middlesex Photo. Soc. ...	{ Outing to Wheathampstead and No Man's Land Common.
8 .....	North Middlesex Photo. Soc. ...	{ "Theory and Practice of Self-Toning Papers," Messrs. John J. Griffin & Sons, Ltd.

## Commercial & Legal Intelligence.

**SELF-DEVELOPING Plate Company, Limited.**—Registered July 20, with capital £25,000 in 15,000 7 per cent. participating preference shares of £1 each, and 40,000 ordinary shares of 5s. each. To acquire any British or other patents relating to apparatus in connection with photography, photographic plates, films, and the development thereof, and chemicals, materials, and accessories. To adopt an agreement with Kelly and Benthall, and to carry on the business of manufacturers and factors of, agents for and dealers in, photographic requisites, etc. Minimum cash subscription, £12,500. The first directors are: B. Humphreys, W. F. C. Kelly, W. Slark, R. H. Martin, and C. W. Ponsonby. Qualification, £200. Remuneration, £100 each per annum and 5 per cent. of the net profits in excess of 20 per cent. dividend. Registered office: 7, Southampton Street, Bloomsbury, W.C.

**DOFF V. SACHS.**—This was an action by Ignath Doff, trading as Doff Brothers, of Manchester, photographer and publisher of picture postcards, to restrain Albert Sachs, photographer, of Bradford, from selling, or offering for sale, in the form of picture postcards, or by way of advertisement, any photographs or pictorial representations of any of the theatrical performers respectively known as Daisy Jerome, Mabel Lait, and Godwynne Earle, produced from negatives taken or made by or for the defendant in the course of or on any occasion of his employment by or contract with the plaintiff for taking photographs of the aforesaid performers. Damages were also asked for. Mr. J. F. Waggett appeared for the plaintiff; Mr. Cozens Hardy appeared for the defendant. Mr. Waggett said the plaintiff was a publisher of picture postcards, carrying on business at Manchester, and the defendant a well-known photographer at Bradford. The cause of complaint was that the plaintiff, having arranged with certain ladies in the theatrical profession to be photographed for him by the defendant for the purpose of having their pictures reproduced upon picture postcards, sent the ladies to the defendant under an arrangement with the defendant for a number of negatives to be taken and supplied to the plaintiff, and that the defendant took advantage of the circumstances to take and retain for his own use various other negatives of the ladies, and so broke the implied contract with the plaintiff. Mr. Justice Warrington: Defendant is not making use of the photos he took for you? Mr. Waggett: No, but of some he took on the same day. The latter photos were all taken in the course of the employment for the plaintiff. Mr. Justice Warrington: The point is that the defendant took the photos on the occasion when the ladies visited him for the benefit of the plaintiff. Mr. Waggett said that was so—these ladies were brought to the defendant's studio as works of art. Evidence was given for the plaintiff to the effect that the ladies' object in sitting was to obtain publicity, and that no permission was given defendant to take photos for himself, except in the case of Miss Earle. No evidence was called for the defence. Mr. Justice Warrington said he failed to find an implied contract that Sachs would take only negatives for the plaintiff at the appointment made in consequence of the arrangement of the plaintiff. It was admitted the ladies were free agents, and if they had gone to the



defendants an hour later and asked him to photograph them the plaintiff could not have complained. The result was that there must be judgment for the defendant, with costs.

**BUSINESS WORRIES.**—At the West London Police Court on Saturday, Sidney Wyatt Whiteman (26), a photographer, living at Northcote Road, Clapham Junction, was charged with attempting to commit suicide by cutting his throat. Mr. Oswald Hanson appeared for the accused. Police Constable 583 T stated that he was called to the defendant's business premises at New King's Road, Fulham, and found him sitting in his studio with two slight cuts on the throat. Mr. Hanson told the magistrate that the accused had had business worries. He gave his promise now not to repeat such conduct, and on that promise the magistrate discharged him.

**ARTHUR HENRY SEELEY DRAYCOTT** and John Arthur Draycott (trading at the Draycott Galleries), photographers and dealers in works of art, carrying on business at 138, The Parade, Leamington, and at 64 and 65, New Street, Birmingham.—The above-named debtors appeared for their public examination at the Birmingham County Court on Thursday, before Mr. Registrar Lowe. The statement of affairs filed by the debtors disclosed liabilities amounting to £894 and a deficiency of £829. Mr. Rahnnett appeared for the petitioning creditor, and Mr. O'Connor for the bankrupts. In reply to questions put by the Official Receiver, the bankrupt, John Arthur, stated that he commenced business in 1881 as a photographer at Sutton Coldfield. He was without capital, and after trading for three years he executed a deed of assignment, a dividend of 6d. in the pound being paid. In February, 1901, he had businesses at Walsall, Birmingham, Northampton, and Leamington, which he transferred to a company formed in that year with a capital of £20,000. The company undertook to pay the trade liabilities, and the bankrupt received 8,993 shares. Shortly afterwards the bankrupt interested himself in the cycle trade, and, having invested £750 in a cycle company, became a director. He subsequently increased his holding. Through the failure of the company he stated that he lost £1,675, and he had to borrow money to discharge some guarantees that he had given on behalf of the company. All those have not been discharged. The bankrupt remained with Draycott, Limited, as managing director, in which capacity he received £500 a year until 1902. In July, 1905, he made arrangements with his son, who was a photographer's assistant, for the purchase of a business at the Parade, Leamington. A friend provided him with the capital. They commenced trading under the style of the Draycott Galleries, the business being managed by himself, as the other bankrupt was engaged in a situation until November, 1905. Afterwards the latter went to Leamington to assist in the business. A branch shop was also opened at Birmingham. The businesses were not successful, and creditors began to press, with the result that payment was suspended. Arthur Henry Seeley Draycott having given evidence, the hearing was adjourned.

## Dews and Notes.

The following were the awards in the recent prize competition held by the Birmingham Photographic Company, of Criterion Works, Stechford:—1st prize, £2 2s., F. W. Beken, Blenheim House, Cowes, I.O.W.; 2nd prize, £1 1s., A. Avery, 319, Queen's Park Road, Brighton; 3rd prize, 10s. 6d., E. J. Picken, Bucknall. Another competition, which expires on September 30 next, has also been arranged. We are requested to point out that the firm had a considerable number of applications for papers direct from amateurs, who stated that they could not obtain the same in their district. Full details of the competition will be sent to any dealer on application.

At the rooms of the Liverpool Amateur Photographic Association an exhibition of pictorial photographs by Mr. Joseph Appleby is now open, and will close on August 6.

Mr. W. P. WATMOUGH will, at the end of the month, act as demonstrator for Thos. Illingworth and Co., 6, Willemsen Junction, N.W.

At a meeting of the Physical Society, Mr. J. S. Dow, in a paper on "Colour Phenomena in Photometry," said that the question often been discussed whether it was possible to compare light of different colours, but he had found that it was chiefly a matter of practice. He submitted curves showing the effect of altering the distance of the eye when an incandescent mantle is compared against a gas standard, with the Joly photometer. Difference of 5 per cent could easily be obtained. The Purkinje phenomenon usually regarded as producing uncertainty in ordinary work, was only noticeable with very small illuminations and with comparatively large fields of view. He had also conducted experiments which showed that Flicker photometers seemed to be affected by colour phenomena, but to a small extent than ordinary ones. In any case, whether a Flicker or ordinary photometer was adopted, it was necessary to specify the size of the field, the distance of the eye, and the order of illumination used, in order to get consistent results.

ACCORDING to the "Times Engineering Supplement," the French Minister of Public Instruction, M. Briand, has arranged that professors and teachers throughout France are in future to employ the following distinctive abbreviations for the various weights and measures:—For measures of length.—Myriamètre, Mm; kilomètre, Km; hectomètre, Hm; décimètre, dam; mètre, m; décimètre, centimètre, cm; and millimètre, mm. The use of capital letters for the three largest denominations is intended to prevent confusion. For areas.—Hectare, ha; are, a; and centiare, ca or m<sup>2</sup>. For measures of bulk (timber) décastère, das; stère, s or m<sup>3</sup>; and décistère, ds. For measures of mass and weight.—tonne, t; quintal métrique, q; kilogramme, kg; hectogramme, hg; décagramme, dg; gramme, g; décigramme, dg; centigramme, cg; and milligram, mg. For measures of capacity.—Kilolitre, kl; hectolitre, hl; décalitre, dal; litre, l; décilitre, dl; centilitre, cl; and mil or millilitre, ml.

At a recent meeting of the Société de Pharmacie de Paris Al has stated that the addition of 1 per cent. of sodium and calcium chloride to solution of hydrogen peroxide acts as a more effective preservative than the substances generally used, such as phosphoric acid or alcohol.

THE Health Resorts Development Association have sent us copies of their booklets dealing with Southend, Harwich, Malvern, Bournemouth, and Kingston-on-Thames. These contain some useful information, and can be obtained, post free, by sending a postcard to town clerks of the various places.

FIRST place in the pictorial section and first also in technical of the Torbay Camera Society is secured by M. Marillier's print "Japanese Peonies," in the June Album. It is a piece of work of considerable excellence. The subject is beautiful in itself, the blossoms lending themselves to photographic treatment well. The grouping is well arranged. The printing method adopted is carbon, and the technical quality of it is high class. Another contribution—"White Lilac"—falls considerably below awarded print in quality. Mr. A. J. Anderson's "Design for Frieze" is also a flower subject, most admirably handled, and very enjoyable. Mrs. Marillier contributes "Fine Study of Tulips," a portrait of a praiseworthy character. Mr. C. F. Rea presents two prints, old-fashioned houses in the country, which would be acceptable in any exhibition, evincing much skill and showing good taste in selection. Miss Bullock's architectural work—of which better example is "South Aisle, Exeter Cathedral"—shows much promise, and indicates considerable technical skill. Mr. A. Cox's "Bridge at Richmond" is soft and "sketchy," but it is photographic, and looks like nothing else. Mr. G. Drury has a rendering of velvet texture in a figure study, and the technical quality of the print is good generally. Mr. E. W. Garland is very successful in some country-life scenes. Mr. J. W. Smith has a charming seaside subject, a group of children, "On the Sand." delicate and full of good quality. Colonel W. Fothergill Mullen contributes a figure study, and an example of flower photography. The Album is of such good average that it is quite a travelling exhibition, and ought to do much as a valuable incentive to the members of the Society.

MR. JAS. H. HARE, whose excellent work for "Collier's Weekly" in the Russo-Japanese War we have already had occasion to mention, had another exciting experience early last month. He sailed in a balloon from New York, and travelled the entire length

of Manhattan Island, and then the balloon sank into the sea. Mr. Hare, who had been busy all the trip photographing, was completely immersed, and although he lost his camera he was able to save the plates, of which he writes to say, that notwithstanding their immersion in salt water, eight developed all right, except for an inch round the edge, where they were too thoroughly saturated with salt water.

MISS MARIE CORELLI's new novel, "The Treasure of Heaven," contains as a frontispiece her portrait, which is given, according to the authoress, "owing to the fact that various gross and, I think may say libellous, fictitious misrepresentations of me have been freely and unwarrantably circulated throughout Great Britain, the Colonies, and America, by certain 'lower' sections of the pictorial press, which, with a zeal worthy of a better and kinder cause, have been driven by this means to alienate my readers from me." The portrait is put forward as a genuine and unvarnished presentation of the authoress, taken by a photographer who, "at the time of my submitting myself to his camera, was not aware of my identity." Miss Corelli used the name of a lady friend, who arranged that the proofs of the portrait should be sent to her at various different addresses, and it was not until "The Treasure of Heaven" was on the point of publication that she explained the real position to the photographer. "That I thus elected to be photographed as an unknown, rather than a known, person was in order that no extra pains should be taken on my behalf, but that I should be treated just as an ordinary stranger would be treated, with no less, but at the same time certainly with no more, care." All of which is extremely pretty reading, but the cynic may question as to whether, after all, anyone really cares how the authoress looks, and whether there are not more ways than one of getting "bold advertisement."

DURING the laying of the foundation-stone of a new Roman Catholic church at Clapham Common on Saturday, the Bishop of Southwark, attired in his vestments, noticed a camera pointing towards him. He wheeled sharply round, and, raising both hands, exclaimed to the photographer, "Stop that at once." The photographer moved into the crowd, but kept the lens still pointing towards the bishop, who, however, refused to resume the ceremony until the camera was taken entirely out of range.

## Correspondence.

\* \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### A NOTE ON THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—Mr. Ferguson's letter appears to me to explain Mr. Payne's difficulty more clearly than I could have done. Of course, Mr. Payne's numbers for K were not wrong at all; they were quite right, but K does not measure the rate of development—it only compares the rate of development for two plates which have the same  $\gamma^\infty$ , which Mr. Payne's plates, as was shown by Mr. Sheppard, had not. But if you know K and  $\gamma^\infty$ , then you know all about the development curve of a plate. There is nothing wrong with our tables—they are simple mathematical tables, the one giving the relation between  $\frac{\gamma}{\omega}$  and  $\log e \frac{\omega}{\gamma - \omega}$ , and the other between  $\omega$  and  $(1 - e^{-\omega})$ , and the fact that the values calculated

by Mr. Sheppard agreed with the numbers found by Mr. Payne shows in the most convincing way that there is nothing wrong with the theory giving the shape of the development curve either.

With regard to Mr. Gascoigne's question, the acetylene light we use has been reduced to the standard candle, and consequently Hunter Driffield's number of 34 can still be used. Some of the new colour sensitive plates form excellent examples of the necessity of screening the light, as if they be tested by candle or unscreened

acetylene light they will give absolutely ridiculous numbers when compared with an ordinary plate.—Yours, etc.,

C. E. KENNETH MEES.

To the Editors.

Gentlemen,—I must thank Mr. Ferguson for his extremely interesting and lucid explanation of July 27, which removes the false impression I had, that the constant k was intended to be of practical use. I see now that it is only a link in a chain of mathematical formulæ, which are useful when all the available information to hand is a knowledge of the values of k and  $\gamma^\infty$ , but hardly likely to supersede, in practical plate testing, the valuable method introduced by Mr. Driffield.

To quote the actual times of development is a less pedantic, but much more serviceable, method than quoting the constants k and  $\gamma^\infty$  and asking each plate user to work out his own salvation mathematically.—Yours truly,

ARTHUR PAYNE.

### ROYAL CORNWALL POLYTECHNIC SOCIETY'S EXHIBITION.

To the Editors.

Gentlemen,—May I call the attention of your readers to the forthcoming exhibition of the Royal Cornwall Polytechnic Society, which will be held in Falmouth during the first week in September? This exhibition is one of the most important events in the West of England, and it invariably attracts a very large number of good and interesting examples of the various branches of art and science which it embraces.

The schedule for the photographic section has been entirely revised and re-arranged in accordance with the practice of the leading photographic societies. It is desired to make this section as thoroughly representative as possible of the best photographic work of the present time, and the co-operation of all good photographers is earnestly solicited.

There are three divisions: (A) Pictorial Photography, five classes; (B) Technical Photography, two classes; (C) Apparatus and Trade exhibits. The Society's medals will be awarded at the discretion of the judges—Messrs. Dalzell, T. Savary, M.A., James Clark, D.Sc., W. Naylor Carne, Robert Fox, and Henry W. Bennett, F.R.P.S.

I shall be pleased to send entry forms and full particulars to any of your readers.—I am, sir, yours truly,

HENRY W. BENNETT.

17, Ranelagh Gardens, Ilford.

### THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—I have read the letter of "A Disgusted Assistant" with interest, and there is much to be said from his point of view. Probably no profession has been so thoroughly permeated by the worst form of amateurism as that of the photographer, and the fact that the trouble is not confined to one section largely accounts for a deal of mischief, misunderstanding, intolerance, and so forth, one with the other. If the employer be ignorant, as he often is, it is quite natural to find the employee equally so.

Recently I developed my business to the extent of taking over a fair amount of trade work—i.e., developing, printing, enlarging, etc., for amateurs. I was not brought up to the profession of photography, but as I have studied and practised it for thirty years, and passed all the examinations possible connected with the art, as, in addition, I have as many medals and so on as I want, and have been mixed up with professionals all my life, I claim to know as much of photography as most.

I engaged five assistants for the work—four young women and a young man for outdoor work when necessary, retouching, and so on. All five had received some training (so-called) at professional photographers, but however hard a fact that may be, it is difficult to realise. Twelve prints from one negative, and all differently printed, is common, the waste in paper which occurs I am certain no professional would or could stand. Similarly with developers



and solutions generally. My enlarger will, for instance, prepare her dishes, etc., every morning, and I have known her, more than once, to pour into one of them two quarts of metal developer, costing about 1s. 6d., which was not used after all, as the bromides done were developed with metal hydroquinone, a much cheaper solution. The more expensive metal was, however, tossed out with the least unconcern, as one might say, "Hang the expense!" Another will mix up a gallon of toning bath (15 gra. gold chloride), use it for a batch of prints, which may equal four sheets of paper or six; down the sink it goes as soon as done with. Dirty dishes left about, all the corks left out of bottles, dirty benches, splashes of hypo, spillings of alum and salt, and all the careless incidentals that lead up to stained and spotty prints and negatives, together make up a state of things to which I, for one, am not accustomed, and I am asked to believe that these young people are professionally trained! What sort of training is this? I know many professional photographers of high class and the other, but I do not know one where there is an unstinted—practically unlimited—amount of material allowed. Of course, all this is gradually being rectified, certain drastic remedies being applied; but it means incessant watching and scolding and fault finding, which becomes a hateful state of things. Only two out of the five can be trusted to trim prints for them to be squarely and fairly balanced, and as to platinotype printing, cloud printing, vignetting, and carbon work, well, these I have to do myself, or, rather, teach them; provide cut and trimmed papers, and they are put into the frames so carelessly that there is no saving of time. My place is well fitted with dark rooms and work rooms, plenty of sinks, dishes, measures, dusters, and towels, electric light, and a good water supply. Of course, not a soul of the five would switch off the light when not wanted, nor turn a tap to lessen the waste of water!

These young people—not so very young, either—have all served time more or less with professional photographers. I got testimonials and references in the usual way. What sort of men these may be I cannot imagine, but the inference may safely be that it is a case of "Like man, like master," and I wonder more professionals are not on their beam ends, if these young people are samples of the persons who initiated (?) them into the mysteries of the art.

The professional amateur we know. My experience of him has been that he has a fair conceit, and does not under-value his work; to that extent he is to be commended. At any rate, he does far better work than the assistant professional, who is the merest and most ignorant dabbler—possible immature would be a better word to apply than amateur—if I may be allowed this slight divergence from the orthodox.

But where these young people get their careless habits and ways I cannot imagine. The present times are supposed to be "hard," and many experience undoubted difficulties, not only in finding what one terms a "billet," but even any kind of profession. In my work rooms there is material to turn out assistants conversant with all the usual branches of photographic work; enough work to make them expert operators, and with it all—no cheeseparings. But what does one find? Not the slightest sense of any ambition to make themselves really useful and reliable members of the photographic profession, at which—in spite of all the talk—there is still a good living to be made.—I am, dears Sirs,

A DISGUSTED EMPLOYER.

To the Editors.

Gentlemen,—It is gratifying to know that there are a number of assistants who take pride in their professional career as photographers and do their level best to uphold their dignity by their efforts in keeping the meddlers out of the field. I endorse the statements made by "Disgusted Assistant," for things have come to such a pitch that assistants must combine and have things as they want them, not in such a state as they are at present. It is not at all surprising that such a number of assistants are disgusted at the state of affairs now existing, when, in the first place, in some cases they pay heavy premiums, work and study hard, and put up with no end of humbug and disrespect at the hands of others, then finally they become proficient photographers, but only to get knocked out by the so-called

good amateur that is not objected to; but not in high class houses does this follow, although at times the inexperienced duffer will, by some means or other, work his way in, especially in cases where he has a friend an operator, whose word carries a certain amount of weight. What we assistants should do is to combine and work in harmony with one another and make up our minds not to work for the interests of these "amateur professionals," or any unscrupulous professional photographers, thus by so doing their work will not come up to the standard, and will not be approved of by the public in a great many cases; so eventually they close their "hut studios" to follow their original occupation. We could also settle the wages question that is troubling so many of us by arranging a scale or rate according to grade of certificate we qualify for. The working hours for assistants could greatly be improved, which would also be to the interest of employers. Assistants are strong as a body, and could do great credit to the profession to which they belong. It does very little good writing and jangling with each other. We must do our duty to our employer and the best we can for ourselves, then the business we represent is bound to be a success. If employers fail to do their duty to us, the remedy we have is to seek another situation.—I am, yours faithfully,

C. H. B.

## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- James Henry Jamieson, 91B, Fishergate, Preston, Lancs. *Photograph of Women Leaving Messrs. Dick Kerr & Co.'s Works, Preston.*
- Ernest Hamilton-Toovey, 36, Royal Parade, Jersey. *Eighteen Photographs of Monk and Novice taken at Mount Orgueil Castle, Jersey, in Different Scenes and Positions.*
- Edwin Frank Fox, 8, Micklegate, York. *Two Photographs of Interior of Wesley Chapel, York. 1. Showing Part of Gallery. 2. With Bible in Foreground.*
- John Henry Barnes, 172, Arkwright Street, Nottingham. *Photograph of Group, containing the Nottingham Cricket Eleven.*
- Joseph Winton Mason, 21, St. Peter's Street, Ipswich. *Photograph of Group containing D. Ford Goddard, M.P., Felix Cobbold, M.P., Mr. Soames, M.P., Spencer Leigh Hughes, Mrs. Goddard, and Mrs. Soames, taken at Oak Hill.*
- Ralph Edwin Collier, 49, Hartington Road, Brighton. *Photograph of Group of the Band of the 20th Hussars.*
- Isaac Perloff, 186, Commercial Road, London, E. *Photograph of Mr. Charlton Keith, Famous Pianist, taken in July, 1906.*

**RIGHT TO NEGATIVE.**—A lady customer asks me how she can prevent a photographer in this town using a negative of herself and family, taken several years ago, which he bought from another photographer when the latter left the town. Copies are being printed, and a use made of them which is causing great annoyance to the lady in question.—E. H. DEBENHAM.

This subject is clearly dealt with in the "Almanac" for 1906, p. 672. Assuming that the lady paid for the photographs, the copyright belongs to her. She can, if she likes, and can obtain the necessary details copyright it even now, and then proceed against the photographer for infringement. On the

other hand, she has a direct remedy, without any reference to copyright, in an action at common law for breach of contract, for there was an implied contract between her and the photographer that the negative shall be used for supplying the customer alone with prints. The case bearing on this is *Pollard v. the Photographic Company*, 1889, B.J., March 29, 1889, p. 215, and in this the judge said, "In my opinion the photographer who uses a negative to produce other copies for his own use without authority is abusing the power confidentially placed in his hand merely for supplying the customer; and, further, I hold that the bargain between the photographer and the customer includes, by implication, an agreement that the prints taken from the negative are to be appropriated to the use of the customer only." A perpetual injunction was granted against the photographers, who also had to pay the costs of the action. That the photographer has bought the negatives does not, in our opinion, release him from the implied contract between the vendor of the negative and his customer, for if the benefit of possession of the negative are the purchaser's, so also must be disadvantages.

**UNDER.**—The flash is certainly a little unusual, and it might be worth while sending to the Royal Meteorological Society, 70, Victoria Street, S.W. We rather think that some of the curious effect is due to the fact that the flash was either to or from you, and not straight down as the others.

**BROM.**—1. There is no special method. 2. No special books published. We hope to deal with the subject shortly.

**OUR PHOTOGRAPHY.**—Do you consider that it would be advisable for me to interest myself (in a practical way) for commercial purposes in "colour photography"? If so, which method do you think best to start with?—F. A. SWAINE.

Most decidedly. As to the best process to adopt, this must necessarily depend upon what the results are required for. We should say that a method of making transparencies by one of the superimposed stained film processes should be learnt, and also one or two of the printing methods. We cannot say which is the best, but so far we think the carbon process holds the palm. There are others which are cheaper, however.

**M.**—When appealing to us we shall be glad if you will indicate (if possible) the method of working. The stains are due to sulphuration caused by the improper use of a combined toning and fixing bath or improper fixation and washing. In the case of the terrace, we should certainly say that this card laid underneath others in the fixing bath, and so was improperly fixed, as the outline of the stain is distinct.

**RIGHT.**—I have just been asked to copy a photo from a South African studio. It is printed "Copyright; not to be reproduced," on the back. May I reproduce this for my client? The reason I ask is, not that I would for a moment infringe the Copyright Act, but that I am sure the people in the group paid for the copies, and therefore they can do as they like with them.—**ANXIOUS.**

If the print is copyrighted you have no right to reproduce it in any shape or form without the permission of the photographer, to whom the copyright belongs.

**M. SMITH.**—We are sorry, but have no means of obtaining the information you require. There are two Australian photographic journals which might possibly be of service to you.

**REDUCING NEGATIVES.**—I would be glad to know of a safe reducer for negatives which have been over-intensified by the mercury and ammonia method.—**SHIRE**

One of the simplest methods is to immerse the plate in a  $\frac{1}{2}$  to 2 per cent. solution of hypos in a 10 per cent. solution of sodium sulphite, or in a solution of potassium cyanide,  $\frac{1}{2}$  grains to 1 ounce of water. They all act slowly and evenly, but we prefer the last.

**HYETT.**—It is absolutely impossible to tell the value of a lens from prints. Besides that, you give no information as to the aperture you used, so that we cannot judge of the covering power of the lens.

**VARIOUS DYES.**—I have lately been experimenting with various dyes to obtain certain effects upon gelatine papers. I have obtained successfully an orange red colour by using a mixture of eosin and methyl orange. But I am uncertain of the keeping qualities of these dyes. Methyl orange turns to a vivid purple with the least trace of an acid, and eosin is, I believe, a fugitive colour. I have also tried a Judson's dye scarlet, but this seems to be composed of eosin, while a yellow "Dolly" dye has exactly the effect of methyl orange when treated with an acid. Can you tell me if I can obtain any dye such as I want—that is, either yellow, red, or orange, that are not affected by light or atmosphere, or can I make a suitable stain?—S. E.

Our correspondent does not give us just one important particular—that is, whether the dyes are used in aqueous solution or not; but we presume they are, then all the eosine dyes are extremely fugitive. With regard to a red dye, cochineal red A, made by the Badische Anilin und Soda Fabrik, is a fairly stable dye, but better than all is a solution of carmine in ammonia. If some carmine-nacaral or other good carmine is obtained and rubbed into a cream with water, and then sufficient liq. ammonia fort. added to make a perfectly clear solution, a fairly stable colour is obtained. For a yellow dye metanil yellow S is also excellent, or walk-yellow; the former is made by Oehler and the latter by Cassella and Co. Methyl orange is only stable to light under certain conditions, its sensitiveness to acids being against it. Being quite in the dark as to the exact purposes for which the dye is required, we cannot give much satisfactory information, but we may point out that the light stability of many dyes is enormously increased by treating them with a weak solution of copper sulphate, which presumably would not hurt the print.

**OWNERSHIP OF NEGATIVE.**—I was asked to copy a picture 12 x 10 and supply two copies from same. These were done satisfactorily, and now my client demands the negative without payment for same. No mention was made about requiring the plate at the time of order. I should be glad to know if I am right in retaining same unless paid the price charged—i.e., 10s. 6d.—H. I. J.

This question is very clearly answered in the Editorial article in the *ALMANAC* for 1906, from which the following is an extract:

"Although the photographer, both under copyright and common law, has no right to use the negative save by the customer's request, yet the customer cannot claim it as his property. This position has been upheld in the county courts over and over again. '*Dixon v. Ward*,'<sup>1</sup> '*Andrews v. Capper*,'<sup>2</sup> '*Theobald v. Thomas*,'<sup>3</sup> and '*Harbord v. Brewer and Company*.'<sup>4</sup> But curiously, no case specially raising the question of custody of the negative came before the High Courts until 1903, when a decision of considerable importance was given. The case was '*Rotary Photographic Company v. Taber Bas Relief Company*.'\* The Rotary Company, in order to facilitate the execution of an order for a considerable number of prints for the Taber Company, had to make reproductions of the original negatives, and these negatives were separately charged for. Nevertheless, the Court held that the negatives so made were the property of the Rotary Company. This decision sets at rest any question which may arise as to the ownership of the negative taken by a photographer in the ordinary course of his business. The case is practically the same as when an order is given to a letterpress printer. The object of the order, as usually given, in both cases, is to obtain so many impressions. In the one case, the photographer, in order to produce these impressions, has to make a negative; in the other, the printer has to make a forme of type. The delivery of the impressions made, in each case, constitutes the fulfilment of the order, and the possession of the negative or the forme remains with him who made it. There is a noticeable point about this case of the Rotary Company v. The Taber Company, which, as I have said, is the only High Court decision on the subject of the ownership of the negative, and it is this:—The complete report of the case discloses that

1884, p. 372. (2) 1884, p. 202.  
(3) 1895, p. 114. (4) 1899, p. 792.

\* '*The British Journal of Photography*, March 27, 1903, p. 250.



the production of the negatives in dispute was necessary for the fulfilment of the order. The order was for prints, and the negatives were made of necessity, in the course of producing the prints. It was not an order for negatives and an order for prints from them. The point is a fine one, but no point is too fine for legal disputation, and it should be borne in mind by photographers in making quotations for commercial work (such as machinery and articles for the illustration of price-lists, etc.), that a quotation for the prices of making negatives and for prints is often asked for. A quotation or an invoice for, say, 10s. each for negatives and 1s. 6d. each for prints, might clearly be open to a very different construction legally, from a quotation for 11s. 6d. for taking the photograph and supplying one proof, subsequent prints 1s. 6d. each." It is obvious that you have a perfect right to detain the negative until paid for.

S. TIMOTHY.—The negatives were returned to our correspondent, but we shall be pleased to examine any of yours if you send them up.

ALOHA.—There is no work specially devoted to astrophotography. You will find it treated of in the larger works on astronomy by Chambers and Miss Clerke.

BLUE-BLACK ON BROMIDE PAPER.—Can you give me a good formula for bromide paper to produce a good blue-black tone, using amidol? I might mention I have tried several formulae, but fail to get the right tone; I either get a greeny-black or a flat grey. What I want to get is a rich blue-black.—A. FOSTER.

We have always been successful with:

Amidol .....	50 grains.
Sodium sulphite .....	500 grains.
Potassium bromide .....	2 grains.
Water .....	20 ounces.

When freshly-made. Greeny-blacks are due to under-exposure, and greys to over-exposure. If the exposure is correct, a good blue-black is obtained with this.

LENS QUERY.—I have bought a portrait lens; the glasses are 3½ in. in diameter, but there are no central stops with it. The only one there is fits into the hood of the lens, which bears no name. Will you please tell me if it will take whole-plate negatives?—C. WALTERS.

It is impossible for us to say what the lens will do without examining it. As there is no name on it, and it is not fitted with central stops, but with a front one, we should say it is a very old one, of French make.

FACTORIES ACT (F. and Co.).—As your place comes within the Factories Act you must conform with it. You cannot work the young people longer than from eight to eight, with one hour and a half off for meals. They must have one half-holiday each week, and all Bank Holidays, as well as Good Friday and Christmas Day, without any deduction from their wages. Also, they must not be employed on Sunday. From this you will see you have been infringing the law, and have rendered yourselves liable to penalties.

PRINT QUERY.—Will you kindly tell me by what process the enclosed print was produced? I am told it is carbon, but I do not believe it as it is free from gloss anywhere.—T. WATSON.

The print is undoubtedly a carbon one, made by the single transfer process on a fairly rough paper. The print has been returned as requested.

REPAIRS.—A few months ago I bought a business and the lease, with four years to run, was transferred to me, by the landlord, from the previous tenant. Within a week I found that the roof of the studio leaked like a riddle. I at once complained to the landlord, and he told me that he would not do any repairs, and that if I wanted any done I must do them myself. Is he not bound to do them, seeing that the roof was in such bad condition when I took the premises?—WORRIED.

No. You will have to do the repairs. You did not take the premises direct from the landlord, but from your predecessor, and the lease was transferred to you, and you took over the

responsibilities with it. If you read through its covenant will, doubtless, see that the tenant has to keep the place in thorough repair.

ELECTRIC LIGHT.—I am thinking of adopting the electric light studio for portraiture, but principally for copying purposes. Will you please tell me which would be the best to the enclosed arc or the Cooper-Hewitt light, and which would be the cheapest to instal? I may tell you that the current should have would be the direct one, at two hundred volts. INQUIRER.

Opinions are at present somewhat divided as to which is better. The enclosed arc has come very much in favour of late, and it does not cost so much as the other for its installation, that is if you have five of the Cooper-Hewitt tubes, a number usually recommended for portraiture.

PLATINOTYPE FRAUDS.—Hitherto I have always supplied good platino-types when they have been paid for. But other photographers in the place have for a long time past been supplying bromides for them. I now think of doing the same as the platinum paper is so dear. Is there anything illegal in doing this if I use platino matt paper for the purpose?—YORKS.

Yes, there is; and you will render yourself liable to proceedings under the Trade Marks Act, the same as your neighbours have already done. Anyone who has been defrauded by the supply of bromides when they have paid for platino-types can take proceedings.

"TITLING CARDS."—Kindly inform me of the best (or value) method of putting the title on P.O.P. postcards; not a quantity required from each negative, it is not worth sending to a printer. Also (2) How can I recover gold which I have posited all over inside of the jar that toning bath has kept in for months?—HENRY LONG.

1. The simplest method is to obtain a fount of moving rubber type, with which any title can be set up and printed direct on to the card. By the same method, only using rubber type, the title can be put on the negatives direct to print. 2. Mix 1oz. of nitric acid with 3oz. of hydrochloric acid, both full strength, and then run round the jar; this dissolves all the gold, and by evaporating the solution thus obtained impure chloride of gold would be formed, or by adding sulphate of iron and boiling the gold would be precipitated.

PLATINUM COMBINED BATH.—Is it possible to tone P.O.P. to a brown using a combined bath containing platinum?—PRINTER.

The only formula we know containing platinum is the following:—Hypo, 2oz.; lead nitrate, 120 grains; alum, 40 grains; sodium formate, 40 grains; formic acid, 30 minims; hot water, 20oz. Dissolve the lead and formate in hot water, and the hypo and formic acid, allow to stand twenty-four hours in a dish, and then add platinum perchloride, 4 grains. Immerse the prints before toning in salt and water. We have very grave doubts as to the permanency of prints treated this way, and, considering how easy it is to obtain black and white bromide and gaslight paper, it is hardly worth while to go roundabout way to get them.

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## The British Journal of Photography

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## SUMMARY.

A German writer, Dr. Sedlacek, has written a book in which he discusses from the scientific standpoint the methods of toning bromides. The first part of an abstract of his conclusions and a number of formulæ based on them are given on page 624.

Some notes on the important question of the photographer's window display appear on page 623, and will be followed by later chapters dealing with further aspects of the matter.

The relations between employers and assistants is the subject of further discussion in our correspondence columns. (P. 637.)

Self-developing plates, flashlight apparatus, and a folding camera are among the patents of the week. (P. 632.)

Baron von Hübl continues his observations on the theory of three-colour printing. (P. 627.)

M. Ed. Belin communicates to the French Photographic Society the description of an apparatus for colour sensitometry with which the results are obtained directly on the exposure of the plate. (P. 629.)

An American writer explains his purpose in using a "concentrated" lighting, and the practical measures employed by him in such studies. (P. 626.)

It is announced that by a departure in elementary instruction in Germany photography is to be one of the science subjects taught in schools which stand between the primary school and the technical institutes, such as that at Charlottenburg. (P. 622.)

Recent experiments on fused magnesia suggest that the commercial pure magnesia may be used as a substitute for lime in the oxy-hydrogen lantern. (P. 622.)

A correspondent details his method of packing negatives for posting at the expenditure of little time and materials. (P. 637.)

## EX CATHEDRA.

### The Effect of Air Waves.

An extremely interesting article upon atmospheric effects in astronomical observations appears in the current issue of the "Monthly Weather Review," published by the Weather Bureau of the U.S.A. Special attention has been drawn to this subject by Professor Lowell, of Flagstaff Observatory, to whom we are indebted for the photographs of the Martian Canals. He has pointed out that such delicate markings as the Martian Canals, or even a spectrum line may be distinctly blurred and ill-defined when photographed, although at the first instance of vision the same may be recognised as clear and sharp. This phenomenon Lowell has proved to be due to diffraction effects caused by varying strata of air or rather movements in the atmosphere. In a perfectly still night there may be just beyond perception a boundary to the cool stratum of air surrounding the observatory and telescope, and on this boundary a warmer layer of air rolls and surges along, producing those diffraction effects which are so troublesome. In visual examination the oscillatory swing is recognised as such and mental correction is applied; but if a photographic plate be substituted for the eye, the varying positions of the oscillatory image, being superposed on each other, are all permanently recorded on the plate, so that a large blurred image and not a point is the result. Hence the centre of star images is always taken as the measuring point. Precisely the same argument applies to photography; the spectrum and lines may be photographically recorded as broadened, whilst they are actually sharp. Lowell's remedy for this state of affairs is stopping down, and the improvement has been proved both optically and photographically.

\* \* \*

### Photographing Air Waves.

The above note naturally leads one on to think of the actual photographing of air waves. This has, of course, been done, not only by Professor Vernon Boys in his photographs of flying bullets, but also by Professor Mach of Prague, in similar work. We are not aware, however, that anyone has yet recorded the air waves from a heated surface, and considering the present height of the thermometer there ought to be no difficulty in doing this. One has merely to lie down, with the face close to the surface, of a newly cropped hay or corn field, or even look along a sunlit wall and the air waves, or rather their effects, can be most distinctly seen in the fuzzy appearance of the objects in the distance. This idea was used of old to obtain softness in portraiture, and a lamp burning below the lens and sending a stream of heated air across the field of view was a favourite, and we believe a patented, device for obtaining softness. We are not suggesting a revival of this method, but it might



be interesting to repeat the experiment in order to determine the maximum aperture at which this disturbing phenomenon appears.

### Some Parallels.

Every microscopic and photomicrographic worker will at once recall that well-known phenomenon of "drowning" which the beginner is too apt to ignore. The beginner in micro work, whether visual or photographic, hastily concludes that the more light the more he must see. The result is that too often he drowns the finer detail by flooding his object with light to the total obliteration of the finer detail. The same applies, though to a less extent, in photography. Given a lens of big aperture, the beginner naturally assumes that because he has this wide aperture he must always use it, quite regardless of the such minor things as drowning or obliteration of structure, which is sometimes the most important point.

### Cloud Forms.

The paper read before the Convention, and the letter by Mr. Howden Wilkie in our issue of the 27th ult., will have given quite sufficient data for anyone anxious to take up this fascinating branch of photography. In this month's issue of "Knowledge" there appears, however, a paper by Dr. W. J. S. Lockyer on the subject, which is illustrated by some excellent prints. He elects to use a ten-times yellow screen, a lens aperture of  $f/8$ , and Wellington and Ward's ortho process plates, followed by hydroquinone and caustic soda developers. Mr. Clayden's book on "Cloud Forms" is illustrated by a fine series of reproductions, but in these, as in those in Dr. Lockyer's article, there is one grave fault from the point of view of truth, a point which must not be lost sight of by those who elect to follow either indicated methods of working, if the negatives are required for pictorial purposes. This fault is over-correction. The majority of the illustrations in "Knowledge" give us the impression of moonlit clouds on the deep blue sky which is so often seen at night. The intensity of the blue of a night sky is very marked, whereas that of brilliant sunlit sky is nearly as luminous as the white clouds, and, as a rule, far more so than any portion of the cloud which is in comparatively deep shadow. This over-correction with prolonged development, particularly with a developer prone to give density readily, such as hydroquinone, means that the finer and more delicate gradations in the most brilliantly white portions of a cloud are lost. From a pictorial point of view this is, of course, hopelessly wrong, and except under special conditions it is, we think, equally erroneous for the purely scientific study of clouds.

### Miss Marie Corelli's Portrait.

For some unaccountable reason, the doings of Miss Marie Corelli create more interest than the proceedings of more important personages. Miss Corelli has been photographed, and has thought fit to communicate to the world the particulars of this important event. From her statement it appears that she went to the photographer as an ordinary customer, paying at the time or afterwards for the sitting. These being the conditions, according to copyright law the copyright in the photograph does not belong to the photographer, and the only way he could acquire it was by an assignment in writing. Of course, we cannot say that this assignment has not been made, but it seems very unlikely under the circumstances. The portrait, which forms the frontispiece to Miss Corelli's new book, bears a facsimile of her signature, and the words "From a photograph taken in 1905 by G. Gabell," also the words "G. Gabell, copyright." It is not of any

importance to the world whether Mr. Gabell is or is not entitled to this superscription, but in the event of some infringing the copyright, and should a mistake have been made, some very interesting complications are likely to arise, especially if the photograph has been registered with Mr. Gabell as the proprietor of the copyright and it should turn out that Miss Corelli or someone else is the proprietor.

### Fused Magnesia.

Several attempts have been made to obtain a satisfactory substitute for the lime cylinder for optical projection with the oxy-hydrogen flame. Drummond himself used magnesia, and some sixteen years ago magnesia pencils were a commercial article in Austria and Germany, and Dr. Eder has spoken very favourably, not only on account of their cheapness but also on the character of the light, which is extremely white and very rich in the blue and ultra-violet rays. Caron, of Paris, stated in 1868 that magnesia gave much better light than the lime, but that it was extremely important to free it from any trace of silica, which reduces the brilliancy to one-third or less. Quite recently the Königlichen Porzellan Manufaktur have placed on the market tubes, crucibles, and other forms of pure fused magnesium oxide. Messrs. Goodwin and Mailey were induced to try and make some of this fused magnesium oxide, and in the current number of the "Physical Review" they give some information about this new material, which leads one to suppose that it might be found useful as a substitute for the lime. It is a pure white, an very hard crystalline substance, with a surface like glazed porcelain. The approximate melting point is 3,470° deg. Fahr., which is quite high enough to do away with any trouble of this kind in the oxy-hydrogen flame, the temperature of which does not probably exceed 2,700° deg. C., and is more likely to be much less. Further, as the fused magnesium oxide is practically only attacked by the alkalis and dilute inorganic acids, it should do away to a great extent with the trouble from damp to which, as everyone knows, the lime is so prone.

### Government Support for Science.

One of the most striking features of Professor Ray Lankester's Presidential address to the British Association last week was his attack on the English Government generally for its lack of support of science. As he said, it is, unfortunately, true that the successive political administrators of the affairs of this country, as well as the permanent officials, are altogether unwary to-day, as they were twenty-five years ago, of the vital importance of the knowledge which we call science, and of the urgent need for making use of it in a variety of public affairs. Whole Departments of Government in which scientific knowledge is the one thing needful are carried on by ministers, permanent secretaries, assistant secretaries, and clerks who are wholly ignorant of science, and naturally enough dislike it since it cannot be used by them, and is in many instances the condemnation of their official employment. Possibly, Professor Lankester's remarks were all the stronger in that he has just been asked to resign his Directorship of the Natural History Museum at South Kensington.

### Made in Germany.

A great contrast is shown when the state of affairs is considered in Germany. There the State does support science to a large extent, and it is now reported that the Government has decided to establish a sort of secondary school, which shall be intermediate between the primary and those of the technical high school class, as at Charlottenberg, and it is further stated that in these intermediate

tools a study is to be made of photography as applied science. We may possibly yet see such a thing as a Governmental School of Photography set up in England, particularly if the recommendation of the Motor Traffic Committee be adopted, that all drivers' licences must bear the owner's portrait, and that this is to be furnished free of charge! Still, as the money will have to come out of the taxes, some photographers may object to pay for the head that is taken out of their mouths, and we may have another class of passive resisters.

\* \* \*

**Photographing Fortifications.** A short paragraph which we published a fortnight ago serves to illustrate how matters may, quite unwittingly, incur considerable inconvenience to themselves, if not get into very unpleasant trouble. The case was this. There was a Sunday School excursion from London to Sheerness, and seven youths of the party walked along the front of the fortifications. Two of them carried cameras, and snapshotted a couple of war vessels, and were noticed by the soldiers on duty, who forthwith took them into the garrison and afterwards to the police-station, where their plates were examined. It is not stated whether the plates were developed, but it is said that it was found that no photographs of the fortifications had been taken, and that inquiries showed that the youths had no intention of infringing the regulations against photographing defences. They were then not further detained, but the plates of the two warships were confiscated. We call special attention to this incident in order to caution photographic tourists against carrying cameras in the vicinity of fortifications, or snapping war ships, interesting as the latter subjects may be; for it is by no means pleasant for those who are out on a day's holiday, as in the case of these youths, to have to stand, say, a couple of hours of the time in the way these fellows had to do. The regulations with regard to taking photographs of fortifications here are pretty stringent. Many persons are not aware that there are any at all, but they are not nearly so strict as they are in most places on the Continent, particularly on the Franco-German frontier. Several English tourists have been arrested and been kept in practically "durance vile" for the entire day, or more, or until it has been proved that they were not spies, and had no evil intent. In some instances the inconvenience has been intensified by the tourist speaking the language of the country, and failing to give a clear explanation of the facts. In most Continental countries passports are not now necessary, but our advice to photographic tourists on the Continent is to be provided with one. The possession of a passport, of course, will not prevent the holder from unwittingly getting into trouble, but it will very materially assist him out of it by proving his identity as a British subject.

\* \* \*

**Carbon Prints on Glass.**

An American contemporary refers to the production by a Tennessee photographer of carbon prints on glass. The idea is by no means new, as on several occasions we have seen exhibition walls interior photographs produced in this way, and the method has been described in the journals. We think, however, that such prints might well be introduced by carbon workers, and if carefully handled might prove an attractive novelty. Briefly the method consists in coating a good quality of glass, probably one of the cheaper qualities of patent plate, with a bichromated gelatine substratum in the same way that transference glasses are prepared for the carbon process. The carbon print is transferred to this glass after the substratum has dried and been rendered insoluble by exposure to light, and is

developed, rinsed, alumed and washed in the ordinary way. Held up to the light such a print is, of course, very thin, but when dry if laid film side down on a sheet of paper the effect is that of a perfectly flat-surfaced, enamelled print with rich gradations and shadows and pure high lights, assuming, of course, a good carbon positive. The advantages of the method are, single transfer from ordinary negatives, the print being viewed through the glass being non-reversed; freedom from injury by scratching; and the possibility of using any kind of backing up paper, rough or smooth, white or tinted. Harsh lights may be toned down by laying a wash of colour on the backing-up paper. Such prints may be sent out bound up in the passe partout method or placed in neat and inexpensive frames if the price must be kept moderate.

## THE PHOTOGRAPHER'S WINDOW.

### I.

AMONG professional photographers there appears to be considerable divergence of opinion regarding the advisability of advertising. We think, however, there can be no two opinions about the value of at least one means of publicity—namely, the shop window or showcases. Nevertheless, these important matters do not always receive the care and attention that one might naturally expect should be invariably expended upon them. Few photographers, in fact, understand the subject of window dressing as well as most drapers, grocers, or other trades not usually associated with artistic feeling. And window dressing, or rather, successful window dressing, depends upon the same fundamental principles as all matters of good taste, music, decoration, or artistic personal adornment. There must be no harsh clashing of discordant contrasts, nor mere repetition without variety. Above all, exact geometrical forms are not to be encouraged.

Probably the number of photographers possessing windows and those possessing showcases only are evenly divided, but in most classes of business, more especially in towns, the window man is most to be envied, not only because of the relative importance of the display he can make with judicious thought, but also because a constant change of at least small features is more easily made. And this constant change is in most cases the first secret of successful exhibiting, apart from the arrangement or work shown. In any town of standing population, where probably the same people pass day after day, and probably most of the ladies of the place manage to come once or twice a month, the importance of rapid change cannot be over estimated, and the policy is bound to tell more than other forms of advertisement, always supposing that you do sufficient good work to keep up this repetition without having to fall back on your mediocre stuff to fill up.

These remarks *re* change apply also to showcases, on which we have some notes to appear in a later issue. Now we will only stop to mention one point that costs nothing, yet is more neglected than the obtaining of expensive trappings. It is to keep windows or showcases always scrupulously clean. Do not allow old specimens, sometimes faded and rain-stained, to remain on exhibition, to the detriment of every other photograph shown, as well as of your reputation. Perhaps showcases are the most neglected in this respect. Some that we have seen have been more a reason *against* visiting the studio advertised than anything else. Remember, cleanliness, smartness, and polish on even the most unassuming cases and work carry more weight than elaborate and tawdry hangings, or dirty and bedraggled specimens of the most ambitious type.



The shop window is often considered more trouble than it is worth rather than an excellent means of publicity, and the show reflects the feelings of the proprietor, for from first to last is cannot be doubted that some little thought must be expended upon the subject. As to the design of a shop window to be built or purchased, there are many questions:—Whether door at side and one large window, door in middle and two windows, or one small and one large window; distance glass is to come within reach of ground; the height the glass is to be carried; what kind of flooring within window and above; what description of partition between shop window; whether from ceiling to floor or from floor to some intermediate point, and whether of wood, glass, or flexible material.

Most of these questions will be determined by local circumstances, and, of course, if the window is already built the existing arrangements can usually be adapted to meet requirements. We are rather inclined to prefer a double window to a single one for photographic purposes, though we know that with many trades the reverse holds good; but large windows are apt to be a bugbear to photographers, and moreover the double window serves to divide up the show into more compact groups, in the same way as the stencilling or panelling at an exhibition, so that distinct and separate styles of work can be shown without discord. However, each to his taste. The height of the inside of the window should not be so low as now appears to be fashionable for shop windows, for photographs are not intended to be looked at from above, and more especially at an angle. Neither, we think, should the window extend too far back, firstly, because the finer details of the posterior pictures would be lost, and secondly, because it is obviously foolish to put one photograph dead in front of another, so to all practical purposes

one plane would be sufficient. Moreover, nothing worse than numerous niggly small cabinets spread a window to fill up, and usually obscuring one another.

With regard to the partition—and there always should be one, for it is impossible to view pictures without background of some description—in all cases where is not a skylight over the shop a space must be left the partition to illuminate the shop, or a wooden partition with glass top may be used. In any case, the portion should be at least six feet high, so that the large and smaller pictures shall have the background, not so important in the case of big enlargements or paintings. A heavy brass rod with plain self-coloured dark curtain hung upon it is good, cheap, and handy, but a paneled wood partition extending to the roof, with the top glazed with leaded glass, is effective. In this latter case the woodwork should harmonise with the general tone of the decoration—the same may be said in the case of curtains, dark green and dark brown forming a most restful background. If the bottom of window is cloth-covered it should be exactly the same colour as the curtains, in case of woodwork, of harmonising colour. These details must be quiet and subdued, and not detract from pictures exhibited either by lightness of tone or contrasting.

A very good material for floor covering is a self-coloured cork carpet. These can be got in any colour, will wear well, and moreover have a matt surface. Another good idea is to have the bottom covered with parquet flooring in dark tones. This can, of course, be covered with other material when necessary. However, enough has been said about the actual window, and we hope in a future paper to be able to say a little about the arrangement of the pictures.

## THE TONING OF BROMIDE PRINTS.

THE obtaining of warm tones on bromide paper by means of toning processes has been very much to the fore of late. A good deal has been written on this subject, but so far but little has appeared in English but what may justly be described as a mere repetition of, or modifications of, old formulæ and old sayings. Of actual experimental work from the scientific point of view there has been practically none. It is all the more refreshing, therefore, to come across a work\* which attempts to treat the subject from the purely experimental point of view, and in which statements are corroborated by experiment.

The ordinary hypo-alum toning bath, it is pointed out, depends for its activity upon nascent sulphur; but that the decomposition of hypo by an acid, although giving rise to the same reactions practically, will not act efficiently. The suggestion is that the decomposition of the aluminium hypo-sulphite plays an important part.

As regards the toning processes containing ferricyanides, the primary action may be the formation of potassium and silver ferrocyanides, and then the formation of an insoluble ferrocyanide of a heavy metal, such as uranium, or the silver may act directly on the ferricyanide of the heavy metal and reduce it to ferrocyanide, and this, apparently, the author favours as the more correct assumption of the two. His reason for accepting this view is that if metallic silver in powder form is treated with a 0.1 per cent. solution of ferricyanide of potassium, after some minutes some unreduced ferricyanide can

always be detected. If, on the other hand, the theoretical quantity of uranium nitrate be added to the ferricyanide and allowed to act on the silver, then the decomposition is momentary, so that after a brief shake neither ferro- nor ferricyanides can be found in solution.

In connection with uranium toning it is pointed out that the gelatine and paper must be taken into consideration, especially the former, as it forms a compound with the uranium which is insoluble.

The explanation of the action of the uranium toning according to the author, as follows: When a solution of uranium nitrate with potassium ferricyanide acts on silver which is embedded in gelatine, at the commencement of toning the uranium combines with the gelatine, whilst the ferricyanide diffuses through the film, and forms with the image the ferrocyanides of silver and potassium. The potassium ferrocyanide thus formed combines with the uranium-gelatin to form ferrocyanide of uranium, or enters into actual combination with the gelatine compound.

The final result may be that the uranium ferrocyanide is formed, not on the image, where it is wanted, but in the gelatine, and the silver ferrocyanide only partially reacts with the uranium ferrocyanide and gelatine compound in the course of time, and this may probably be the cause of the instability of uranium-toned prints.

Naturally, one wants a salt which will prevent the formation of this uranium-gelatin compound, and the most useful ordinary ammonia alum, for the latter forms a compound with gelatine which is not acted upon by ferro- or ferrocyanide.

\* Die Tonungsverfahren von Entwicklungspapieren, by Dr. E. Sedlacek. Published by Wilhelm Knapp, of Halle.

however, alum also stops the toning action, it is necessary add an acid which restores this without giving rise to the uranium-gelatine compound, and hydrochloric acid is the best. In order that the baths shall keep, it is necessary to use certain organic acids or their salts, and potassium oxalate will be found one of the most satisfactory. In fact, a bath composed of uranium nitrate, potassium ferricyanide, alum, and oxalate has practically no toning property, and hydrochloric acid or some other highly ionised acid is required to take it tone.

The author, then, on his experiments, which are but briefly abstracted above, gives the following formulæ for obtaining various tones:—

#### DEEP BROWN TONES.

Uranium nitrate, 10 per cent. sol. ....	50 minims.
Potassium ferricyanide, 10 per cent. sol. ....	20 minims.
Potassium oxalate, 10 per cent. sol. ....	50 minims.
Hydrochloric acid, 10 per cent. sol. ....	10 minims.
Water to .....	2 oz.

#### WARM BROWN TONES.

Uranium nitrate, 10 per cent. sol. ....	50 minims.
Potassium ferricyanide, 10 per cent. sol. ....	20 minims.
Potassium oxalate, 10 per cent. sol. ....	50 minims.
Ammonia alum, sat. sol. ....	100 minims.
Hydrochloric acid, 10 per cent. sol. ....	3 minims.
Water to .....	2 oz.

#### BROWN TONES.

Uranium nitrate, 10 per cent. sol. ....	50 minims.
Potassium ferricyanide, 10 per cent. sol. ....	20 minims.
Rochelle salts, 10 per cent. sol. ....	70 minims.
Tartaric acid, 10 per cent. sol. ....	10 minims.
Water to .....	2 oz.

#### REDDISH BROWN TONES.

Uranium nitrate, 10 per cent. sol. ....	50 minims.
Potassium ferricyanide, 10 per cent. sol. ....	20 minims.
Rochelle salts, 10 per cent. sol. ....	50 minims.
Ammonia alum, sat. sol. ....	100 minims.
Tartaric acid, 10 per cent. sol. ....	50 minims.
Water to .....	2 oz.

It is not advisable to use the baths too long or for too great an area of paper, and  $3\frac{1}{2}$  oz. should suffice for about 700 square inches.

If the prints, no matter what bath they are toned in, are treated for five minutes to

Sodium sulphide .....	$2\frac{1}{2}$ grains.
Hydrochloric acid .....	1 minim.
Water .....	2 oz.

they assume a deep brown tone, and will keep for at least four years without any change or bronzing in the shadows.

#### Iron Toning Processes.

In the iron toning baths there are always two salts which can act on the silver image, namely, potassium ferricyanide and ferrous salt. The silver reduces the ferricyanide to the ferrous state, and this combines with the ferric salt to form Berlin blue, or ferri-ferrocyanide. If it is assumed, independently of the probability of ferri-ferrocyanide existing in the solution, that the ferric salt is reduced quicker to the ferrous state than the ferricyanide of potassium, Turnbull's blue, or ferri-ferrocyanide is formed. If the two salts are both reduced at the same rate, then a white salt, the ferro-ferrocyanide, is formed.

The ferric salt used throughout by the author is ammonia iron alum, which is cheap, and a perfectly stable ferric salt.

The colour obtained with ferricyanide and a ferric salt is

an unpleasant dead blue, and the whites are usually stained through the precipitation of basic iron salts. The addition of an acid improves the bath in both ways.

An excellent deep blue tone is got, which can hardly be obtained in any other way, by bleaching the print first in a 5 per cent. solution of potassium ferricyanide with the addition of a little potassium oxalate, well washing, and then bathing in a 2 per cent. solution of ammonia iron alum, to which some potassium bromide and hydrochloric acid are added. The chemical action may then be thus expressed:—



In order to decrease the action of the toning baths oxalic acid is the only one that can be used, and potassium citrate, Rochelle salts, and the oxalates may also be used—in the above order, as regards efficiency in this respect.

Iron combines with gelatine in the same manner as aluminium and uranium, but rather less than the latter; it is advisable, therefore, to use alum in all the iron toning baths, and also an organic acid, to prevent the precipitation of basic iron salts in the gelatine and the paper.

The images toned with iron baths contain, with some unaltered silver and ferri-ferrocyanide, also some silver ferri-ferrocyanide, which only reacts very slowly with the iron complex; but this is easily decomposed by subsequent treatment of the prints with a solution of a ferric salt containing potassium bromide, alum, and an acid. This gives bluer tones.

The following formulæ are given to obtain various tones:—

#### A DEEP BLUE TONE.

Ammonia iron alum, 10 per cent. sol. ....	12.5 minims.
Potassium ferricyanide, 10 per cent. sol. ....	10 minims.
Potassium citrate, 10 per cent. sol. ....	10 minims.
Ammonia alum, sat. sol. ....	50 minims.
Hydrochloric acid, 10 per cent. sol. ....	2.5 minims.
Water .....	1 oz.

The citrate of potash may be replaced by 3 minims of saturated solution of oxalic acid.

#### A COLD BLUE TONE.

Ammonia alum, 10 per cent. sol. ....	50 minims.
Potassium ferricyanide, 10 per cent. sol. ....	10 minims.
Potassium oxalate, 10 per cent. sol. ....	30 minims.
Ammonia iron alum, 10 per cent. sol. ....	12.5 minims.
Hydrochloric acid, 10 per cent. sol. ....	2.5 minims.
Water .....	1 oz.

In place of the oxalate, 15 minims of a 10 per cent. solution of Rochelle salts may be used.

#### A GREY BLUE TONE.

The same bath as the last, but with 5 minims of a 10 per cent. solution of tartaric acid instead of the alum, and without the hydrochloric acid.

#### A BRIGHT BLUE TONE.

Ammonia iron alum, 10 per cent. sol. ....	50 minims.
Potassium bromide, 10 per cent. sol. ....	30 minims.
Hydrochloric acid, 10 per cent. sol. ....	5 minims.
Water .....	1 oz.

By treating prints toned in the above baths with a .01 per cent. solution of carbonate of soda or ammonia, reddish-violet tints are obtained, and greenish-blue to green tones by immersing them in:—

Sodium sulphide, 10 per cent. sol. ....	0.5 minim.
Hydrochloric acid .....	0.5 minim.
Water .....	1 oz.

Care must be taken not to leave the prints too long in this, or they will turn black.

(To be continued.)



## CHARACTER LIGHTING AND POSING.

It is not unusual for one to see pictures that would be of the very first order if it were not for the fact that the operator used poor judgment in the distribution of his light over the face, says Mr. Felix Raymer, in the "Photographic Times." It is a well known fact among the best workmen that the expression is controlled in no small degree by the arrangement of the shades on the light, and the strength of the light as it falls on the face. The expression of a face is nothing more or less than the lines showing in the faces of some subjects differently from others. We look at one face and say the expression is good, or bad. We mean by this that the expression is either pleasant or otherwise. The cause for these differing expressions is that certain faculties in the face and head have been used by one person, while others have been used by the other person. The one having a pleasant expression has brought into play faculties that form different lines from those brought into play by the person having a sour expression. These lines will be shown in each face more or less regardless of what the operator does, but there are times when he may soften them and make a better expression. It will not be possible to take them out entirely, and neither would it be the part of wisdom to do so. If they are taken out we destroy the likeness, but we may soften them and it proves an advantage.

### Concentration.

Before going into the matter of diffusion and concentration, I would like to have it understood that I make either the soft diffused or strong concentrated effects the same so far as the direction the light takes in falling towards the subject is concerned. In fact, all effects of light should be made the same up to the point where we decide there should be a softer effect made. If this is done all that is left to do will be to place a white screen over the head. It has been my observation that many operators do not know what shade or colour curtains or screens to use to secure the different effects. I have found on most lights two sets of curtains, one that had at one time been white, but is now a dirty yellow, or some other tone that is not desirable, and the other set of some darker tone, say a blue, drab, or similar nature. Now, I have found that the simpler we can curtain the light the better off we will be and the easier we can get what we want. It is all right to have the two sets of curtains, but first understand what each set is to do. One set will do for one thing while the other is for a different purpose altogether. We know that we want diffusion or softness at times. Now the natural question would be what shades or curtains will produce this softness. There can be one answer to that question, and that is "a curtain that will soften the light but not close it out of the room." There can be but one curtain that would do this, and that would be white. Now, do not think because the curtain was white when it was first placed on the light that it will do for ever and eternally. It will not, for it catches dust, and if the light leaks, which is more than probable, it will have dust streaks all through it, and after a time it becomes a dirty yellow or brown. When this stage is reached it closes out more or less of the light, which is quite a different matter from diffusing it, or making the effect softer. The more colour there is to the shades of curtains the more of a concentrated effect will result where the shades are used. For diffusion the light should not be made smaller, nor any part of it closed out, but all of the light should pass through white screens or sifted through. The effect of this can be seen by looking into the dark corners of a room, while the light comes through a window, which has not been covered with a screen. Then take a white screen and place over the window, and see the dark corners become higher illuminated, with greater detail in them. Now comes the question, "But if the light is screened in this way will it not make the exposure longer?"

### Opaque Curtains for Concentration.

No, but the reverse. It makes it necessary to give somewhat less time than where the stronger light is used. Remember we are to time for the shadows. When the light is open the dark corners (or shadows) are so deep that there is but little or no detail in them. But when the white screen is placed over the windows the shadows become more luminous and full of detail. When this is done the

time which is still for the shadows may be less, for it is for that we expose, and if the shadows are lighter we require less to get the detail. So much for diffusing curtains. for the concentrating curtains. We all understand to concentrate means to close up, to make smaller, to eliminate certain things and accentuate others. How is this to be done? There can be but one way to concentrate the light on any part of the face and that is to make the part small enough to allow its falling on that part of the face, and nowhere else. Now, is this to be done? Why, by making the light smaller and moving the subject up closer to it so that the light will not spread all over the subject. There can be but one way to make the light small and that is to close off part of it. This can be done only by having curtains that are absolutely opaque, so that no light can get through them. When such curtains are drawn over any part of the light that part of the light is closed out of the room, and, of course, the remaining part is smaller, and, being smaller, it concentrates at some particular part of the face. There is the success of concentration. Now, if the operator understands the uses of these two classes of curtains he will have no trouble in securing the effects he is after. I have found many operators who think they are closing off the light when they draw a white curtain over the light, while others think they are making the effect of light softer by drawing an opaque curtain over the light. These are both wrong. If the soft effect is wanted use the curtain that will make the light soft—white. If a concentrated effect is wanted use the opaque curtain that will concentrate the light, which is, of course, opaque curtain. I use very dark green on my light for the opaque curtains, and find them very satisfactory.

### Management of the Lighting.

In making up the lighting for each face, there should be a careful study made of all faculties which go toward making up the character of that face. It is found that the face has a very decided marking of character. It will likely be to the advantage of the subject to have this character modified or softened. If so here is where the white curtains come into play. But, on the other hand, if the character is found rather insipid and weak it will likely be to the advantage of the subject to concentrate the light more and accentuate the character that is shown still stronger. I will suggest my plan of procedure, and those wishing to try it are welcome. First, I have the subject seat himself under the light at whatever point the posing chair happens to be. It is, of course, at different stations in the room, owing to the fact that on one subject I had to concentrate the light more and in doing so had to place the subject nearer to it, while in another case I wanted a softer effect, and placed the subject farther from the light, opening all of the opaque curtain, and softening the effect with the diffusing curtains. Therefore I say seat the subject at whatever point the chair happens to be. Next, arrange the light so that it falls on the face from an angle of about 45 degrees. To do this quickly all that is necessary is to notice the shadow from the nose, and when it falls away from the nose towards the corner of the mouth the light will be about right. Next have the subject turn towards the light until there appears in the shadow eye a small dart of light, known as the catch light. When this point is reached have the subject rest for a moment or so while you study the lighting. If the lines appear abnormally deep it is because you are using too concentrated effect of light. Move the subject farther from it and arrange it again so that it falls on the face from an angle of 45 degrees. And I will say here that the direction the light falls is controlled entirely by the arrangement of the opaque curtains. The white curtains are to soften the light, remember. After the opaque curtains have been drawn so that the shadow from the nose falls towards the corner of the light, and the catch has been secured, notice the lines of the face again. If they are still too strong move him farther from the light and proceed as before, but if they appear about what is natural next look at the deepest shadows and likely they will be too deep for the highest lights. If so, draw the white curtains until they come together in better harmony.

If when the subject is first seated the light seems too soft or flat, move the subject nearer the light and concentrate it more, or, in other words, make the light smaller. This will have to be done in every case if the right direction of light is secured (45 degrees). But

there will be little trouble if the nature of the two sets of curtains is understood. The opaque for concentrating and controlling the direction of light takes in falling on the face, and the white for softening that light after the direction of it has been secured.

## THE BASIS OF THREE - COLOUR PHOTOGRAPHY.

(Translated from Das Atelier.)

Continued from P. 491.

The fundamental colours which three-colour photography must use, and what the difference is between the physiological and the artists' primaries, can be easily determined from what has already been said, and from the diagrams of the colour circle. The three colours which are symmetrical as regards the centre, form the artist's primary colours, for it necessitates as far as possible equal purity of all the compound colours, and the equilateral triangle includes the greatest possible area.

It may possibly appear that the arrangement of the colours on the circle is to some extent permissible, and dependent to a great extent on the subjective sensation. This is, however, not the case. First of all, Hering's fundamental colours are arranged at four points, which must be 90 deg. from one another, and which can be determined with tolerable certainty, and can be objectively prepared, which is not the case with the Young-Helmholtz primaries.

If we think of, according to Hering (\*), a series of colours which gradually merge from yellow through green into blue—that is, which correspond to the yellow and blue parts of the spectrum, there is something common to all except the end members of the series: that they all contain green. The pure green, however, is a distinctive point in the series, in so far that it is different to all the colours on one side, as it contains no yellow; also it differs from the colours on the other side in that it contains no blue. It corresponds, therefore, to the position in the series where the admixture of yellow is wanting, and where the admixture of blue is not yet recognisable. For this sensation, therefore, which contains neither blue nor yellow, we give a special name; for we cannot talk of a yellowish blue nor of a bluish yellow, for we not only cannot see in it these two colours once, but not any of them. The relative simplicity of this green sensation, compared with the two-colour composition of its neighbours, gives it a distinctive place in the above series of colours.

There are three other colours besides this green, namely, red, blue and yellow, which can occur without any tinge of any other colour. Red and green, and on the other hand, yellow and blue, can never be seen in a colour; they shut one another out, and were thus called "Opposing colours" by Hering, a term which he preferred to the usual term, "complementary."

These four colours, which obviously have nothing to do with the physiological primary colours of Young-Helmholtz, and which should not be confounded with the latter, may be easily obtained by the aid of a series of coloured papers or transparent films. They form, as already stated, four definitely determined points in the colour circle. The correctness of the choice of the colours may be determined by means of colour-top sectors; for red and green on the one hand, and blue and yellow on the other, should combine to form white. But the four quadrants must be filled with intermediate colours, which is rather difficult.

There is no doubt that midway between red and yellow must lie an orange, which shall equally excite the red and yellow sensation; but this cannot be accurately determined, for the regions of the sensation red-orange and orange-yellow are too great. The estimation of this mean orange by mixture of equal parts of red and yellow is also not permissible, as it is questionable whether the chosen colours are of equal colouring power—that is, of equal saturation. With the aid of the colour circle, red and green, and also the blue and yellow, may be chosen so that they are of equal saturation; thus, that when mixed in equal quantities they produce white; whether, however, both pairs of colours will satisfy this requirement, is questionable. A tolerably satisfactory way to attain this end is, however, the

following: If three colours,  $a$ ,  $b$ , and  $c$ , on the periphery of the circle—thus, of equal saturation—form white, they must be symmetrically divided, and the centre of gravity of such a triangle must be in the centre,  $O$ . If, however, instead of  $b$  a colour  $b^1$  is chosen, which is about 20 degs. to one side, white will not be formed by the admixture, but a whiteish violet corresponding to gravity point  $s$ , of the system  $a$ ,  $b^1$ ,  $c$ . If white, however, is to be the result, the saturation of  $a$  and  $b^1$  must be reduced; instead of the saturated colours mixed with white, the shades lying on the radii  $a\ o$  and  $b^1\ o$  be used. Putting it mechanically, the weight from  $a$  and  $b^1$  must be shifted along the radii to  $a/b$  so that the centre of gravity of the new system falls at  $O$ . A mixture of 0.6 of saturated blue with 0.4 of white, corresponds, as shown by the figure to the blue at  $a^1$ , and since the brightness as already mentioned is perceived in logarithmic progression, this blue makes far too white an impression; it appears too bright, just as though it were formed of 0.8 of white and 0.2 of blue.

From these considerations it will be seen that three colours which do not lie symmetrically can only form white or a neutral grey, when the saturation of one or other of the colours is lowered to a very great extent. And, inversely, it may be said, that when three colours, which appear equally saturated and pure, are mixed in equal parts in a colour top, and give a neutral grey, then it is a sign that they approximately lie symmetrically on the colour circle.

Such mixing experiments offer a ready means of the choice of three colours which are symmetrical, for if we choose from a number of apparently equally saturated colour papers, three, which, when mixed in sectors of 120 deg. on the top, give a grey, their colours answer to the above requirements.

By choosing an ultramarine blue, a vermilion red, a yellowish green, and a yellow which is as saturated as and complementary to the blue, any desired shade may be produced on a colour top. For instance, if the blue and yellowish green are mixed, a blue green will be obtained which is complementary to the vermilion red; that is, at the other end of the diameter drawn from this red; from equal parts of this red and blue crimson will be obtained that lies midway between them.

The next point to consider is how the colours are to be split up by photography. Every colour has to be divided into three colours—the artist's primaries—by suitable plates of filters. On each plate must, speaking generally, two of these colours be reproduced bright, like white, whilst the third must be inactive like black. This is obviously only possible when each two colours have a range of spectrum colours in common, which are wanting in the third. In the spectrum there are, however, present almost only red, green and blue rays, and by these the colours of the substances are actually produced, whilst the intermediate colours, yellow, blue-green and violet, scarcely play any part. An object, for instance, appears yellow or blue-green, because it principally reflects green and red, or green and blue rays. In the photographic splitting up of the colours these rays need alone be considered.

If we imagine a colour circle composed of pigmentary colours, and determine those zones which reflect the above-mentioned spectrum rays, we obtain a diagram as in Fig. 4. It must be remembered that violet and purplish red pigments are produced by the red and violet rays, and that every pigmentary colour which has the same hue from the spectrum red to a vermilion of  $\lambda\ 600$ , and every colour from the spectrum violet to ultramarine at  $\lambda\ 460$  are indebted for their colour to the mixture of spectrum red and blue.

The three colours which are symmetrical, and which in photography answer to the above requirements, can only lie in the points,  $a$ ,  $b$

\* E. Hering, "Die Lehre vom Lichtsinn." Wien, 1878.



and c, and correspondent therefore to the fundamental colour system, crimson yellow and blue green.

Many experiments have completely confirmed this view, for it is quite impossible to photograph any other three or only half symmetrical colours, so that two are dense in the negative, whilst the third appears like black. These experiments also prove that in the interest of a perfect colour disassociation one is compelled to keep pretty accurately to the three colours; the point *b* can be shifted to *b*<sup>1</sup>, thus instead of a neutral yellow choose a greenish yellow in conjunction with a blue of a less greenish hue, and a crimson of a redder shade.

For this reason, in all methods of three-colour photography we are limited to one fundamental system. In all three-colour printing methods the negative must be printed in the mentioned colours, and in three-colour projection the colours of the constituent images are formed by the admixture of the two projection filters. Because of the symmetry of the colour triangle, the projection filters must be complementary to the fundamental colours, and therefore ultramarine blue, vermilion red, and yellowish green. These colours correspond to the spectrum colours at wave-lengths 600, 530 and 460.

In all methods which are based on the combination of material images another fundamental system cannot be used, as yellow can-

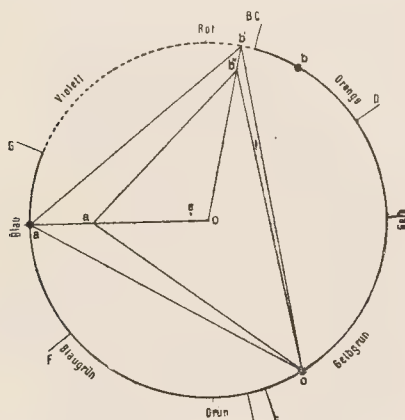


Fig. 3.

Rot = Red. Gelbgrün = Yellowish-Green. Blau = Blue.  
Orange = Orange. Grün = Green. Violett = Violet.  
Gelb = Yellow. Blaugrün = Blue Green.

not be produced by the admixture of pigments. As, however, we have not sufficiently pure blue-green and purple-red printing inks which are stable to light, it is necessary for photomechanical printing to choose other colours. Instead of *c* we use *c*<sup>1</sup>, and instead of *a*, *a*<sup>1</sup>, whence the photographic splitting up of the colours is rendered much more difficult and is less complete. As to other disadvantages caused by the non-symmetry of these practical methods we cannot here enter upon.

It is interesting to compare the above described symmetrical colour system with that of the physiological fundamental colours.

Dr. Donath assumes, for instance, that the fundamental colours of the Young-Helmholtz theory correspond to the extreme limit of the visible red, in the green to  $\lambda$  507 and in the blue to  $\lambda$  475.

If these colours are plotted out in the colour circle we obtain the triangle *a, b, c*, for the spectrum red is yellower than Hering's red; the green may be considered as a pure green, and the blue is somewhat greener than the pure blue. That the position of the colours must be correct is seen from the fact that the complementary colour to the extreme end is about  $\lambda$  494, and does not thus therefore differ much from the chosen green.

If the colours are equally saturated they give, when mixed, a whitish blue, for the centre of the triangle, *a, b, c*, lies at *s*. If these three colours are to be used as chromoscope filter colours, the saturation of the blue must be so lowered that the shade corresponds to the point *a*<sup>1</sup>, then white will be obtained from *a, b*<sup>1</sup>, *c*, for the centre lies at *O*. The colour of the constituent images will then be the result of the mixture of two filter colours, and will correspond to

the point *m, n, p*, or *M, N*, pure red (carmine), *N*, greenish yellow, *P*, blueish green.

Independent of the very unhappy form of the mixture triangle, splitting up of the colours of the original into such components is quite impossible, for one cannot photograph carmine red and green like white, and at the same time greenish yellow like black.

As a matter of fact in practice, the physiological fundamental colours are never chosen for the reproduction filters, but colours

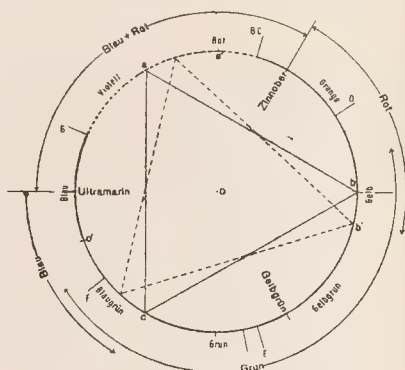


Fig. 4.

used which experience proves correct, and which approximately correspond to the above-mentioned system. This is at least the case in a Miethe chromoscope which the author possesses.

Finally, it may be remarked that it is quite impossible to split the colours of an original into four fundamental colours. If, for instance, Hering's four fundamentals are chosen, blue, yellow, green, and carmine red, a glance at Fig. 4 will at once show that it is not possible to obtain a negative in which three colours will act like white and the fourth like black, for it is, for instance, quite impossible to obtain green brighter than yellow.

#### Additive and Subtractive Filters.

From the above considerations it ought to be clear that with processes of colour photography, that because it is essential to

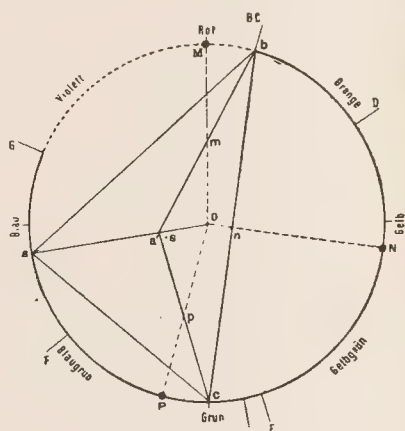


Fig. 5.

the same fundamental colours, the same filters must be used for the negatives, and thus a difference between the additive and subtractive filters is not correct.

If we had suitable dyes the material images—as shown above—would combine according to the same laws as the optical images, at it is not apparent why the constituent images of the same colour should be of different quality. This, however, does not exclude the fact that in practice the intensity of filters must be altered, in order

influence the colour gradation of the negatives, exactly as in black and white photography the character of the negative is altered to suit the printing process.

If, however, the fundamental colours are altered, then the content pictures must be altered and the filters modified.

This is the reason why in three-colour printing—for which the symmetrical colour system cannot be used—other filters than those used for three-colour projection. The expressions, "additive" and "subtractive" filters are not happy, for this leads one to conclude at the necessity of having two different kinds of filters is due to the essential difference between additive and subtractive colour mixtures. Perhaps the terms, "three-colour print" and "three-colour photograph" filters would be better.

As regards the colour of the taking filter it should be first noted that this may differ considerably, and yet equal results be obtained, in the spectroscopic behaviour of the filters must be adjusted to the plates. A yellow filter, as is well known, may give the same results with an erythrosine plate, as a green filter with a pinachrome plate.

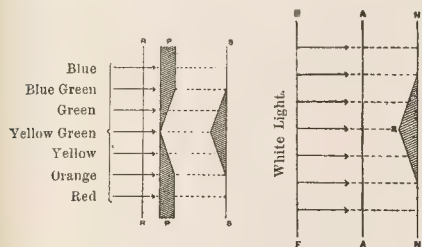


Fig. 6.

With panchromatic plates, on the other hand, the colour of the filter must be very closely allied to the fundamental colours. Let us take a white surface, F. Fig. 6, on which are painted a series of colours of equal saturation and purity, and so that the succession of colours falls as in the colour circle, and let A be the yellow-green filter interposed during exposure; if the latter is correctly made the negative N will be shaded off on each side of the yellow-green. The taking filter must be so made that the yellow-green colour, *a*, acts like white; red, orange-red, blue-green and blue pigments must act like black, and the pure green and yellow be reproduced with half the intensity of the yellow-green. According to the law the colour mixtures, the filter will have a yellow-green colour as at *a*, and the negative will correspond at that place to the proportion of yellow-green in the pigment.

The taking filter A is thus complementary to the fundamental colour.

If from this negative a transparency P is made and projected through a green screen R, there will be formed on the screen S an

image corresponding in gradation to the negative in the colour of the filter R.

If this image is to represent the proportion of green in the pigment colour, and thus serve as one of the constituent images in the reproduction, it must correspond in colour to the green photographically isolated from the pigment colour—that is to say, the projection filter R and the taking filter A must be of the same colour.

It does not follow from this that the two filters can be changed one with the other. For independent of the different saturation the taking filter must have certain definite spectroscopic qualities, whilst in the projection filter the hue alone has to be considered.

Many have tried to derive the colour of the taking filters from the Young-Helmholtz colour theory, and enunciated the law that "each of the three taking plates excites one group of nerve fibrils, the filters must therefore be so chosen that they transmit the rays of the spectrum in the intensity ratios of König's primary sensation curves." These curves are shown in Fig. 7. They express the intensities in which the very saturated fundamental colours, red, green and violet

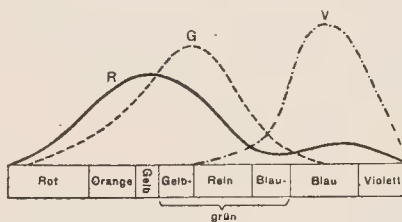


Fig. 7.

must be mixed so that the sensation of the spectrum colours must be produced. The curve R corresponds to the intensity ratios of the red; the curves, G and V, the intensities of the green and violet fundamental colours.

If the above views are followed it is determined that the ordinates corresponding to each spectrum colour is the measure of the transparency of the filter. If the transmitted spectrum rays are mixed, the colours obtained will be the colours of the filters. The red curve R corresponds thus to a filter, which principally transmits yellow, orange and yellowish-green light, less red and green, but some blue-violet. The colour of this filter will therefore be a brownish yellow, for pigments only appear pure yellow when they reflect or transmit the whole of the spectral green and red.

Such a filter may be easily obtained by mixing a solution of acridine yellow and naphthol green. It is obviously absurd to use this filter for trichromatic work, for even with a perfect panchromatic plate it would give perfectly useless results. This observation again shows that the Young-Helmholtz theory cannot be satisfactorily employed in three-colour work.

## SPECTRO AND COLOUR SENSITOMETRY.

### A SUGGESTED METHOD OF COLOUR SENSITOMETRY.

SEDDIG, in the "Zeitschrift für Wissenschaftliche Photographie," writes:—

Newton's colour triangle is usually projected by means of three triangles in the fundamental colours red, green, and indigo blue, and superimposed on the screen so that each triangle shades off from the apex to the base, and so that the maxima of brightness for each colour lies in a different corner of the triangle.

Experiments to obtain a perfectly continuous and, for each triangle, equal gradation of brightness, present considerable difficulties, for either shaded transparencies nor wedge-shaped troughs filled with dye solutions and placed in front of each triangle, gave satisfactory results. Rotating sectors were not used because it was found that the same effect could be obtained in the simplest and most perfect way by suitable diaphragms.

The method of diaphragming is schematically shown in Fig. 1. In the diagram *ac* is a section of a triangular diaphragm in which

the apex is at *c* and the base at *a*. In the middle between *ac* and the projections lens *O* is placed a diaphragm *B* which reaches only to the axis *m m'*. The effect of this stop is that the apex of the

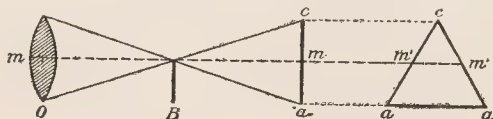


Fig. 1.

triangle *c* is illuminated by the whole of the objective, and therefore with maximum brilliancy, whilst for the other parts of the triangle part of the objective is stopped out; for the centre part *m m'* of the triangle, for instance, half the lens is used, so that these parts will



only be projected on the screen with half the luminosity, till finally for *a* the whole lens is stopped out, so that there is actually no light from the base.

Fig. 2 shows an apparatus constructed on these lines. On the

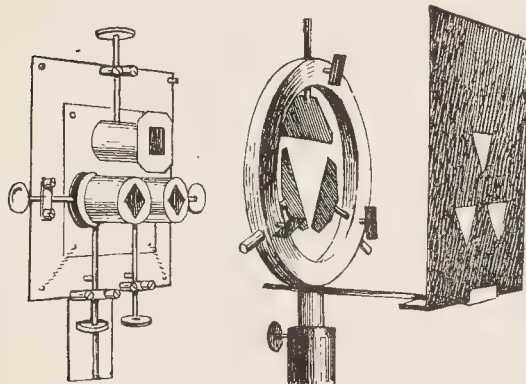


Fig. 2.

### A METHOD OF SPECTRO-SENSITOMETRY.

A paper by Ed. Belin, communicated to the French Photographic Society.

ONE of the most essential of all the indispensable tests in photography and one of the most important is undoubtedly that of the sensitiveness of preparations to light, not only from the quantitative, but also from the qualitative, point of view—that is to say, their sensitiveness to spectrum lights.

The measurement of this sensitiveness has been the subject of considerable study and work, notable amongst which are the researches of the International Congress of 1889 and 1900, of Hurter and Driffeld, of Dr. Eder, and, more recently, that of MM. Monpillard and Callier.

right are the three triangular diaphragms, which are illuminated means of an arc lamp, the light of which is diffused with a gro glass screen, and each of which corresponds to *a c* in Fig. 1. To left are the three projection lenses which are adjustable towards the optical axis by micrometer screws, so that the three triangles may be conveniently superimposed. In the middle of the apparatus are the half-shadow diaphragms which correspond to *B* in Fig. 1. colour filters, which require very careful adjustment, are placed in front of the lenses.

By superposition of the shaded triangles there is formed on screen one single triangle, which shows in the three corners the fundamental colours, and includes in between the other colours of Newton-Helmholtz colour triangle. The white of the centre is very difficult to obtain, because of its small extent and the distracting colour action of the other colours.

This principle of half-shadow diaphragms ought to be applicable to other purposes, as, for instance, in the construction of a densitometer for photographic plates, the density giving powers of which to different intensities of light have to be measured. For such instrument only the part *a c* in Fig. 1 would need to be constructed with a rectangular aperture which could be perfectly illuminated with diffused light. In the position *O* in Fig. 1 would be placed the plate to be tested. With this arrangement could, for instance, be obtained in the simplest manner the decrease of density of the emulsions for different coloured lights of equally decreasing intensity.

known and always the same whatever may be the photometer standard or the ordinate under consideration.

The apparatus which we then suggested was a spectrograph fitted with a diffraction grating, in front of the collimator slit being a shutter with a sinusoidal movement.

After an exposure of 30 seconds to an incandescent lamp of 10 c.p. and 110 volts, the plate (when developed) bore one pair of reduced, the outline of which corresponded to a curve generally traced by points.

Good as this method was, and although simple and giving in

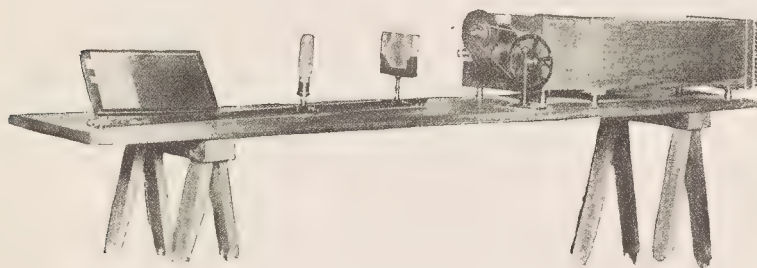


FIG. 1.—The Complete Apparatus.

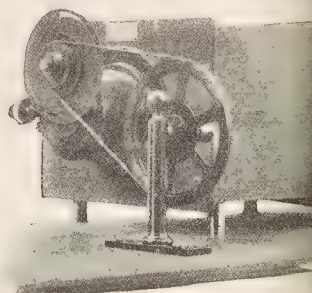


FIG. 2.—Exposure Disc—Front of Collimator.

Since the congress of 1900, M. Lieut.-Colonel Houdaille has presented to the permanent commission some results of great importance, not only on the sensitiveness of emulsions, but also on developers; also a rational method of measurement and a densitometer, experience of which has proved its value.

Considering, then, as exact both this and Scheiner's method, the author does not propose to treat here of the measurement of the sensitiveness of photographic preparations to white light, nor of the standard light, which has been so well studied by MM. Féry, Fouché, and Monpillard, but simply of the measurement of the sensitiveness of orthochromatic plates by a spectro-sensitometer.

In March, 1902, we presented to the permanent committee of the International Congress a method called sinusoidal spectro-sensitometry, based on the following principle: the measurement of the sensitiveness of an orthochromatic plate, by photographing a normal spectrum unequally illuminated as to its height, the ratio of the quantity of light by two points on the same ordinate being exactly

comparable, it was objected that, without diagram the readings were difficult, for the ordinates of two points were not proportional to the corresponding times of exposure. Dr. Bin proposed to substitute for the sinusoidal shutter one pierced with an aperture in the form of a right-angled isosceles triangle, in such a way that one side of the angle was parallel to the slit.

If this shutter was set in motion, the result would be a curve somewhat similar to the last, but such that the ordinates were proportional to the times of exposure, and so that the sensitiveness could be measured, without a diagram, simply by means of a pair of compasses.

Another objection, however, now cropped up, and that was the mechanical difficulty of making an apparatus, which should have a uniform rectilinear alternating movement. It is true it could be effected with a cam, but this wears out very rapidly, and the correctness of its movement has been contested.

At the International Congress at Liège a form of shutter was

proposed, formed of a disc pierced with apertures of triangular form, and calculated in such a manner as to maintain the ratio of the ordinates to the times of exposure. A new modification has since been made.

Before the presentation of the apparatus to the congress of Liège, at the same sitting the meeting, on the proposition of M. Houdaille, repealed the rule formulated by Colonel Goulier and M. de la Baume-Pluvinel, according to which the quantity of silver reduced

Seven gradations with the base of 2 were chosen—that is to say, 2, 4, 8, 16, 32, 64, and 128. These numbers corresponding, then, to the quantities of light received by the sensitometer degrees, 7, 6, 5, 4, 3, 2, and 1 gives the sensitometer degrees in inverse ratio to the density.

The spectro-sensitometer is composed of three essential parts: (1) a standard light, (2) spectrographic apparatus, and (3) a shutter mounted in front of the slit.

*Sensito-metric figures.*

*Light ratios.*

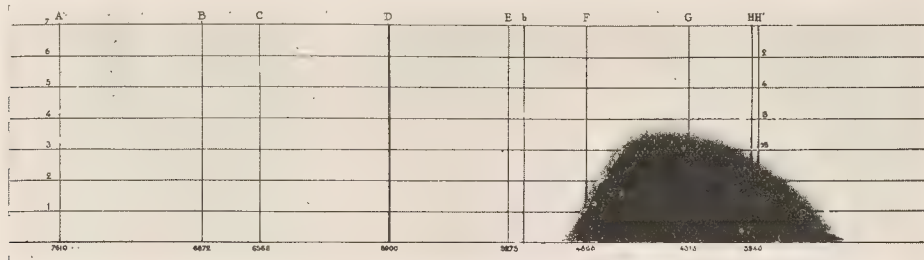
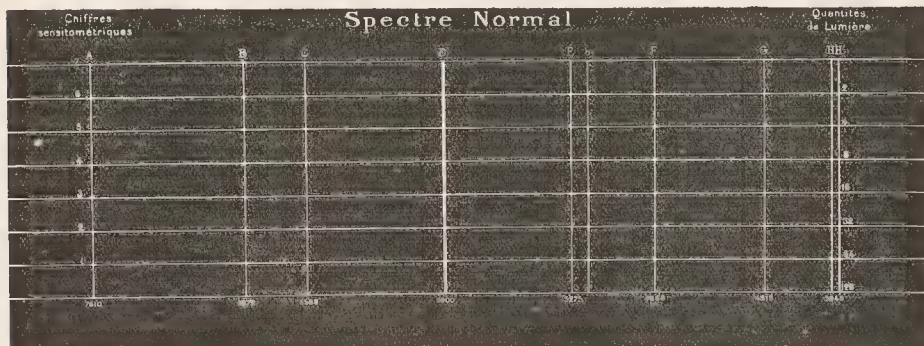


FIG. 4.—Ordinary Gelatino-bromide Plate.

*Sensito-metric figures*

*Light ratios.*



Negative from which the diagram is printed.

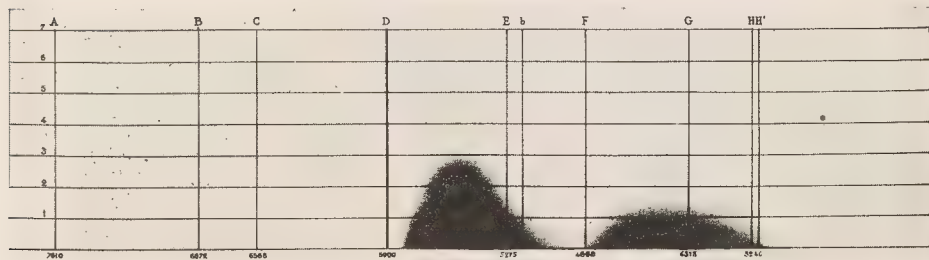


FIG. 5.—Ortho Plate of greater sensitiveness to yellow than to blue, and capable of being used without a screen.

on a plate is proportional, not to the absolute value of the ratio of the light received to the light transmitted, but to the logarithm of this ratio. This measure, generally called "blackness" or "opacity," received then the name of "density."

As then the sensitiveness may be accurately valued by this density, it was only logical that the divisions of our ordinates should not be proportional to the light received, but to the logarithms of the same. The sensitiveness and the density should thus to some extent be a common measure.

The source of light first adopted was the secondary standard adopted by the permanent committee, but since then an electric incandescent lamp actuated by accumulators has been adopted, as it has been found sufficiently constant. This lamp is mounted on a one-mètre slide, graduated in half centimetres.

Between this lamp and the spectrograph is placed a 10mm. cell, with parallel sides, to receive solutions for selective screens.

After some hesitation a transmission diffraction grating was chosen, the replica being mounted on a quartz plate. The two



lenses were also of quartz, the focus of the collimator 10cm., and that of the objective 30cm. In front is a parallel-jawed slit, which can be opened or closed by a micrometer screw and a graduated head.

The shutter is a disc of very thin metal pierced by two apertures cut according to the curve described above. This disc is mounted in front of the slit in such a manner that when the disc revolves the slit is completely uncovered for an instant, and then gradually closed by the rotation of the disc. The latter is actuated by a pulley or wheel of 15cm. diameter.

When the slit is completely uncovered, the spectrum is 35mm. high and 112mm. long, from A to H, and is received on a 13cm. by 18cm. plate, placed in a slide, so that the photographic image can pass the limits of the visible spectrum and the sensitiveness be studied in the infra red and ultra violet.

The method of using the apparatus is very simple. After it has been seen on the ground glass of the camera that the lamp is burning properly, and the whole apparatus is in correct adjustment, a plate is placed in the slide and the shutter set going.

As regards the time of exposure, this varies, of course, according to the light and the distance of the same; but under normal conditions and with a 10-c.p. lamp at 53cm. from the slit, the mean exposure is thirty minutes.

If the plate is then developed, the negative will give a curve, but without any indication which will enable one to read it. It is necessary, then, to impress on the plate after exposure and before development a very exact diagram exactly reproduced, indicating the principal divisions of the spectrum according to the Fraunhofer lines, and dividing its height into seven equal parts corresponding to one degree of the sensitometer. The illumination of each degree is half of the preceding and double that of the following one.

It is hardly necessary to insist on the necessary precautions of drawing this diagram very exactly, but it is reproduced by collodion. The negative thus obtained is intensified, blackened with sulphhydrate and cut to 13cm. by 18cm. so as to exactly coincide with the image of the spectrum.

To impress this scale on the plate, it is only necessary to press into contact with the plate and expose for a second to the dark room lamp. On development, the characteristic curve of sensitiveness will be obtained on the diagram.

It will be found that for the majority of orthochromatic plates there are two maxima, separated by a very distinct minimum; the action extends beyond H<sup>1</sup> with chlorides of silver, and it is very easy to determine the absorptions of selective screens. The instrument can also be used to compare different sources of light.

With regard to reading the curves thus obtained, there is one very important point to determine, and that is the tint that is to be adopted as the limit.

Dr. Eder assumes that the sensitometer degree of a plate is the last degree visible by reflection from a white surface. This was accepted, but the permanent committee of the congress has rejected it and adopted a normal grey. The new measures have made the measurement of the opacity indispensable, and this Eder refines as the ratio of the incident to the transmitted light.

Several instruments have been proposed for this purpose, such as the micro-photometer of Hartmann, Marten's photometer, and Monpillard's opacity comparator. All these instruments are based on visual examination, which gives results varying with each individual observer.

M.M. Bouasse, Féry, Precht, and Stenger use a thermopile, based on the galvanometric deviations when the opacity of the film varies between the source and the couple. This method was tried, and whilst the results were very uncertain, the author recommends this method.

Two other methods have been tried, an ingenious one suggested by M. Braun, which requires further trial, and a new one devised by the author, of which full details will be given later.

Generally, if the plates examined are to be subsequently used for practical negative work, the opacities ought always to be measured by a light analogous to that which will be used for printing. Between this light source and the plate examined, one ought always to insert a screen, only passing those rays corresponding to the maximum of sensitiveness. Moreover, the sen-

sitiveness of a plate should be indicated on the box by the manufacturer by numbers corresponding to the maximum and the wavelength of the corresponding light. Finally, manufacturers should paste on the bottom of the box a few lines in explanation of the numbers.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been applied for from July 23-28:—

FILM-DEVELOPING APPARATUS.—No. 16,706. Improved apparatus for use in developing, fixing, rinsing, and drying of photographic films. Anthony Fodor and Arthur Kitson, 11, Southampton Buildings, London.

CINEMATOGRAPHS.—No. 16,771. Improvements in cinematograph apparatus. Henry William Joy, 3, Brown Street, Market Street, Manchester.

KITE OR BALLOON PHOTOGRAPHY.—No. 16,812. Improved method of producing correct contour maps, plans, and military positions and the like on the basis of kite or balloon photography applicable also to the production of photographic coast surveys from on board a ship. Theodore Scheimpflug, 46, Lincoln's Inn Fields, London.

DARK SLIDES.—No. 76,892. Improvements in and relating to photographic dark slides and plate-holders. Alfred Edwards Briggs, 27, Chancery Lane, London.

CAMERA ATTACHMENTS.—No. 16,923. Improvements in camera attachments. Willis Eugene Phillips, Norfolk House, Norfolk Street, Strand, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

SELF-DEVELOPING PLATES.—No. 8,911, 1905. The invention consists of an application to the back of a plate or roll-film of a developer which may be prepared in two parts, kept separate on the plate or film, and which contains borax or boric acid as a constituent. The patentees refer to Backelandt's patent No. 1,201, 1888) and to that of Thornton (No. 17,292, 1899), but their invention is put forward as essentially different from either of these. They prepare a concentrated developing mixture in a thick or semi-fluid condition, and containing, as a preservative and alkaline constituent, borax, boric acid, or a soluble borate, and this mixture we spread on the back of the plate, film, or the like. They allow the developing composition to dry, and if, after such a plate or film has been exposed in the camera, it is immersed in water, the water will dissolve the backing and so become itself a developing fluid. The following mixture for backing is convenient in use:

Metal .....	2 grains.
Hydroquinone .....	5 grains.
Metabisulphite of potassium.....	½-1 grain.
Bromide of potassium .....	½ grain.
Borax .....	10-20 grains.
Gum or other suitable colloid .....	¼ grain.

Water, sufficient to make a thin paste.

These materials are ground together, applied to the back of the plate, and allowed to dry. The quantity stated above is sufficient for a "quarter-plate." When the composition is to be applied to the back of a "roll film," it is necessary to so adjust the constituents as to secure flexibility. The inventors quadruple the above quantities (except the gum) and mix the ingredients with fifty drops of gum arabic mucilage, four drops of glycerine or syrupy glucose, and sufficient water. This quantity of mixture will serve for coating the back of an ordinary "six-exposure" quarter-plate roll film. Instead of

incorporating all the constituents of the mixture, sometimes keep separate the reducing and alkaline constituents, and spread these on adjacent areas on the back of the plate, film, or the like. Composition as given above may be divided into two or more constituents as follows: The two grains metol and the five grains hydroquinone and the metabisulphite of potassium may be mixed with a little gum, and spread on a portion of the plate. The borax, or accelerator, similarly treated at another, and the bromide, naturally occupying less space, may be placed apart, from whence it can be removed by scraping or sponging before development, should this course be deemed desirable. Similarly, the other constituents may be adjusted or proportioned by the operator. A thin coating or wash of gum arabic or sugar in solution, or a mixture of both, is a protection which is applied over the developing composition when exposure to trying atmospheric conditions is anticipated. In order to avoid excessive reflection of light from the back through the plate in the case of the single composition, and an unequal reflection in the case of the developer in separate constituents, a "light absorptive" layer is placed between the support and the developing materials; but in certain cases the "light absorption" layer may be between the sensitive film and the support, but the inventors make no claim to the combination of sensitive film, absorptive layer, and support, as same forms the subject of Oakley's patent, No. 2,986, of 1895. In the former case the "light-absorptive" material may be either a transparent colour, a sheet of opaque substance or a pigment, in the second case a dye or stain that will wash out during development and fixation. As an example of the light-absorptive medium which is interposed between the sensitive stratum and the support, the following is given:—

Gelatine, 1oz.

Water, 16oz.

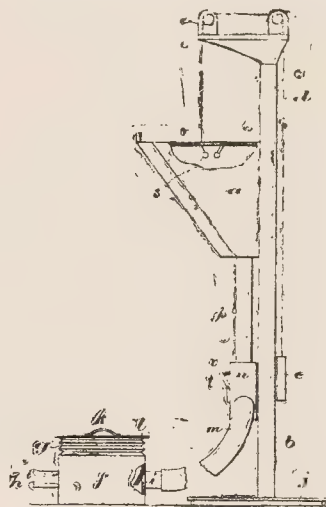
Dissolve by heat and add:—

Crocein scarlet, 3.B. 5 grains.

The solution is applied to the support and dried before coating with sensitive emulsion. Sometimes collodion or the like is used as a vehicle for the colour. For coating the back of the plate a similar composition is used, or, in place of the crocein scarlet or other dye, lampblack or other suitable pigment. When our developing composition forms one unbroken covering over the back of the plate or film, it is convenient to incorporate the "light-absorptive" material with the developing constituents; in this case 1-10 grain crocein or lampblack or other suitable dye or pigment is added to the developing mixture described above. In order to carry out the invention as applied to "roll film" with certainty of success under all climatic conditions, it is necessary to interpose an impervious medium between the convolutions of the film, otherwise the developing composition might act on the sensitive stratum. The black "needle paper" ordinarily used to protect "roll film" from light is seldom or never sufficiently impervious to chemical action, but is rendered sufficiently impervious by drawing it through a celluloid varnish or the like. William Fraser Cloughton Kelly, 22, Winchendon Road, Fulham, London, S.W., and John Arthur Bentham, 51, Claverton Street, London.

**FLASHLIGHT.**—No. 22,294, 1905. The invention is a box for the combustion of magnesium powder, provided with valves for the escape of the fumes to the outer air. Letter *a* indicates the box in which the combustion takes place, such box being closed in front, and capable of being raised or lowered as usual in slides in the upright, *b*, such movement being facilitated by the employment of a counterweight, *c*, connected to the box, *a*, by the cord, *d*, passing over pulleys, *e*. In the box, *a*, and preferably at the top thereof, may be a slot or slots provided with flaps or valves, *r*, normally closed by counterweights, *s*, or other suitable means, and capable of opening inwardly under atmospheric pressure upon the production of a partial vacuum within the box. The pump for producing such vacuum may be of any suitable construction, and may consist, for example, of a box, *f*, having a portion of its sides collapsible, as shown at *g*, the said box, *f*, being provided with

a suitable outlet valve at *h* and inlet valve at *i*, the outlet being connected by flexible or other pipes or tubes to a ventilating shaft or chimney. This box, *f*, may be either attached to the stand, *j*, of the instrument, or may be placed in any other convenient position, and may be operated by the hand or foot of the attendant; in the drawing a handle, *k*, is shown for raising and lowering the lid, *l*, so as to expand or contract the collapsible sides, *g*. If not secured to the stand, *j*, the box or pump, *f*, may be connected to the box, *a*, by means of a flexible pipe or tube, *m*. The said pipe, *m*, is preferably capable of being readily connected to and disconnected from an expansion box, *n*, which may be placed at the lower end of a pipe, *p*, depending from the bottom of the box, *a*, and which expansion box may be provided with an outlet valve, *t*, controlled by a light spring, *v*, permitting a slight escape of



air from the said box into the room when the pressure within the apparatus is momentarily increased by the combustion. The action of the apparatus is as follows: After the fumes have been produced in the box, *a*, the operator lifts the handle, *k*, thus closing the valve at *h*, opening the valve at *i*, and drawing the fumes into the box, *f*, through the pipe, *p*, expansion box, *n*, and flexible pipe, *m*; atmospheric air then flows into the box, *a*, through the aforesaid valves, *r*, in the roof, or other part of the said box, *a*, replacing the gases withdrawn by the pump. On the lowering of the handle, *k*, the valve at *i* closes and the gases drawn into the box, *f*, are expelled through the valve at *h*. The number of strokes of the pump necessary depends upon its size and the volume of gases produced. If the pipe, *m*, be disconnected, the box, *a*, can still be used in the manner usual in flashlight photography without conveying away the fumes. Harry Kirby, 21, John William Street, Huddersfield.

**FOLDING CAMERAS.**—No. 14,954, 1905. The invention which requires the figures for its detailed explanation, comprises: (1) a holder or "adapter" at the rear of the camera of any suitable type or character—for example, after the manner of the "adapters" at present in use for containing a film pack or flat package consisting of a series of separate flat films provided with film operating tabs, which latter extend to the exterior of the holder or adapter so as to enable same to be moved by the operator; (2) a bellows, one end of which is attached permanently to the front—i.e., the side towards the lens—of holder or adapter, and the other end of the bellows attached to a lens-carrying front; (3) a lens-carrying front attached to the bellows, provided with a detachable lens and shutter, the lens and shutter being readily detachable or otherwise as desired, and also this lens-carrying front may also be provided with a special revolving carrier or turn-table arrangement for the lens

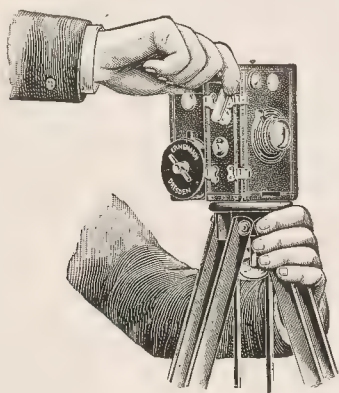


so as to enable the lens to be de-centred; (4) means (adapted to be extended or collapsed, connecting the holder or adapter to the lens-carrying front of such a character as will limit the distance which the lens-carrying front can move from the holder or adapter, and will hold these parts rigidly in position with respect to one another when the camera or apparatus is extended ready for use, and which, on the other hand, will enable the lens-carrying front and the holder or adapter to be laid flat together close to one another in a very compact form, and which means will themselves occupy a very small space when folded or collapsed. James Alfred Sinclair, 54, Haymarket, London.

## New Apparatus, &c.

"The Kino." Sold by Chas. Zimmermann and Co., 9, St. Mary-at-Hill, London, E.C.

This is a very ingeniously constructed cinematograph of such a size that it can be conveniently carried in a case measuring only 3in. by 6in. by 6in., yet its clear, sharp pictures—1cm. by 2cm. in size—proclaim it as far from a toy apparatus. The whole of the mechanism is enclosed in the camera, which is fitted with a lens working at  $f/2$ , though for taking the negatives it is, of course, advisable to use  $f/4$  as the largest aperture. The film, which can be obtained in various lengths up to 15m., is filled in the dark slide on a reel, thence brought into the camera, passed down the focal plane, and clamped on to a lower reel which is fitted with a clockwork arrangement, which automatically reels up the exposed film as it is passed through the camera by the action of turning a handle. This handle actuates the shutter, which consists of two fans, adjustable to any width so that it acts in the same way as a focal-plane shutter.



For development the film is wound on to a flat frame, which will lie in any 12in. by 10in. dish, so that there is no difficulty in developing, fixing, etc. To make the positive, the negative and a positive film are passed together through the camera, the lens being directed to any source of light.

The camera itself is used as the projecting instrument, the full aperture of the lens now being used. Any ordinary lantern can be used, or a special lantern is supplied if desired. The size of the disc obtained varies naturally with the illuminant: with the limelight it can be 6ft. by 4ft., with acetylene 5ft. by 3ft., or with an ordinary incandescent gas burner 3ft. by 2ft. The results are excellent, and there is no flicker practically.

The whole outfit is well made, neat, and places within the reach of everyone, at an extremely moderate price, an efficient cinematograph which may be a source of endless amusement at winter parties.

A Combined Measure, Bottle, and Funnel. Sold by W. Butcher and Sons, Farringdon Avenue, London, E.C.

An addition to the many useful dark-room accessories which have emanated from this firm has been made by Messrs. Butcher in the shape of this piece of apparatus, the purpose and advantages of which are almost sufficiently explained in the drawing. The bottle



effectually avoids the difficulty experienced by some of pouring small quantities of liquid from an ordinary bottle, and the double graduation of the bottle adds to its usefulness when compounding a developer by diluting a strong stock solution. The bottle is made in two sizes, 10 and 20 oz., at 1s. and 1s. 3d. respectively.

## New Materials.

The Defender Papers. Sold by A. E. Staley and Co., 19, Thavie Inn, E.C.

Some samples of these new papers have been proved by us the last week with good results. The first we tried—a glossy print-out paper called "Disco"—was found to print quickly with a long and somewhat soft scale of gradation. It tones readily both in the separate and combined baths to satisfactory colours.

"Argo" is the name of a developing paper for gaslight work which is issued with various surfaces, and also on tinted paper. It is made also in three different varieties of emulsion: "Carbo Argo," for contrasting effects or soft negatives, "Portrait Argo" for soft effects and contrasting negatives, and "Special Portrait Argo" for very hard negatives. This large choice between twenty different varieties of surface and three different emulsions will enable any worker to obtain any desired result from his negatives, no matter of what character they may be.

The blacks obtained on this paper are excellent in colour and rich in depth, and perfectly pure whites are obtainable. The developer we used was not that advised, but one with which we are familiar and obtained satisfactory results.

We also note that ten varieties of "Monox," a new bromide paper by the same makers, is to be issued, for although arrangements have been made for the supply of these papers to the English market we understand that they are not yet obtainable.

"PUNCH" on amateur photography:—"A Member of Parliament suggested last week that a representation should be made to the Natal military authorities in favour of substituting photography for decapitation. Those, however, who have suffered at the hands of amateur photographers oppose this idea on humanitarian grounds.

At the Liverpool Association.—To-morrow (Saturday) an exhibition of the work of four members of the L.A.P.A., opens at the association's rooms, Eperle Street, and may be visited free of charge until August 25. The four exhibitors are J. H. Canevali, Dr. John W. Ellis, J. Dudley Johnstone, and John Smith.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

August.	Name of Society.	Subject.
1.....	Hull Photographic Society .....	Outing to Lincoln.
1.....	Hackney Photographic Society .....	Outing to the Zoo.
1.....	Manchester Amat. Photo. Soc. ....	Outing to Middlewood.
1.....	Hove Camera Club .....	Outing to Washington.
3.....	Bowes Pk. and Dis. Ph. Soc. ....	“The Theory and Practice of Self-Toning Papers.” J. J. Griffin & Sons.
3.....	Bradford Photographic Soc. ....	Outing to Hurst Wood.
3.....	Southampton Camera Club .....	Print Competition.
4.....	Hackney Photographic Society .....	Question Box.
5.....	Leeds Camera Club.....	“Metric Weights and Measures.” A. H. Rutherford.
5.....	Worthing Camera Club.....	Outing to Angmering and Decoy Ponds.
5.....	North Middlesex Photo. Soc. ....	Discussion on Enlargements v. Direct Prints.

## Dews and Notes.

**A Word of Thanks.**—Mr. A. W. Brooks, advertisement manager of the *BRITISH JOURNAL OF PHOTOGRAPHY* and the *B. J. ALMANAC*, asks us to express his sincere thanks to the many members of the photographic trade who have evinced a personal interest in his unavoidable absence from business, or have congratulated him on the success of an operation which he has undergone. We are glad to think that others besides ourselves are happy to hear of Mr. Brooks's complete recovery.

**The Northern Exhibition, 1907.**—The preliminary prospectus and entry form of the Northern Photographic Exhibition has just been issued, and is obtainable from the honorary secretary, Mr. C. F. Inston, 25, South John Street, Liverpool. The Walker Art Gallery has been again placed at the disposal of the management, which will continue the exhibition from March 22 to April 13 next year. With a committee, presided over by Dr. Thurstan Holland, and served by a secretary of the vigour and experience of Mr. Inston, there ought to be no doubt of the next year's northern show accomplishing the Herculean task of outdistancing its predecessors. We wish Liverpool all success in 1907. The photographic trade should note that opportunity will be given for it to be represented.

**ECHOES of the Southampton Convention** are awakened by the current issue of our Dutch contemporary, “*Lux*,” edited by Herr J. R. A. Schouten, who contributes to this journal, “*Eenige indrukken van het 21e congres der ‘Photographic Convention of the U. K.’ gehouden te Southampton.*”

**CHANGE of Address.**—Mr. G. F. Perrins, the Hon. Secretary of the West London Photographic Society, has removed from 20, Rockley Road, W., to 2, Amhurst Avenue, Ealing, W., where all correspondence or inquiries should be addressed.

In his Presidential address to the British Association at York, Professor E. Ray Lankester stated that the invention of the dry plate, which has made it possible to apply photography freely to astronomical work, is the chief cause of the great expansion of astronomy since 1881. It was the dry plate which made long exposures possible, and thus enabled astronomers to obtain regular records of faintly luminous objects, such as nebulae and star-spectra. Roughly speaking, those visible to the naked eye may be stated as eight thousand; this is raised by the use of our best telescopes to a hundred million. But the number which can be photographed is indefinite, and depends on length of exposure: a thousand million can certainly be so recorded. By the photographic method hundreds of new variable stars and other interesting objects have been discovered. New planets have been detected by the hundred. Up to 1881 two hundred and twenty were known. In 1881 only one was found; namely, Stephania, being No. 220, discovered on May 19. Now a score at least are discovered every year. More than five hundred are now known. One of these—Eros (No. 433)—is particularly interest-

ing, since it is nearer to the sun than is Mars, and gives a splendid opportunity for fixing with increased accuracy the sun's distance from the earth. Two new satellites to Saturn and two to Jupiter have been discovered by photography (besides one to Jupiter in 1892 by the visual telescope of the Lick Observatory). One of the new satellites of Saturn go round that planet the wrong way, thus calling for a fundamental revision of our ideas of the origin of the solar system. The introduction of photography has made an immense difference in spectroscopic work. The spectra of the stars have been readily mapped out and classified, and now the motions in the line of sight of faint stars can be determined. This “motion in the line of sight,” which was discernible but scarcely measurable with accuracy before, now provides one of the most refined methods in astronomy for ascertaining the dimensions and motions of the universe. It gives us velocities in miles per second instead of in an angular unit to be interpreted by a very imperfect knowledge of the star's distance. The method was in 1881 a mere curiosity, which Huggins was almost alone in having examined, though visual measures had been begun at Greenwich in 1875, and were continued for many years, only to be ultimately found to be affected by systematic error. The photographic method started by Vogel in 1887 really has made all the difference, and this work is now a vast department of astronomical industry. Among other by-products of the method are the “spectroscopic doubles,” stars which we know to be double, and of which we can determine the period of revolution, though we cannot separate them visually by the greatest telescope. Work on the sun has been entirely revolutionised by the use of photography. The last decade has seen the invention of the spectroheliograph—which simply means that astronomers can now study in detail portions of the sun of which they could previously only get a bare indication.

“**Houghtons' Quarterly**” is the title of a new quarterly issued by Houghtons', Limited, intended for amateur photographers. Its aim will be to describe and picture the latest novelties in photographic apparatus and materials, and it will be sent free to all applicants.

## Commercial & Legal Intelligence.

**FAILURE of an Enlargement Business.**—The first meeting of the creditors interested under the failure of Alfred Margand, photographic enlarger, carrying on business at 115, Seven Sisters Road, N., took place on Tuesday, August 7, at the London Bankruptcy Court, under the presidency of Mr. G. W. Williams, assistant official receiver. The statement of affairs filed by the debtor disclosed gross liabilities amounting to £674 3s. 4d., of which £631 10s. was due to unsecured creditors; to fully secured creditors £35, the value of the securities being estimated at the same amount. The total liabilities expected to rank against the estate for dividend were returned at £637 3s. 4d., and the assets consisted of stock in trade valued at £2. The net assets, after deducting the claims of preferential creditors, were returned at nil, thus leaving a deficiency of £637 3s. 4d. It appeared that the debtor originally started in business as The Columbia Guitar and Zither Company, at New Oxford Street, W., and he also gave lessons on the zither. For some time the business was successful, but having prosecuted two of his travellers for alleged embezzlement, he abandoned the proceedings afterwards, with the result that the travellers sued him for malicious prosecution, and judgment was obtained against him for £200, and the costs of the proceedings also went against him, with the result that he now owed about £500 on that account. He tried to make an arrangement to pay the damages and costs by instalments, but his offer was refused. In consequence of these proceedings he went to Aberdeen in 1903, and started in business there as a photo enlarger, and subsequently he returned to London and carried on the same kind of business at his present address. He had no offer of composition to submit to the meeting. The chairman said that as that was the case, there being a summary order, the case would have to go into bankruptcy. Mr. Jones, who appeared for a creditor, said he understood that the debtor was now carrying on business as the Anglo-French Art Company, in Queen's Road, Bayswater. Debtor, however, stated that he did not know of any such company, and he certainly



had nothing to do with it, even if it existed. Mr. Jones said the name of the person who was supposed to be carrying on the business was a Mr. Zeiflin, whose name cropped up in connection with certain interpleader proceedings, in which debtor was interested. Debtor said he had a Mr. Zeiflin among his creditors, but he was a barrister. He did not think he carried on an art business. Mr. Jones stated that during the interpleader proceedings it came out that the sum of £200 was withdrawn from the bank as soon as the sheriff took possession of the effects at debtor's house, and the explanation then given was that the £200 had been sent to America to be held in safe custody by Mrs. Margand's brother. Debtor alleged that no such question was ever asked him, neither did he give the answer alleged. He did not know whether his wife gave those answers. At all events, she did not give them in his presence. Mr. Jones said the banking account was in the debtor's wife's name, and she drew cheques on the account. There was nothing in the bank at the present time. He suggested that this £200 ought to be traced. He knew of the existence of other assets, which, together with this £200, would be sufficient to pay the creditors 20s. in the £. Debtor said he had disclosed all his assets. Mr. Jones said the whole object of the debtor in filing his petition was to get rid of this judgment which was hanging over his head. He did not, however, file his petition until he had disposed of all his property, but as soon as he had safely disposed of it, as he thought, he seeks the protection of the Court, but he had failed to disclose all his assets. Debtor stated that he had had the bailiffs in the house on nine different occasions, and they sold up everything. They not only sold his own goods, but they also sold the negatives of his customers, which were only held in trust for him. Almost every day he had to go with a solicitor's clerk to the bailiffs, Messrs. Wright and Odell, and tell them that unless they handed over his customers' photographs he should take proceedings against them. Latterly he had had the bailiffs in the house almost every week. He suggested that his two former travellers, who only earned about £1 per week, could not afford to pay all the law costs they had incurred, and that the costs were being found by their solicitors. Mr. Jones objected to such a statement being made. He thought it was a case in which an independent trustee should be appointed, as this was a case that required a very searching investigation, in order that the assets might be traced. The chairman pointed out that a summary order for the administration of the debtor's estate had been made, therefore the creditors would require to pass a special resolution in order to get an independent trustee appointed, and after a long discussion it was decided to leave the matter in the hands of the Official Receiver for summary administration in the usual manner.

#### FORTHCOMING EXHIBITIONS.

August 6: Andover and D. H.S.—Sec., W. I. Gradidge, Jubilee House, Andover.

September 14 to October 27: The Photographic Salon.—Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.

September 20 to October 27: Royal Photographic Society.—Sec., J. McIntosh, 66, Russell Square, Bloomsbury, London, W.C.

October 6 to 13: Bristol Photographic Club.—Sec., J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.

October 17 to 20: Rotherham Photographic Society.—Sec., H. C. Hemmingway, Tooker Road, Rotherham.

Rotherham Photographic Society.—Annual exhibition. "Open." October 17 to 20. Entries close October 8; exhibits, October 13.

November 16 to 21: Southsea Amateur Photographic Society.—Hon. Sec., F. S. Hoyte, "Lismire," Stafford Road, Southsea.

November 20 to Sefton Park Photographic Society.—Sec., A. W. Parr, 34, Loudon Grove, Liverpool, S.

November 27 to 30: Hove Camera Club.—Hon. Sec., W. H. Bone, 32, Sackville Road, Hove.

December 11 to 15: Southampton Camera Club.—Hon. Sec., S. G. Kimber, "Oakdene," Highfield, Southampton.

1907.

February: Birmingham Photographic Society.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

## Correspondence.

- \**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \**We do not undertake responsibility for the opinions expressed by our correspondents.*

### A COPYRIGHT QUERY.

To the Editors.

Gentlemen,—Notwithstanding the many answers you have already given to inquiries as to the law of copyright in relation to photography, may I venture to suggest that many amateurs are still in uncertainty on a point that constantly crops up. A has his photograph taken in the ordinary way of business by the firm of B and C, pays for his prints and gives no undertaking, written or implied, that he will assign the copyright to B and C. But when he receives his prints he finds on each the word "Copyright Registered". It is safe to assume in such a case that A knows nothing of the copyrighting of his own portrait, and the question arises whether, if B and C have copyrighted A's portrait without his knowledge and consent such action is not "ultra vires," and whether it would protect, as it is doubtless intended to do, B and C from A having copies and possible enlargements made from the print with which they had supplied him.—Yours truly,

WALTER S. CORDER.

North Shields. August 6, 1906.

[The Copyright Act is quite clear on the point raised by our correspondent, in that it expressly withholds the copyright from the photographer, who receives "valuable consideration" for his work unless there be an assignment in writing to him. The marking of the prints "Copyright," when they are not the photographer's copyright, is an illegal act, but though we know of no case in which it has been visited with a penalty it certainly does not deprive the customer of his rights.—Eps. B.J.P.]

### A NOTE ON THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—It appears that Mr. Payne does not yet understand that when the values of  $K$  and  $\gamma$  are found the actual times of development may be calculated at once. At the same time I agree with Mr. Payne that it is better to give the actual times of development necessary than to expect the user to work them out; and, personally, I always follow this course. Whether  $K$  and  $\gamma$  are commonly used in actual practical plate-testing appears to depend upon how far mathematics and complicated instruments like a developing thermostat are utilised in this work. If these requisites are to hand it is quicker to find  $K$  and  $\gamma$  and from these calculate the times of development, than to work in any other manner.—Yours truly,

Croydon,

August 3, 1906.

C. E. KENNETH MEES.

To the Editors.

Gentlemen,—I am sorry I was unable to answer Mr. Payne's further letter on "Sensitometry" before, but Mr. Ferguson's exposé of the question should enable anyone to grasp the quite distinctive and particular meanings and values of the two constants,  $K$  and  $\gamma$ . Briefly,  $\gamma$  is the density or contrast giving capacity of the plate;  $K$  the rate at which that density or contrast is developed. The actual  $\gamma$  reached depends on both, but as an example of their separate nature, one may note that  $\gamma$  is independent in general of the developing temperature, etc., while  $K$  is directly influenced by these, and in manner quantitatively measurable. Mr. Payne further states that for the figures he gave in his first letter,  $K$  and hence  $\gamma$  are obviously wrong. This I fail to understand entirely, and must again point to the correspondence between calculated and graphically obtained values of  $t\gamma$  obtained from Mr. Payne's figures. Where  $K$  and  $\gamma$  are obtained from only two readings by the tabular method, the graphic method gives a useful check, but does not supply all the information possible. The correspondence for  $t\gamma$  is the method

checking, of course, as employed in my first letter. With thanks to Mr. Ferguson and Mr. Payne.—I am, yours truly, S. E. SHEPPARD.  
Aldeburgh, August 3, 1906.

### ON PACKING NEGATIVES FOR POST.

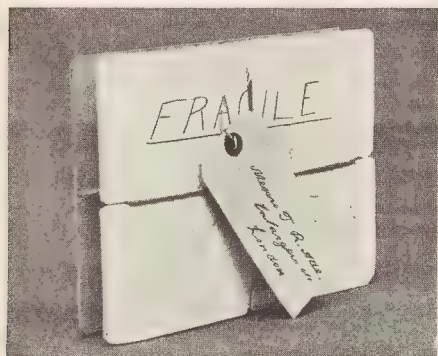
To the Editors.

Gentlemen,—To professional photographers the old-fashioned method of packing negatives for sending by post has several disadvantages. It is untidy, especially when shavings are used, and the wooden boxes and lids soon get split up after a few journeys. Sometimes the gum label will not stick to the rough wood, and a stray nail will occasionally damage the negative. Amateurs frequently



have occasion to send a negative by post, and who has not read in "Answers to Correspondents," "It is impossible to advise as your negative arrived in a thousand pieces"? The writer, who has had a great deal of experience in packing negatives, has at last hit upon the following plan, which is economical in every way, of time when packing and unpacking, and—of negatives.

Required: An empty plate box and six pieces of corrugated paper, of the same size as the negative to be packed, two pieces of stout



cardboard twice the size, string and label. The lid of the plate box is glued to the centre of one piece of cardboard and marked "Lid," the bottom being fixed to the other piece in the same manner. Four slits are now made in each piece of cardboard at the centre of each side from the edge to the box, and "V" cuts made to allow the string to slip into the slits easily. This completes the "packer," and a boy can make a lot of them in an hour. The box is used as follows: Place three pieces of corrugated paper in the bottom half, then the negative in its envelope, marked with instructions and name and address of the sender, next three more pieces of the corrugated paper, put on the lid and tie tightly with string, which should be passed through the slits. The negative is now surrounded with four cushions packed with air, and is quite safe. The package is undone by just cutting the string. It is light, and can be used over

and over again. Should it be required to send larger sizes than whole-plate or several negatives in one packet it is only necessary to increase the thickness of the cardboard, or to use thin wood, as sold for backing up picture frames. Several negatives packed tightly together with nothing but flat sheets of paper between go safer than when separated. Finally, it should be noted that stamps should be affixed to a separate "tie-on" label rather than to the box, and the address should be written on both. Also, that the post office will stick a red "Fragile" label on a parcel if requested to do so. The photographs of the arrangement in pieces and packed for postage will explain any points which the writer has not made quite clear.—Yours very truly,  
D. B.

### THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—I am very interested in this correspondence, though I am just now neither an assistant nor an employer, but am trying to work up a business for myself. A correspondent, a few weeks ago, quoted: "Out of the fulness of the heart the mouth speaketh." I am using the quotation in a rather different sense, and am writing from the very fulness of my heart, as I have had experience of employers and others, which, I believe and hope, is unique. There is often in letters on this subject something to the effect that one who gets a small salary is not worth more, but this is not always a fact. I received a training from a firm of Royal Photographers, and some time after leaving them I had to give up a place on account of bad trade. Now comes an answer to the last line in "C. H. B.'s" letter in the current issue. I had good references, and could write a good letter, and answered every possible advertisement, but was months before I obtained a situation as outdoor operator at 25s. a week. After I had travelled over 150 miles, I found my employer was a common tout, with whom I had to travel round and photograph public houses and "building groups," etc. My dark room was a cupboard where I could not stand upright. There were many more uncomfortable details, but this is only the first man I would like to write about. It was a nice time for a youth of education and brought up among refined people. After a month of this the man suddenly refused to pay my wages, and showed himself a bully. As I had a chance of a place in another town I could not stop to go to law, but found the new place scarcely better. I had a certain amount of pride, and having elected to keep myself, I did not care to write home and acknowledge myself beaten, even if I had had the railway fare. I then passed through a hard winter, and was glad to take any job to keep me alive. Those young men with plenty of money may talk about "seeking another situation," but it is very difficult when one cannot wait long. I am not ashamed to say that I worked for a "backyard" man at 18s. a week for several months to tide me over the winter. In every other respect but the wages he was a fair and considerate employer in comparison with most. The next man I would like to tell about had a nice little business, and turned out good work, but he would not pay more than 20s. a week for a printer and outdoor operator. I told him I could retouch fairly, but without seeing what I could do he laughed at the idea of a young man retoucher. Before accepting me (at £1 a week) he insisted on a reference from a member of the P.P.A., and with some difficulty I got a gentleman with whom I had only very slight business acquaintance, to give me one, and after a few questions he was kind enough to write evidence of my respectability, etc. I remember that man with feelings of gratitude, but, alas, my new employer made me develop three half-plates in a very uneven 12 x 10 dish, with not more than 30ss. of developer. I was using 60ss., and he was afraid the extravagance would ruin him. The negatives were all over-exposed, and every other head had one shoulder cut off, yet I was expected to produce as good a vignette from these as from a properly exposed and centred head. "I went away from there," as Mark Twain would say, after the first week. A few months after the proprietor sold the business, and his name was not to be found on the P.P.A. list. I have met with only one employer who really encouraged me to improve myself. He would discuss any technical point, and we would try all sorts of new ideas. I really improved while with him, but unfortunately he could not pay me as much as I thought I was worth, and I took an offer from another firm. I am giving these examples as an offset to the letter of "A Disgusted Employer," who, perhaps,



has had the same experience with assistants as I have with employers. I was once "sacked" after a fortnight for an obviously trumped-up reason, and was privately told that "the boss never kept on anyone who wouldn't carry on dirty conversation"! On one occasion, when seeking work (many assistants have to tramp in search of employment like labourers), I was told by a man whose business had been a well-known one, that he would employ me as an apprentice or improver without salary, and that he got all his work done that way. Another time I cycled 12 miles to see a man whom I had previously written making the appointment. On arrival he sent word to say he was too busy, and it was no good waiting, I must write him, which I did; and, getting back, scribbled in pen on a torn scrap of paper:—"Dear Sir,—You would not suit me." I had found out in the meantime that I should have had to work from 8 a.m. till 9 p.m. every day, and on Sundays and Bank Holidays, etc., so that the only holiday in the year would be Christmas; and all this for £1 per week, and to operate, retouch, prints, etc. This was a flourishing business. Another man engaged me, after some haggling, at 22s. 6d., to rise to 25s. after a month's trial. I was to assist in studio, outdoor, operate, retouch, work in B. and W., print in P.O.P. and bromide, enlarge, develop, etc. The work of the studio was really very nice, and it had a well-to-do clientèle. On the Saturday I was paid 22s., and on mentioning politely the extra 6d., was told that "I never split shillings." The second week I was informed that in addition to the other capabilities mentioned I ought to print in aristo, platinotype, velox, and two varieties of self-toning paper, and get the same results as the boss. Print bromides in the dark room, and pop out every few minutes to see how the frames were getting on, with half-a-dozen kinds of paper in them. I could not do that, so I preferred to go. I spent one winter in a cold district in a room with stone floor, stone walls, and a glass door that let the north wind in all round, from 8 a.m. to 7 p.m., six days a week, without any heating. As there was only about three hours work a day I had to idle the rest of the time away, and was not allowed to read. I was entrusted with the entire business, taking all money and ordering stock, etc., as the boss was ill for weeks at a stretch several times. I was thus exposed to every possible temptation to revenge myself for the privation endured on account of the long cold days and a low wage, and yet was afterwards coolly told that I had only done what I was paid to do, and no thanks were required. I am sure if employers would consider the comfort of their hands the latter would respond by trying their best for their employers, at least those with a trace of the right spirit in them. On the other hand, "A Disgusted Employer" is right in using "drastic remedies," but, at the same time, if he watches for any improvement in the way of a little act of extra care, let him encourage by words and actions the smallest signs, and I am sure he will be repaid over and over again.—For obvious reasons I sign myself

HARD DONE BY.

To the Editors.

Gentlemen,—I have been reading with great interest the last few weeks the letters from "Disgusted Assistants." Now we hear from a "Disgusted Employer," which is more interesting to me, as it gives me a new view of things. Not having changed my situations so frequently as most assistants I am not in the position to criticise employers. Now having read "Disgusted Employer's" letter, I am hardly surprised at him having trouble. I think if he paid proper assistants and not incapable females (which he undoubtedly has according to his own showing) his troubles would be considerably lessened, if not entirely ended.

Then he says the professional amateur does far better work than the assistant professional, who is a mere and most ignorant dabbler. Why, he has evidently never had a good assistant. Perhaps he is like many others who employ girls, and expect them to do men's work, rather than pay a good man a fair wage, which would be cheaper to him in the end, considering the material they waste for him. I also think that all who understand the difficulties surrounding the production of good enlargements will agree with me in saying that the man who entrusts this work to a female is certainly looking for trouble, and I can see it sticking out like the handle of a coffee pot; and I question whether such a man would know the difference between good enlargements and bad ones.

Another point which I think is the cause of a lot of trouble is what has happened in my own town, and I think must be universal. A

distinctly third-rate professional advertises for a first-class operator and retoucher. Now, what he really wants is a third-rate operator who will not object to muck around generally. The result is he gets applications from first-class assistants, and perhaps engages one. When he arrives he is naturally annoyed to find he has come perhaps on a long journey to get disappointed. Then the employer gets a bit of a name; the other assistants hear what has happened, and conclude that they have just as much right to answer a first-rate advertisement as their employer has to advertise for a first-class hand. This means that should they become engaged (perhaps on another man's speculations) they are not able to keep the new situation; hence the phrase we often see: "Duffers please not apply." In the first case, assistants become "disgusted," in the latter employers get likewise, and until we all understand what first-class really means there will always be this trouble. What one man will call high-class another will call utter rubbish.

BONA FIDE.

To the Editors.

Gentlemen,—As one of the early members of the P.P.A., I welcome the letters of "Disgusted Assistant" (whom I will call "D.A." for short), and, although his criticism is sometimes a little wide of the mark, it is a good deal better than the too prevalent apathy.

The points raised by the correspondence are:—

1. Status of Members of the P.P.A.
2. Examinations for P.P.'s
3. Competency of employers to recommend assistants for certificates.
4. Examination as a condition for granting certificates.
5. Hours and remuneration of assistants.
6. Assistants' Trade Union.

No. 1. "Othello" and "Another D.A." have pretty well disposed of this point. It is evident that, founded as the P.P.A. was as a sort of Trade Protection Association, it was bound to admit as P.P.'s who cared to join, but the men who have the welfare of the association and of photography as a calling most at heart, and who form the driving power of the movement, as far as I can judge from attending the meetings, are men who can do good work themselves and are doing their best to stimulate a high standard of efficiency on the part of assistants.

They feel that, so far as operators at any rate are concerned, the P.P.'s of the future will be drawn from the assistants of to-day, and therefore, that to grow a race of efficient assistants is the best way to raise the standard of professional photography of the future.

No. 2. Tests for employers as members of P.P.A. This is not practicable at the present time.

No. 3. The committee safeguard themselves somewhat by reserving the right to see bona fide specimens of the candidates' work, if required. This is, perhaps, not sufficiently understood, but no doubt practical examination is the best test.

No. 4. I have felt from the first that holding examinations is the only way to get assistants to take up certificates. If anyone is going to pay a fee he wants something more for his money than a testimonial, and an employer seeking help would attach more importance to a certificate awarded after impartial practical test than to a testimonial which may be given by another employer whose standard may differ from his own.

The difficulty in the way is that of expense, and it would mean having to incur the expense whether few or many candidates entered for the exam.

Nos. 5 and 6. "D.A." will be glad to know that at a meeting of the P.P.A. not long ago the question was raised as to a guarantee of efficiency on the part of an assistant carrying with it a recognition of the P.P.A. that the holder was entitled to a definite standard of remuneration—i.e., that the holder of a certificate should not be expected to take less than a certain salary.

To ensure this assistants will have to combine and form an organisation of their own, which might very well co-operate with the P.P.A., although it must not be supposed that there would never be any divergence of opinion between them—for the interests of employers and assistants can never be exactly identical.

The hours and remuneration are matters that need consideration, and an association of assistants would be the most suitable body to take account of them, the chief difficulties in the way of such an

sociation being started being the lack of opportunities for meeting together, the many grades into which employees are divided, the indifference of assistants themselves. It must be borne in mind that unskilled labour, whether on the part of an individual in business for himself, or of an employee, will command but a poor price. The public will not pay much for what it can do for itself equally well, and when every errand boy can produce a photograph of some sort without difficulty. Something of good quality will have to be turned out if a living remuneration is to be obtained.—Yours faithfully,  
A MEMBER OF THE P.P.A.

August 6, 1906.

#### To the Editors.

Gentlemen,—I have been reading the correspondence in THE BRITISH JOURNAL on the "P.P.A. Certificates to Assistants," but I like the title of "A Disgusted Assistant's" letters ought rather to be "An Unwarranted Attack on 'Professional Amateurs.'" I belong to that class, and might be allowed to say a few words on the subject. I happen to know a good few "Professional Amateurs," some of whom stand at the top of the tree in their profession. Others stand far above their "Trained Professional" brethren in their respective towns, but I don't know one who lives for the title "Backyarder," or "Stickyback" man. On the other hand, I know a good many "Trained Professionals" who do not seem to be able to rise above that cheap and nasty work on glazed P.O.P. to clubs, and who also advertise, as a specialty, I suppose, "midget photos," two positions from 2s. 6d. for photo. on postcards, 3s. 6d. per doz.; Cabinets, 3 for 2s. 6d. It happened to drop on a town with a population of 17,000 in which "Trained Professional" had succeeded in establishing a business. Though a purely working-class population, I at once set my face against cheap or nasty work, also midgets or stickybacks, and after twelve years my turnover amounts to more than double what it was three years ago. My prices are much higher than when I started, and I use for general work C.C. matt platinum and paper, also carbons, on the highest-class mounts, sometimes using stock mounts altered at an extra charge to suit my taste. There are nine "Trained Professionals" within three miles from my studio, and I would not exchange businesses with any of them except one.

Referring to "Assistants' Certificates," my opinion is that they are of value for little less than the cost of the paper on which they are written.

The British people are so fond of being gulled, and certificates in employers are generally written with something like that effect in view. Certificates by examination are frauds; generally forward and cheeky get through, where a really clever person is often through backwardness or sensitiveness. Two of my pupils who have just finished their education at the Academy have always held their own at the top of their classes, and in exams. they always come out a good way down the list. Now just one word or two on the P.P.A. I understood when it was started that it was meant for the betterment of photography in general, to put down price-cutting, photographic frauds, etc., and to gain that end all the "backyarders" and "stickyback" men, including the "three cabinets for half-a-crown" men, must be got rid of and taught to pursue a higher ideal than the degrading work they are doing.

If you debar this class of membership, then you defeat the object of the P.P.A., just like the Temperance party in this town who run Saturday evening concerts during the winter season as a winter attraction to the public houses, but at the same time advertise So and So's whisky in the most prominent part of their programmes. No, gentlemen; if the P.P.A. is to be made a select body with no other object than granting the use of the letters P.P.A. as a sort of degree to a few who are so very ambitious, then I withdraw my subscription at once.

The P.P.A. might do worse than ask all who send in pictures to their proposed exhibition to write on back of picture whether "Trained Professional" or "Professional Amateur." Apologising for trespassing so far on your valuable columns, yours, etc.,

PROFESSIONAL AMATEUR.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

- William Charles Hurdle, Prospect Cottage, High Street, Freshwater, Isle of Wight. Photograph of Mr. and Mrs. William Charles Hurdle and Child.  
Frederick Henry Robinson, 5 and 6, St. Pancras, Chichester. Photograph of Group of the Chichester Parcel Carriers.  
Matthew Kirk Dunn, 3, Dixon Terrace, Darlington, Co. Durham. Photograph of Richmond, Yorkshire, Catholic Church Interior.  
William Hampton, 195½, Argyle Street, Glasgow. Photograph (Combination) containing Four Views entitled "Memento of Mullport Dispute," showing Boats and Men.  
John Henry Smith, 1, Waller Hill, Skipton. Photograph of Group of Skipton Hospital Gala Committee, 1906.  
Cyril Leighton, 101, Humberstone Road, Leicester. Photograph of the late Mr. Joe Foreman.  
Thomas Suthers Kirkpatrick, 3, Tib Lane, Cross Street, Manchester. Photograph of Baby with Head and Hand thrust through a Newspaper.  
A. Buckel, 78, Ingham Street, Audley, Blackburn, Lancashire. Photograph of Mr. J. Livesey.  
G. L. Frustrum, York House, Port Erin, Isle-of-Man. Photograph of gulls, Port Erin.

W. C. WILLS.—You will have to prove first from your books that the parcel was sent as alleged, and secondly, that the contents were securely packed. When you have done this the Post Office, you will find, will entertain your claim.

CHARLES H. PRICE.—W. M. Still and Co., 24, Charles Street, Hatton Garden, London, E.C.

LINE DRAWINGS.—1. You gave some time back a special formula with hydroquinone for the development of negatives of line drawings. Although I made a note of it at the time I cannot find it. Will you kindly repeat? 2. Is it possible to use ordinary process or ortho process plates for line work?—LINKSMAN.

1. There are two formulæ which have always given good results in our hands, either of which may be used for all process plates:—

Hydroquinone .....	8 grains.
Sodium sulphite .....	80 grains.
Formaline .....	10 minims.
Water .....	1 ounce.

or

A. Hydroquinone .....	12 grains.
Potassium metabisulphite.....	12 grains.
Potassium bromide.....	12 grains.
Water .....	1 ounce.
B. Caustic potash.....	24 grains.
Water .....	1 ounce.

For use mix in equal parts. 2. As regards the use of ortho process plates, these have, of course, considerable advantage if there is the slightest trace of yellowness in the paper. Provided it is merely a question of black and white there is not much to choose.

COPYRIGHT.—Having obtained special permission to photograph an old fresco in a local building, can I by copyrighting it prevent others from doing the same?—G. L. M.

The query is not quite so clear as it might be. By copyrighting your picture you can prevent anyone from pirating that, but this will not prevent anyone who may also receive special permission from photographing the fresco and selling prints. The Copyright Act, which, by the bye, appears in the "Almanac" for 1906, with some very useful comments, says: "Nothing shall prejudice the right of any person . . . to represent any scene or object, notwithstanding that there may be copyright in some representation of such scene or object."

TEST FOR HYPO.—What is a simple reliable test for hypo in the wash-



ing water of prints? I want one that can be done quickly.—**PRINTER.**

When you think the prints have been sufficiently washed, let them soak for a few minutes in a perfectly clean dish. Then having procured two test tubes of exactly the same bore, place sufficient of the plain tap water in one to the depth of about an inch, and an equal quantity of the water that the prints have been soaked in in the other. To each add a few drops of 10 per cent. solution of nitrate of silver, and warm the print washing water. If there is any yellow colouration, hypo is present. This can be easiest seen by looking down or through the tubes at a sheet of white paper.

**COMBINED BATH.**—Is it possible to use a combined toning and fixing bath with any reasonable hope of permanency of the prints? If so, can you give a formula and method of working?—**AMATEUR PRINTER.**

The fault does not lie so much in the bath as in the method of using it. The following formula works well; does not reduce the prints much, provided that they are treated as described.

Hypo .....	4 ounces.
Lead acetate.....	192 grains.
Salt .....	192 grains.
Precipitated chalk.....	96 grains.
Chloride of gold.....	4 grains.
Distilled water to.....	20 ounces.

Dissolve in the above order and shake well, and allow the bath to stand in the dark till clear. Immerse the prints first in a 10 per cent. solution of salt, rendered distinctly alkaline with carbonate of soda. The above quantity is sufficient to tone about 800 square inches of prints. Use for this quantity and not again. The prints should take at least fifteen minutes to reach the desired tone; if they tone quicker dilute the bath; but use the same quantity of stock for the same area of paper.

**RETOUCHING BROMIDES.**—What are the materials used in spotting and retouching bromide enlargements, and whence can they be obtained?—**ENLARGER.**

The usual medium is conté crayon, which may be obtained in various degrees of hardness from Messrs. Reeves, of Farringdon Avenue, or from any artist's dealer as a rule. Hardmuth's also make special bromide pencils, which can be obtained from any dealer.

**G. L. T.**—We absolutely decline to be drawn into the dispute. It has nothing whatever to do with us, and you must settle between yourselves

**STAND DEVELOPMENT.**—I want to develop my holiday plates by stand development, so as to save a little trouble, if not time. Can you suggest a satisfactory formula, which will act in a reasonable time? I do not want to prolong the operation to hours?—**F. H. GRAY.**

The following has before now done us good service, and the development, except in very extreme cases, is finished in half an hour:—

Ortol .....	10 grains.
Potassium metabisulphite .....	5 grains.
Sodium sulphite .....	65 grains.
Sodium carbonate .....	65 grains.
Water, to .....	20 ounces.

As this quantity will develop a dozen or two of plates in a tank at once, it would probably suit our querist.

**M. J. F.**—As no less than five pages are devoted to the subject in the ALMANAC for 1906, and we had a series of articles on the same subject last year, we think we may justly refer you to these, particularly, as you say that you have both the ALMANAC and last year's volume.

**CAMERA.**—I am about to purchase a 12 x 10 outfit. I may state that I have a studio 22ft. x 14ft. (1) Can I get a camera for indoor and outdoor work? (2) What lenses would be most suitable for taking portraits, groups, etc.?—**FOCUS.**

A heavy pattern of field camera, such as you can obtain from any large houses, will be suitable for both studio and outdoor work. You can have it fitted with a detachable repeating back. You had better consult the advertisement pages in the ALMANAC, from which you can surely suit your requirements. (2) We should advise you to get one of the anastigmat lenses of aperture at least  $f/6$ . Consult the maker's lists.

**LENS QUERY.**—I should esteem it a favour if you would kindly answer me the following question. I am having a studio built, and

length from wall to wall is 25ft. and the width would you please inform me the best lens to take a cabinet full length, up to a 12 group and full length? Would one lens do, or I require two lenses? Any information on the above will oblige.—**STUDIO.**

There is no one lens made that will answer your requirements when used in a studio of 25ft. in length. You will require to do the work. What we would recommend is, for the sizes, a portrait lens, which works at an aperture of  $f/4$  is about eleven or twelve inch focus; and for the larger one of the group type, with an aperture of  $f/6$ , and eighteen or nineteen inches focus. With two such lenses will be able to do anything you are likely to require.

**PROFESSIONAL SINGERS' POSTCARDS.**—In next week's issue I consider it a favour if you will answer or give your opinion the following matter. A party of professional singers called had their photographs taken, for the purpose of having post made. I submitted proof and no fault was found with my but they said they would like to sit over again. This I do to, but instead of coming to me they went to another photographer, had their photographs taken, postcards produced, are now on sale. I was paid nothing for my work, and I be glad to know if it would be contrary to law were I to publish postcards from the photograph I took without their permission.—**N. B.**

If it was understood that you were to be paid nothing by parties, the copyright is yours, and you can publish the cards. But if the parties came to you expecting to pay, and received them on this understanding, all you can do is to tell them for the cost of the sitting. The copyright is theirs; you have no right to use the negative. Look up the article on "Copyright" in last year's ALMANAC.

**WOODEN DISHES.**—I wish to make two wooden dishes, with bottoms, for developing large size enlargements, but I am at a loss to know how to make them watertight. I have seen an employer of mine use a substance something like the appearance of "ark angel" tar, but I cannot say what it was. I presume it would be some sort of varnish; but, as stated, shall be pleased if you will assist me, through your paper, in letting me know how to make dishes watertight.—**STRATHAVEN.**

We cannot, of course, say what the tar-like substance but a good mixture is three parts of plaster of Paris, three of litharge, and one part of resin, made into a paste, with boiled linseed oil and some dryers. To make the wood watertight there is nothing better than: Powdered asphalt, 4 ozs.; micantha, 10 ozs.; masticated rubber, 40 grains. Apply on doors, as the vapour is inflammable; give three coats, allow to dry in between.

**PRINTS IN RELIEF.**—Can you give me any particulars of the process for producing photographs on card in relief, and kindly let me if the process is protected, and who I can apply to for permission to use it?—**G. W. SECRETAN.**

There are a number of patents for the process and other processes which are not patent. (See the ALMANAC, page 845.) In the ALMANAC also for past years you will find descriptions of the patented processes.

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## The British Journal of Photography

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## SUMMARY.

Extracts from Dr. Sedlacek's work on toning bromide prints deal with the copper process, indirect toning methods, and the use of mercury salts. (P. 645.)

The Lumières have patented a new means of filling up the interstices in their colour screens for direct colour photography. The plates, after coating with the coloured starch grains, are subjected to rolling pressure. Developing dishes, flash-lamps, and border negatives are among other patents of the week. (P. 654.)

A paper by Professor Lippmann before the French Academy of Sciences advances a method of direct colour photography which has given results in practice. (P. 644.)

A comparison of ancient and modern vignettes suggest the conclusion that the decadence of the vignette is due to the lack of taste evinced in its preparation of late years. (P. 643.)

Addition of a little chrome alum to the fixing bath in hot weather will forearm the photographer against the dangers of a soft gelatine in the plate. (P. 642.)

A plea for the plain and simple in studio furnishing and decoration is the commendable theme of an American writer. (P. 651.)

Steps are being taken in France towards the exchange of views on methods of photographic survey. (P. 642.)

The British Association at its meeting at York has also manifested an interest in photographic survey and record. (P. 652.)

The death is announced of Colonel J. Gale. (P. 658.)

The first part of a paper by A. Goderus on the principles of stereoscopic photography and vision appears on page 648.

The soundness of business policy of looking after the people who have patronised you, at any rate on one occasion, is the subject of a note on page 652.

## EX CATHEDRA.

### The Photo-graphy of Architecture.

One of our contemporaries has enlivened us during the best part of the holiday season with a discussion on the question of whether it is legitimate to produce architectural photographs that are reversed as regards right and left, and this naturally has led to suggestions (sarcastic and otherwise) with regard to the possibilities of combination printing in architectural work. If such procedure is legitimate with architectural subjects it is quite as much so with paintings, and combination prints made from paintings, showing Turner skies over Leader foregrounds, with a few McWhirter trees judiciously introduced, might be distinctly interesting and just as good advertisements of the profound artistic knowledge of the photographer. We are, however, afraid that this new idea in combination printing will not become popular as regards paintings, for we doubt if any photographer will have the face to attempt such work, however much he may be willing to insult architecture, which is justly called the Mother of all the Arts.

A lamentable feature of the discussion is the obvious fact that those holding such heretical views are interested in architectural photography, and presumably produce architectural photographs. They would probably object to reversed portraits on the ground that the buttons and button-holes appear on the wrong sides, but they are so grossly ignorant of architecture as not to realise the fact that the right and left sides of a church are far more strongly distinguished than the right and left sides of a coat. Further, they do not show the slightest respect for the artist, who probably spent a large portion of his life in designing and arranging the subject, and who gave the most careful consideration to the smallest details. Photographers who hold such ideas as those put forward in the correspondence referred to had much better leave architectural photography severely alone, for it is evident that the art of producing pictures from architectural subjects is altogether beyond their comprehension. The painter who succeeds in such work proceeds on altogether different lines. He realises, as of first importance, the fact that he is in the presence of the work of another artist, and his wish is to discover and paint the particular pictures that the other artist endeavoured to perpetuate in the lasting materials of his craft. In fact the painter if a true artist, prefers to interpret the wishes of the architect and to preserve such effects as may be due to personal influence, rather than make any effort to introduce traces of his own personality. Any attempt to alter or improve on the work of another artist is justly regarded in the art world as intolerable impudence, and the artist is content if he knows that he has honestly and fairly represented the other man's work



under the most favourable conditions. The photographer who attempts to show things as they might appear the other way round, or who grafts out the work of one man selections from that of another, may be a clever photographer, but he is not an artist, and has not the smallest conception of the principles that govern the work of artists.

\* \* \*

### A Stereoscopic Myth.

Those who have studied the subject of stereoscopic photography are familiar with the number of devices that have been proposed for the purpose of securing two negative images on one plate in the correct relative positions for printing. For a long time stereoscopic workers have wished to dispense with the operation of cutting and reversing either the negatives, or the positive prints obtained from them, but owing to the neglect of the scientific study of the true principles governing stereoscopy, few, if any, have noted the fact that if by any ingenious combinations of mirrors, etc., two negatives are secured in the proper relative positions, then those negatives are not necessarily the right distance apart to give prints with a proper separation. If this fact were more generally realised it would be readily understood that the advantages of a complex camera giving images that require no reversal, are more or less mythical. Careless workers who care nothing for truth of stereoscopic effect might welcome such cameas as great time-savers, but the net result would be the perpetuation of wrongly-separated positive images, and wrong separations is the fault to which stereoscopic workers are now most prone. The exaggerated and offensively unnatural effects of relief that are so frequently obtained are due entirely to mounting the positives too far apart, though most commonly the defect is attributed to taking the negatives with widely-separated lenses. It is true that with widely-separated lenses the correct mounting of the prints becomes very difficult, if not impossible, but whenever correct mounting is possible, and is carried out, all exaggeration or relief disappears. It may be possible to devise a camera in which the negative images require no reversal and are also the proper distance apart, but it does not appear that the matter of separation is often considered, while it is fairly certain that the usefulness of such a camera would be very limited.

\* \* \*

### A Point in Testing Orthochromatic Plates without a Screen.

We recently had submitted to us a couple of old portrait lenses of the Petzval form. They were called whole-plate lenses, and were, approximately, of the same diameter and focal length. They were apparently copies of the portrait lenses turned out by the house of Voigtlander some forty or more years ago. Both were pronounced good instruments, but one—in spite of their being as nearly as possible identical in diameter and focal length—was very much slower than the other, requiring just about double the exposure. The surfaces of the glasses of both instruments still retained a good polish, and were so far satisfactory. The lens pronounced so much the quicker of the two was examined by taking the glasses out of their cells and placing them on a sheet of white paper. With none of them was its whiteness materially degraded. In the case of the other, however, one lens of the back combination had a decided tint of yellowness that evidently it did not possess when new; but the greatest difference was in the front combination, one of the glasses of which had become yellowed to some extent, and the balsam cementing the

two glasses had acquired a very decided yellow colour. This was quite sufficient to account for the slowness of this instrument, as compared with the other. The point, however, on which we would touch is that, supposing these lenses were to be placed in the hands of two different makers, wherewith to test the orthochromatic quality of a brand of plates without a light filter, the results would doubtless be distinctly different, as the yellowed lens would act practically as a pale yellow screen. One often hears divergent opinions expressed as to the advantage or otherwise of using orthochromatic plates without a light filter, and it is remotely possible that the lens used may be a factor in the case, more particularly if it is one of early date.

\* \* \*

### Hot-Weather Precautions.

Gelatine in hot, damp weather is one of the finest breeding grounds for microbes, and is used largely by experimentalists for their "cultures" of bacilli. And the photographer finds that valuable negatives may be ruined by remaining overnight in a hot, badly-ventilated dark-room to dry. One of the commonest occurrences is to find that the surface of the negative is covered with small circular pits or holes, where the gelatine has apparently shrunk away from a central point, leaving a shallow depression, of decreased density, and has formed a circular wall or ridge of greater density round the pit. This frequently happens in the drying of a negative that has been washed for several hours. Sometimes there may be only one or two such marks, and these can be spotted out, but a negative may be so covered with them as to be useless. Thickly coated plates, more particularly when a soft gelatine is used, are most liable to this trouble. Fortunately, it can be prevented by several methods. The simplest way is to add chrome alum to the fixing bath about half an ounce or less to each pound of hypo. If the chrome alum be added to the plain hypo solution a dense yellow precipitate is thrown down, which is difficult to remove from the surface of negatives; but if an amount of sodium sulphite, equal to, or, better still, in excess of the chrome alum, is first dissolved in the fixing solution, no precipitate will be thrown down, although the solution becomes a deep green colour. If a plate has been fixed in plain hypo, and has been washed so long as to be liable to "pitting," it can be saved by drying quickly with spirit, or by placing in the current of air from an electric fan, or it may be soaked in a dilute chrome alum solution, washed again for five minutes, and dried as usual.

\* \* \*

### A Congress of Photographic Record.

We learn from the Permanent Commission of the International Congress of Photography that a conference is to be held at Marseilles in October, at which are to be discussed questions relating to any or all the applications of photography to documentary purposes. The idea of a conference appears to have emanated from the "Musée des Photographies Documentaires" in Paris, and, acting under this stimulant, the Permanent Commission now proposes to prepare a list of photographs of a "survey," or "record," description, to organise the preparation of other such photographs, and to bring together persons interested in the work. There must be many people of leisure who would be glad to take part in such a scheme as the above, which, it is to be hoped, will bring the French organisation into touch with the National Photographic Record Association, and who may desire to address the President of the Commission, General Sebret, at 51, Rue de Clichy, Paris.

**rumours of colour photography.** "So far photographers have only succeeded in producing the effect of colour in photographs by means of three negatives taken through colour screens, from which positives are produced and dyed." This sentence, in Tuesday's "Westminster Gazette," emphasises once again the extraordinary ignorance of the lay Press of colour photography, an ignorance which is all the more regrettable, since colour photography is one of those subjects which the general Press cannot leave alone. Like moths round the candle, the newspapers are continually accomplishing the destruction of their technical reputation by the eagerness with which they dogmatise on the immense possibilities—occasionally it is the impossibilities—of colour photography. This time the "Westminster" will have none of a rumour that Dr. König has completely solved the problem of colour photography, and calls in a Mr. T. H. Williams to show that everyone is on the wrong track in attempting to arrive at colour photography *via* filters and pigments. But our author can hardly expect a patient audience of photographers when he sanctions the statement at the head of our paragraph.

### A PLEA FOR THE VIGNETTE.

FASHIONS change in regard to photographs as they do in most other things. At one time full-length portraits and vignettes were about the only styles that met with general favour. The former, of late years, has been greatly superseded by three-quarter lengths and heads and busts. The vignette, it is true, is still in some demand, but its popularity is decidedly on the wane, and we learn that some of the leading houses are now seldom asked for it. One cannot help feeling some little regret at this, as a vignetted portrait is, after all, a very pretty style of picture, provided the vignetting is skilfully done and a suitable background employed. Some of our older readers will be able to recall to mind the exquisite vignetted portraits that were produced by the late Mr. T. R. Williams, of Regent Street, also by Mr. Mullins, of Jersey, and one or two others, many years ago. These were quite different from the present style of vignette. They were mostly of the whole-plate size, and were principally three-quarter lengths or more. The pictures were excellently vignetted, and were quite of a light, sketchy character, and widely different from the present pear-shaped head and bust vignette, which is often taken with a dark background.

Some wonder may be expressed at the fact of the vignette dying out for small pictures while it is still so much in favour for enlargements. One reason probably is that the former, of late years, have been so unskilfully and inartistically executed. If one takes a well-finished vignetted enlargement with some well-marked hatched cross-lines about it, and reproduces it of a small size—say, cabinet—it will be seen how much superior it is to a direct vignetted print, as so frequently seen. It will be noticed that the shading or vignetting is much better graduated than that of the everyday (so-called) vignetted print, and that the hatched lines add very materially to the effect.

Some years ago the late Mr. Napoleon Sarony introduced and patented a method of producing vignetted portraits that was very effective. Instead of the usual plain pear-shaped vignette, the picture resembled the famous Richmond heads, on a small scale, by having hatched lines introduced in the shaded-off portions, chiefly at the lower parts. This was in the *carte-de-visite* days. There were two methods of producing these results. One was by

first printing the vignette in the ordinary way and then printing in (by double-printing) the hatched sketchy lines from a second negative. This negative was copied from the sketched lines in chalk or pencil, made on a somewhat large scale. Another method was to produce the hatching and vignette on the negative itself in the camera so that the effect was obtained without the trouble of double-printing. In the camera, at a suitable distance between the lens and the plate, was placed a vignetting mask admitting only such portions of the figure as were desired to be shown in the finished picture. After the exposure for the portrait had been made, this mask was removed and another, which was the reverse of the first and contained the scroll or hatched lines, was substituted, but this mask was put quite close to the plate, so that it was fairly well within the focus of the lens, and then a second exposure was made to a sheet of white card or paper. An alternative method was to place before the first exposed part of the plate a reverse of the mask then used and make the second exposure direct to the scroll or hatched drawing. By either of the latter methods the finished picture was obtained by a single printing, and with less trouble than is entailed in the ordinary methods of making this class of picture.

Speaking of vignetting in the camera, it may be mentioned that this was the first method of making vignetted portraits. Daguerreotypes and glass positives used to be produced in this way. The method usually adopted was as follows: The sitter was posed before a rather light background, and between him and the camera was placed a large white screen, with an opening with serrated edges. This screen was placed at such a distance from the camera that it was quite out of the focus of the lens, while only so much of the figure as was desired to be shown could be seen through it. The portrait was then taken, and the result was an exceedingly pleasing picture, particularly if it were a glass positive and was whitened by what was then known as the alabastrine process.

Many of our older readers, again, will remember the pictures shown many years ago in one of the Photographic Society's (now the Royal) exhibitions by a Russian photographer—Bergamasco by name. At the time these pictures were exhibited they created quite a flutter in English photographic circles. They were large in size, being something like fifteen by twelve and larger, the heads being some four or five inches long, and were all very boldly lighted. They were direct pictures, and were vignetted into dark or rather black margins instead of the usual white ones, which gave the faces extraordinary brilliancy and relief. At first the method by which they were produced was treated as a secret one, but it was stated subsequently that they were made direct in the camera by placing a suitable vignetting form at a certain distance between the lens and the plate, so that the margins of it developed as clear glass. In printing the latter was sometimes shaded so that they were slightly graduated instead of being one uniform black mass. A few photographers here attempted to produce these pictures—mostly in smaller sizes, with but more or less success, the latter rather than the former—and, as a result, the style did not prove a commercial success in this country at that time. Recently we have seen pictures of this type in small sizes, but they have all been of a very mediocre character, and not at all likely to take with the public, though we see no reason why they should not if they were more artistically produced and of a fairly large size, for, in our idea, this class of picture is not well suited to pictures of small dimensions.

The object of this article is to call attention to the decadence of the vignette, with the view to stimulating



photographers to give greater attention to it by making the pictures of a more artistic character than is now the case, say, by introducing something like the hatched or scroll effects of Sarony, or anything else that will give a novelty to the work. In passing, it may be mentioned that the hatched effects are far better adapted to cabinet size portraits than they are to the carte-de-visite, the

size in vogue when this style was introduced. It does not follow that an idea that may in reality be old would not be a novelty if reintroduced. It would be a pity, I think, if the vignetted portrait were to become obsolete for it is a very excellent picture when skilfully produced, and, what is not unworthy of consideration, it commands an enhanced price.

## THE PRINCIPLES OF DIRECT COLOUR PHOTOGRAPHY BY PRISMATIC DISPERSION.

(A Paper read before the Paris Academy of Sciences.)

In order that a photographic print shall reproduce all the colours of the original, two conditions must be fulfilled:—

(1) The sensitive plate should preserve the slight differences which exist between the different radiations which occur in the incident light; it should, in other words, analyse each incident ray of light.

(2) To reconstitute the incident light in colour at one operation, the system should be reversible, so as to effect synthesis from the elementary colours.

Following from this general statement, we may ask whether any physical phenomenon which permits of two elementary colours being distinguished cannot be made to serve as the principle of a system of direct colour photography. Such a phenomenon, for example, is prismatic dispersion, as it occurs in a spectroscope, and does actually supply a solution of the problem of direct photography in colours.

A photographic spectroscope consists essentially of a slit,  $f$ , a prism, a lens, and a sensitive plate. It determines the analysis of the light which falls on the slit. It can be shown that the apparatus is reversible, and that it is able to re-compose the coloured light falling on the slit.

Suppose that the sensitive plate has been developed, and that a positive from it has taken its place. If the slit has been lighted by red rays, these rays will give in the spectrum an image,  $r$ , of the slit. This image (transparent in the positive) forms a kind of slit which, on the plate being returned to its position, is the conjugate image of the slit,  $f$ . Inversely,  $f$  is the conjugate image of  $r$ , according to the principle of the inverse course of rays. This double condition is satisfied for the red rays which have formed the image, and for them only; rays of any other refrangibility would have a different course, and would fall on neither  $f$  nor  $r$ .

Hence it follows that if  $f$  is illuminated with white light, the transparent region  $r$  receives only the rays which have formed it, and only allows these latter to pass. If the light be made to pass in the opposite direction—that is to say, if the positive transparency is lighted with white light—the slit receives and allows to pass only the rays which have come from  $r$ .

This reasoning is applicable to rays of any refrangibility, and to rays existing simultaneously with others. In other words, the photographic positive being in position and exposed to white light, the slit receives a light of precisely the same spectral composition as that which fell upon it during exposure. If the negative is substituted for the positive transparency, the slit is illuminated by the exact complementary of the light which is received during exposure. In this case, the portion  $r$  occupied in the spectrum by a given set of rays is an opaque area. These rays, therefore, cannot reach the slit, since the only rays of this kind which would be able to fall on the slit are those which would have passed through  $r$ . In short, with a transparent positive photograph in the

position of the spectrum, the only rays to pass are those which acted during the exposure; these rays are replaced by their complementaries if the negative is substituted for the positive.

In order to apply this principle to the reproduction of colours, I have arranged the following apparatus:—Instead of the single slit of a spectroscope, I use a series of slits all very close together. They are fine transparent lines of a ruled screen of five lines per mm., such as is employed in photographic reproduction. This screen is fixed to the front of a photographic enlarger, i.e., to a box provided at its extremity with a sensitive plate, and carrying a converging lens about the plane midway between its two ends. In front of the lens I fixed a prism of small angle, with its edge parallel to the transparent lines of the screen.

The image to be reproduced is projected on the screen; the sensitive plate is developed and put back in place. On illuminating the apparatus with white light an image is seen in colours. Each line of the screen acts as the slit of a spectroscope, and, as the lines are not visible at the distance of distinct vision, the image appears continuous.

The first experiment on these lines was made with the spectrum of the electric arc, which was reproduced in colours by means of a positive transparency. When a negative was used the red was replaced by its complementary, blue-green, and the green by purple. A red and green stained glass window applied to the screen was likewise reproduced in its colours, and afterwards in its complementaries.

It is necessary that the prism fixed in the apparatus shall have an angle so small that each spectrum has a length less than the interlinear space, otherwise the spectra encroach on each other. It is also essential that the photographic plate occupies exactly the same position as during exposure, a condition which is easily fulfilled in the case of solidly constructed apparatus. If the positive is moved in its frame, the colours rapidly change; if it is turned, there is a coloured moirée effect. On bringing the plate back to its original position these effects disappear.

Rapid commercial orthochromatic plates may be used, and the exposure is much shorter than in the interference process.

On the other hand, it is not at all convenient to have to put the positive back in the apparatus whenever it is desired to see the colours. Examined in the hand, the positive is black and white, just like an ordinary transparency. Viewed with a lens, it is seen to be broken up into lines, each line divided into small zones, which are the parts of a spectrum.

It will perhaps be possible to improve this process so as to avoid the use of an apparatus to observe the colours, and to make the plate sufficient in itself.

Suppose that a sensitive plate be placed in an ordinary camera, without a prism, but with the interposition of a ruled screen, and suppose that on the screen (which, we will

ay, has 5 lines per mm.) we superpose a grating of 500 lines per mm.; each luminous point thus projected on to the screen then spreads as a spectrum, and is photographed. On applying the screen, with its grating, to the developed positive, we

The following note is also communicated to the Academy of Sciences:—

### A NOTE ON THE THEORY OF THE INTERFERENCE PROCESS OF COLOUR PHOTOGRAPHY.

is the theory which I have set forth of the photography of simple and compound colours, I have confined myself to the particular case of plane waves. But in practice the waves are not plane; they are appreciably spherical, since the plate receives the projection of points. It is, therefore, well to put the theory in correspondence with practice, an operation which leads us to the conclusion that theoretically we may replace the mercury mirror by other devices.

I will assume the perfect objective, giving an image P (reduced to a point), of an external point. The point P and its image, P<sup>1</sup>, given by the mercury mirror behave as two synchronous sources. The interference fringes (with one exception) are not plane, but have the form of hyperboloids, with P and P<sup>1</sup> as foci. These are the fringes which are embedded in the sensitive film in the form of silver deposit possessing a feeble reflecting power.

Suppose the films are formed by light of wave length  $\lambda$ , and that we cause white diffused light to fall on the plate. Any incident ray whatever which passes through P cuts the series of hyperboloids, corresponding to the maxima of the light, in a series of points, M, M<sup>1</sup>, M<sup>11</sup>. . . . and the straight lines MP, M<sup>1</sup>P<sup>1</sup>, etc., are equally inclined to the surface of the hyperbolic fringe. Thus the corresponding reflected rays make part of a conical bundle, with its apex in

should see the colours of the original—that is to say, if the eye can occupy the place of the lens. The optical system, as explained in the earlier part of the paper, is reversible.

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P<sup>1</sup>. Moreover, the reflection is selective, that is to say, it affects only the rays  $\lambda$ , which form the system of fringes.

Thus, when one passes from a point M to a point following in the series, the "difference de marche" between the two reflected rays increases from  $\lambda$  the difference of the corresponding phase is equal to zero if the incident ray has the wave length  $\lambda$ , and only so in this case. The only vibrations reflected appreciably are those which have formed the bundle of interference fringes.

In the above demonstration, P and P<sup>1</sup> are two synchronous sources, images of the same distant point, and there is nothing to imply that the point P<sup>1</sup> should be obtained by reflection in a mirror. It may therefore be concluded that the system of these two sources may be obtained by means of any of the devices used for producing interference fringes, such as a bi-prism or a double Fresnel mirror, fixed before the lens.

Theoretically, we may replace the mirror by any one of these systems, but practically it is not possible, for the points P and P<sup>1</sup> should be close together, and this condition is not fulfilled in the case of the bi-prism or the Fresnel double mirror. There is no doubt that the system of two semi-transparent mirrors is the only one likely to be successful experimentally.

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## THE TONING OF BROMIDE PRINTS.

The following notes conclude the extracts from the recently published work by Dr. E. Sedlacek on the principles of the processes employed in the toning of bromide prints. For the full text of the author's experiments and conclusions the original German work, published by W. Knapp, of Halle a/S., should be consulted.

### The Copper Process.

Whilst with iron and uranium the ferri-cyanides are soluble and the ferrocyanide insoluble, in the case of copper the ferri-cyanide is insoluble. The correct proportions of sulphate of copper CuSO<sub>4</sub>·5H<sub>2</sub>O and potassium ferri-cyanide are as 4:3. The correct way to mix copper toning solutions is to add an organic salt to the copper sulphate solution, and then add the ferri-cyanide. If the organic salt is added last much more will be required to dissolve the cupric ferri-cyanide.

The copper baths may be used in an acid neutral or alkaline state, but weak ionised acids must be used, if a highly ionised acid is used insoluble copper salts are precipitated. An excess of an organic acid does not prevent the toning action, but it will frequently give rise to a fogging of the image by the formation of basic copper compounds. Care must be taken to avoid, too, the use of salts which easily form cuprous compounds, such as the sulphocyanides and bromides.

The tones obtained with copper stand the action of alkalis better than those with iron and uranium.

The following baths are recommended; as they do not keep well they should be mixed just before use:—

#### RED TONES WITH A BROWN TINGE.

Potassium citrate, 10 per cent. sol. ....	150 minims.
Copper sulphate, 10 per cent. sol. ....	24 minims.
Potassium ferri-cyanide, 10 per cent. sol. ....	18 minims.
Ammonia alum, sat. sol. ....	60 minims.
Water .....	1 oz.

#### BRICK-RED TONES.

Potassium citrate, 10 per cent. sol. ....	75 minims.
Copper sulphate, 10 per cent. sol. ....	24 minims.
Potassium ferri-cyanide, 10 per cent. sol. ....	18 minims.
Ammonium carbonate, 10 per cent. sol. ....	6 minims.
Water .....	1 oz.

This bath has a tendency to give double tones, that is, the deep shadows show a blackish tinge. A very beautiful cherry-red tint with a violet shade is obtained by replacing the citrate solution in above bath with quarter-oz. of 10 per cent. solution of ammonium oxalate, but the whites are often tinged.

#### RED-BROWN TONES.

Potassium oxalate, 10 per cent. sol. ....	60 minims.
Copper sulphate, 10 per cent. sol. ....	24 minims.
Potassium ferri-cyanide, 10 per cent. sol. ....	18 minims.
Tartaric acid, 10 per cent. sol. ....	6 minims.
Water .....	1 oz.

A faint tinge is imparted to the whites by this bath. If the tartaric acid is replaced by acetic acid a browner tone is obtained. If the quantity of oxalate is doubled, and 60 minims. of alum sat. sol. added to the above, a purer brown is obtained with tinged whites, which give the effect almost of toned papers.

#### COPPERY-RED TONES.

Ammonium oxalate, 10 per cent. sol. ...	120 minims.
Copper sulphate, 10 per cent. sol. ....	24 minims.
Potassium ferri-cyanide, 10 per cent. sol. ....	18 minims.
Oxalic acid, sat. sol. ....	6 minims.
Water .....	1 oz.

This gives a slight tinge to the whites.



In the baths containing an acid, variations may be obtained by using oxalic, acetic, tartaric, citric, or other organic acids; the first tends to red and the acetic most to brown tones, whilst the others are intermediate.

The prints should be left in the baths till the desired tone is reached, and then thoroughly washed; the duration of washing is without influence on the tones, as the copper salts are stable.

Very pleasant warm brown tones are obtainable by treating the toned prints to a weak ferrous oxalate developer for a short time, not too long, or dirty blue tones are obtained; such a developer is:—

Ferrous sulphate, 10 per cent. sol. ....	$\frac{1}{2}$ oz.
Potassium oxalate, 10 per cent. sol. ....	$1\frac{1}{2}$ oz.
Citric acid, 10 per cent. sol. ....	24 minims.
Water .....	1 oz.

Brown tones are also obtainable by treating the toned prints with the acidulated sulphide bath given above (B.J., August 10), or a 0.5 per cent. solution of sodium sulphide.

Considerable information is given about the lead toning baths and the many variations that can be played on the same; but as the results are by no means satisfactory, and the details would only interest those who delight in chemical acrobaticism, this part of Dr. Sedlaczek's work has been passed over.

#### Indirect Toning Processes.

The simplest of all the indirect toning processes is that in which the silver image is converted into a colourless silver compound, which is then reduced to a coloured salt. There are methods, however, in which the conversion of the silver plays only a secondary part, and in which it does not give the coloured product. Then there are processes in which other metallic salts, such as those of copper or mercury, are added.

It is essential to differentiate between pure halogenising mixtures and those in which oxidation first takes place with subsequent halogenisation. Thus chlorine water belongs to the former class, whilst bichromate and hydrochloric acid to the latter, for it contains no free chlorine but free chromic acid, which oxidises the silver, and this is converted into chloride. If permanganates are used, practically the same action takes place, although the line between halogenisation and oxidation cannot be so sharply drawn.

Aqueous solutions of the halogens can be used, and chlorine water acts the quickest, bromine water slower, and solution iodine in iodide so slowly as to be practically useless. The advantage of these reducing solutions is that they have no reducing effect on the prints.

#### The Use of Oxidising Solutions.

The chromates and permanganates should be used; the hypochlorites are out of court, because they attack the gelatine, and hydrogen peroxide and the persulphates act too slowly.

It is frequently noticed that solutions of bichromate and sulphuric or a chloride reduce the image, and this is due to the fact that the silver is converted into the oxide or soluble sulphate at a quicker rate than these are converted into the insoluble chloride. The best composition of a bath is therefore one containing hydrochloric acid and a soluble bromide, which thus retard the formation of the silver chromate, which is soluble in chromic acid, and also thus quicken the conversion of the oxide or chromate of silver into the insoluble halide.

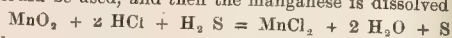
If a permanganate is used, either with or without an acid, and ammonium chloride is also used, the reaction that takes place between the silver oxide and the chloride is expressed in the following equation:—



Peroxide of manganese is precipitated with the silver chloride,

but it can be readily dissolved by weak sulphite, oxalic or phurous acids. If an organic developer is applied reduction takes place, as the sulphite in the developer dissolves the silver chloride before it is developed.

If such images are to be converted into silver sulphide solution of sulphuretted hydrogen acidulated with hydrochloric acid should be used, and then the manganese is dissolved thus:



As the permanganates are more easily decomposed than chromates, acetic acid and an alkaline halide can be used with advantage; and then, with potassium bromide, free bromine exists in the solution; if, on the other hand, the ammonium chloride is used, there is no free chlorine, which is due to the fact that the weakly-ionised acetic acid cannot set free a considerable quantity of the highly-ionised hydrochloric acid.

The addition of the halide acids to permanganates always causes the evolution of the halogen, but they differ from the ordinary solutions of the latter in that they are in state of nascent.

#### The Ferrocyanide Processes.

A mixture of a ferricyanide and an alkaline halide produces instant conversion of the image into the corresponding silver halide. Such solutions can be kept as stock solutions; they do not reduce the image, nor attack the gelatine.

The bleached image can be readily converted into sulphide or sulphoantimoniate or sulphostannate of silver.

To convert the image into the sulphide, Dr. Sedlaczek is strongly in favour of sulphuretted hydrogen, and as strongly condemns sodium sulphide, and the latter because of the difficulty of keeping the sodium sulphide solution and the liability of the formation of unpleasant coloured polysulphides.

The conversion of the silver into ferrocyanide is not a quick process, probably because each silver grain becomes coated with ferrocyanide, which stops further action. Nitric and sulphuric acids, or a silver ferrocyanide solvent, such as an oxalate may be used.

Ferrocyanide of silver can be converted very readily into other compounds, and a great variety of tones may be obtained by using also other metals. It is unnecessary to enter at length into the chemistry of these processes, because the practical results are given below.

The bleaching bath for the print, which should be previously well soaked in water, should be:—

Potassium ferricyanide .....	6 grains.
Potassium bromide .....	$2\frac{1}{2}$ grains
Water .....	1 oz.

The image bleaches instantly, and should then be well washed and treated with the sulphuretted hydrogen bath (see the acidulated sodium sulphide bath given above), or ammonium sulphide or sodium sulphide, and for the latter the bath should be:—

Sodium sulphide .....	50 grains.
Sodium sulphite .....	50 grains.
Water .....	1 oz.

For use, one part of this should be diluted with nine parts of water.

It is important to wash out the bleaching bath before sulphiding, and sodium sulphide is the worst thing to use, because it gives rise, as already mentioned, to unpleasant yellow tones when the solution is stale. If a 1 per cent. solution of Schlippe's salt be used instead of the sulphide, brownish-red tones are obtained.

#### Toning the Ferrocyanide Images.

The bath for bleaching should be:—

Potassium ferricyanide, 10 per cent. sol. ....	$\frac{1}{2}$ oz.
Potassium oxalate, 10 per cent. sol. ....	$\frac{1}{2}$ oz.

When the prints are bleached, wash well, and by treatment with following solutions to obtain the various colours:—

Sulphuretted hydrogen, ammonium sulphide, or sodium sulphide, as previously given, result in violet brown tones. The tint of the prints tends more to violet or grey than that of the bromide bleached prints.

A 1 per cent. solution of Schlippe's salt gives reddish-brown tones, which are redder than the bromised prints thus treated. A red brown is also obtained by using—

Uranium nitrate .....	18 grains.
Potassium bromide .....	9 grains.
Water .....	1 oz.

Blue tones are obtained by treatment with—

Ammonia iron alum .....	12 grains.
Potassium bromide .....	6 grains.
Hydrochloric acid .....	2 minims.
Water .....	1 oz.

If in this bath the whites turn yellow, they should be well washed with a 0.3 per cent. solution of hydrochloric acid.

#### Toning with Mercury Salts.

In this, as already pointed out, the image is bleached with a mercury compound, and the bath should be—

Mercuric chloride .....	6 grains.
Potassium bromide .....	6 grains.
Water .....	1 oz.

When thoroughly bleached, wash well, and then treat with the following solutions to obtain the various colours:—

Greyish black, a 1 per cent. solution of hypo.  
Greyish violet, immerse in—

Hypo .....	5 grains.
Acid sulphate of soda .....	2½ grains.
Water .....	1 oz.

Brown to violet black:—

Hypo .....	9 grains.
Copper sulphate .....	9 grains.
Water .....	1 oz.

If to the above a drop or two of a 10 per cent. solution of sodium carbonate be added, the tones are darker.

Brownish-violet:—

Hypo .....	6 grains.
Silver nitrate .....	2 grains.
Acid sulphate of soda .....	3 grains.
Water .....	1 oz.

Blackish-violet:—

Treat the print with a 1 per cent. solution of acid sulphite of soda.

## SOME NOTES ON READING AN AMERICAN MAGAZINE.

THE other day the writer came across an old number of a magazine, new to him, and probably new also to most of the readers of the *B.J.*, bearing the name, "The Munsey." Although it is priced in English currency and a London address is given together with that of one in New York as that of its offices, it is palpably of Transatlantic origin, as most of its matter relates to American subjects, and all its advertisements are of American offerings. It so happens that this particular number contains much that is of interest to anyone connected with photography.

#### Four Portraits.

One article is devoted to a comparison of the four portraits of a lady, a Mrs. Philip M. Lydig, who is presumably one of New York's most beautiful women, excellent reproductions being given of a photograph by Reutlinger, of Paris, a dry-point etching by Paul Hellen, and paintings by Boldini and H. J. Thaddeus, all of which have been made during the last two years, and yet the four are so dissimilar as to lead the observer to think that they cannot possibly be of the same subject. After describing Mrs. Lydig as she appears to him, the writer, a Mr. Ralph Donaldson, proceeds to criticise the four portraits, and to those who are familiar with the preachings of certain would-be leaders of photography, it is a relief to find good, straightforward, professional photography favourably compared with the work of recognised artists.

#### An Excellent Likeness.

Says Mr. Donaldson:—"The photograph, as seen by other eyes than that of a painter, is an excellent likeness of Mrs. Lydig. It is as thoroughly lifelike as photography can be. No one knowing her could possibly mistake it for the picture of some one else. It does not flatter her; neither does it detract from her, save as inaction must of necessity detract from one of sparkling vivacity.

With every one except the artist and art critic, likeness is the essential, the vital thing, in a portrait; and that quality we find in this bit of the camera's work. Such a portrait of any one would be pronounced good by the world. But would the world be right or wrong? If right, how about the merit of these three other portraits, which bear almost no resemblance to the photograph? Neither do they bear any resemblance to one another.

A portrait, to the artist, is a work of art, not simply a reproduction of pose and features. Mere photographic likeness he scorns. It is the man himself he portrays—the inner life, not the outer shell. To his eyes temperament, character, spirituality or grosser nature,

strength or weakness, refinement or brutality, are seen as no one else can see them."

Mr. Davidson goes on to point out how "Thaddeus has seen Mrs. Lydig with the eyes of an Irishman, and has made her substantially robust. Boldini, viewing her with the eyes of a Parisianised Italian, has represented her as not very substantial. And not only do the two canvases show slight physical resemblance to the subject as she appears in a photograph, but as depictions of character they differ no less widely from each other and from the word picture—which is as faithful as the writer can make it—given in these pages. The Thaddeus painting lacks the sparkle, the brilliance, the vivacity that are such salient qualities of its original; while her thoroughly sane, normal, modern humanity is not shown in the Boldini. The latter is certainly a remarkable interpretation, and one that pulsates with art and art feeling. But for the real Mrs. Lydig one must go back to the portraiture of the camera."

#### American Portraiture.

An appreciation of Henry Wattersson, who is described as "the most striking and interesting personality in the American journalism of to-day," is illustrated by a very fine full-page half-tone of a half-length portrait with the imprint, "Strauss, Louisville." The name Strauss has been mentioned several times recently in the *B.J.*, but always in connection with the St. Louis studio. Possibly there is a relationship. The portraits throughout the magazine are almost all good. In an article on "The Jews in America," seemingly by way of adding variety to the appearance of the pages, the photographs have not been reproduced direct, but drawings have been made, and from them line blocks which are printed in black on a cream ground. The photographer is credited with his share by the acknowledgment taking the form, "Drawn from a photograph by —," and it is interesting to note that although the portraits are in every case those of leading men, out of seventeen such acknowledgments only two state that the photographs are copyright. It would appear from this that the copyright regulations in the United States differ considerably from those in this country.

#### American Advertising.

The advertising portion of the magazine makes interesting reading. In America seemingly almost everything is "taught by mail," dancing, music, law, nursing, pharmacy, advertisement-writing, being but a few of the subjects in which instruction may be had. With



photography it is different; it appears that attendance is necessary, for one advertisement runs: "Attend the Illinois College of Photography. A delightful profession, quickly and easily learned. Pays well. Good positions secured for graduates. Only College of Photography in the world. Terms easy and living inexpensive. Write for our beautifully illustrated catalogue. Address, etc., etc." The adjective delightful is distinctly good; it supplies just that amount of vividness to the charms held out necessary to finally convince the hesitating reader. Possibly one of the reasons for photography in America being so delightful, is to be found in the fact that nearly all the advertisers who are willing to help their fellow-creatures in various ways, head their advertisements with portraits, presumably of themselves, as if to say, "Can you imagine me making a statement that is not strictly true? Is not my face a guarantee for my veracity?" The advertiser who offers to "double your salary" by teaching you advertisement writing; the doctor who advises you when you travel to be sure to take his liniment; Gordon, who "makes suspenders" (Anglice, braces), which he is willing to send free on approval to any business man, are among those who thus use their photographs, while the lady who takes a full-page in which to tell her fellow women that she can make them "well, strong and beautiful" (by mail, of course), has two photographs of herself with which to add weight to her announcement.

#### Photographs in Advertising.

Photography, it should be said, is employed to better purpose in many of the advertisements; in fact, in some of them, a photograph with a little descriptive lettering upon it, constitutes the whole advertisement. Thus a page is taken by a milling company with a most effective photograph of a number of barrels and bags of flour with the brand thereon

showing up well, and in similar style is the soap advertisement the effect that "A child can do the work," the photograph being that of a child who is washing a toy lamb. A railway company uses eight picturesque views—different advertising from that of our railway companies. Good use of a photograph is made by a rubber-tyre company, a design in the form of part of a wheel having the space between two of the spokes filled with a photograph of a busy street showing a row of cabs and carriages, the spaces above and below containing the descriptive matter. It is certain that our own advertisers will soon be using photographs to the same great extent as the Americans are now doing, and although it is rather outside the province of the ordinary photographer, an opening is indicated for the man who is anxious to add extra branches to his existing business.

Such are a few of the impressions formed by the present writing upon reading the January "Munsey."

#### A Comparison.

One word more! The Henry Watterson already mentioned contributes a comparison of American and British newspapers much in favour of ours. He says that "English type-setting and English presswork, and English paper-making—better than with us—give the London newspapers considerable advantage over the American newspapers in appearance, while their make-up excels ours in system and order. None of the great dailies of London use display type as it is used in America. They affect book-work in their typography as we do in their composition. . . . These ethical principles are better understood and more often applied in England than in the United States. Frankness should beget frankness, and if the magazine on which these lines have been written be a fair average specimen of the American magazine, it must at once be admitted that in magazine production they are far ahead of us.

W. J. CASEY.

## THE LAWS OF THE STEREOSCOPE AND STEREOSCOPIC TRUTH.

(A paper read in the "Bulletin de l'Association Belge de Photographie.")

THERE is no subject which has given rise to so many contradictory ferent distances, and the dimensions of the same. It seems possible that photography is an indispensable assistance, it ought to be comparatively opinions, sometimes correct and often extravagant, amongst which it

#### Fundamentals.

Let us take any object in nature. What is true of it will be true for all the others.

When we look at an object we see it by the aid of those eyes which Dame Nature has given us and placed in their orbits at a normal separation of 6.5 cm. But, if instead of looking at the object itself, we consider its image reproduced by stereoscopic photography, we can see our object under quite different conditions from those in nature, for the simple reason that when photographing it our lenses may be separated in a different manner from our eyes.

We can undoubtedly:—

1. By keeping the distance of the camera from the object constant, but by changing the separation of the lenses, vary the angle of convergence of the visual rays; that is to say, we can see the object as will presently be shown, as though our eyes were either more or less separated than they actually are. We may see nature as though we had the eyes of an ant, which are but slightly separated, or as though we had the eyes of a mammoth, which are separated by more than a metre.

2. By varying the distance of the camera from the object we may reproduce it as though we saw it close at hand or at some distance, without altering the angle of convergence of the visual rays. To obtain this result, it is sufficient to diminish advisedly the separation of the lenses when photographing near objects, or to increase the separation on the other hand beyond the normal separation of our eyes when photographing at a distance.

We must not forget that the expressions "at a distance" and "near" apply to the distance at which we have first taken our posi-

theories as stereoscopy, that is to say, the vision of objects at distance with a little observation and experience, amongst which photography is to disengage the laws of stereoscopy from amongst the chaos of is now entangled.

tion to examine the object which is later photographed, and to the angle of convergence of the visual rays which is the result of this distance. It must not be forgotten, above all things, that what we shall say applies only to binocular vision. If only one eye be used one cannot estimate either the distance or dimensions of an object, without shifting the head to the right and then to the left, so as to obtain the impressions of perspective which are produced by changing the point of view. But this is no longer stereoscopy. The possibility with an immovable eye, of approximately estimating the distances, is because we know beforehand the dimensions of the objects looked at; the mind then jumps at the distance by the apparent dimension in perspective.

3. In separating more or less the two elements of the stereoscopic photograph, we can alter the angle of convergence of the eyes which look at them.

To enable the importance of these preliminary remarks to be thoroughly grasped, it may be useful to explain at first, by means of an experiment, and then by a design. The experiment may be performed by direct vision; the design requires the use of a stereoscope. The two will prove first the truths, the confirmation of which we shall demand from photography.

A. The experiment by direct vision is that one must learn to squint a little; this is one of those useful things which one learns at school, without the aid of the master. If the reader's education is incomplete in this respect, he should try to see the end of his nose, and he will soon be *au courant* with the present requirements. Moreover, he naturally squints in a constant fashion, less when looking at infinity, the only case in which our visual rays do not converge to the point at

which we look. But the word "to squint" means really convergence of the optical axes without looking at any fixed object.

Consider the following diagram (Fig. 1).

You will see a series of white dots, of which two have black centres. You may exactly estimate the dimension of these dots and their distance from your eyes. In passing over all the points of sight, your angle of convergence does not change: it is that which gives you the notion of their distance, unconsciously but surely, from which your mind concludes as the result of continuous experience which it has given in the sense of sight.

The idea which you make of the size of the white dots results from the space that their image occupies on your retina, it being granted

centre on the right; these two points will superimpose, and the entire image will take for a moment the following, seen in Fig. 2.

But at the same moment you will note at the same glance that all the points have approached nearer to you, and that they, at the same time, have become smaller. The contrary effect may be obtained if, instead of squinting by crossing the convergence, you diminish it. In effect the path of the visual rays becomes as follows.\*

Supposing in Figs. 3 and 4, which follow, the white dots of the above diagrams are represented by the lines numbered from 1 to 6. The eyes should first look normally at the centre P of dot Number 4. The angle of convergence G P D has given to the mind the appreciation of the distance of the point P from the eyes G D. Let us now

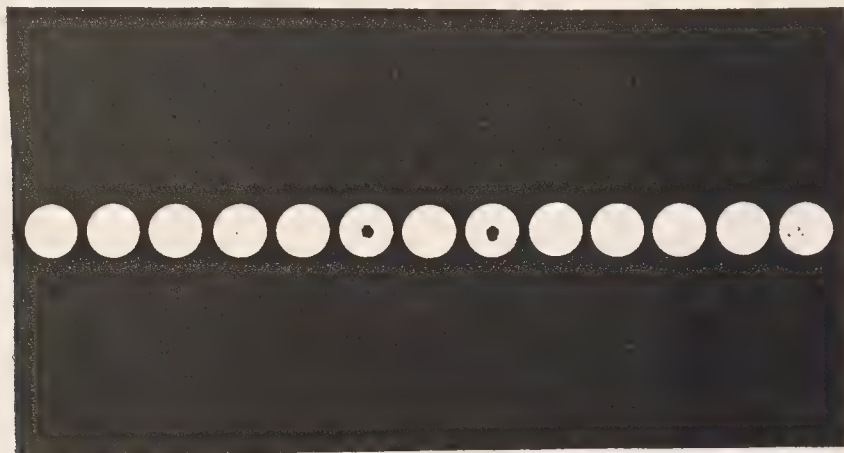


Fig. 1.

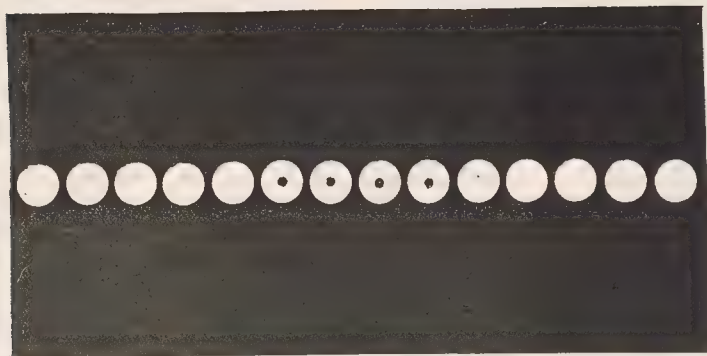


Fig. 2.

that the distance at which you see them is fixed. One cannot obtain an idea of the size of an object, if one has not at the same time a visual notion of its distance which is given by the angle of convergence of the visual rays. The estimation of this distance becomes the more difficult the greater the distance of the object; that is to say, it becomes more difficult as the angle of convergence becomes smaller or more acute. If the angle of convergence is nil, if the visual rays are parallel, all exact conception of distance and dimension becomes false. The gigantic sun appears to us larger or more distant than the moon, our neighbour, which is quite a negligible quantity, beside it.

Having grasped these facts, consider again the above diagram, this time with a slight squint. Soon, the two eyes will not see the same white dots; they will superimpose two by two: for example, the right eye will see the central point on the left, and the left eye the

consider the case of Fig. 1. We have squinted slightly so that the right eye sees the centre O of dot No. 3, whilst the left eye continues to look at P; we have thus increased the angle of convergence, which will become G p D instead of G P D, which it was at first; from which the mind concludes that at the distance p D, where the two identical images, 3 and 4, are combined into one, at the distance they appear at p. But, however, this white dot p, which is mentally

\* We heartily commend to our stereoscopic readers a careful examination of these two diagrams in a stereoscope with adjustable eye-pieces. The effect with the second diagram is absolutely astounding. The number of dots can be reduced to eight or nine, the black centres may be made to disappear entirely, or be reduced to one, first on the right, then on the left; they may be reduced to two, not in contiguous circles, but in alternate ones or separated by two, three, or four. In the case of the first diagram equally extraordinary results are obtainable, and still further effects seen by varying the focus.—EDS. B. J. P.



brought nearer to the eyes, does not increase in diameter agreeably to the laws of perspective, but appears smaller than it actually is.

Fig. 4 supposes that instead of having increased the convergence it has been diminished—an experiment more difficult to perform than the former. The right eye continues to see the dot P, which the left eye has left to look at O. The first angle of convergence, G P D, is reduced and becomes G p D. It transfers to p D, the distance at which the mind believes it sees the image P<sup>1</sup> P<sup>1</sup> (composed of the

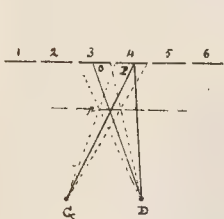


Fig. 3.

identical images 3 and 4), as though the images of all the other points were superimposed two by two. But all these white dots seen thus at a greater distance that they actually are, appear larger than they are; because they are located at a greater distance than their diameter, suffering from proportional diminution according to the laws of perspective.

This experiment has been described because we are convinced that very few readers are aware of it, and they will be surprised at the illusions produced. There should be no reason to doubt the truth of our statements, for they may be very easily verified in a stereoscope. Let us take the example given by M. Marteau in his stereoscopic notes, the conclusions in which we cannot agree with.\*

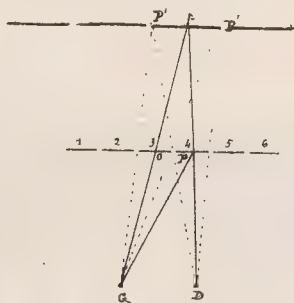


Fig. 4.

visual rays. This convergence ought to be greatest when examining the lowest rectangles, and less when looking at the upper figures which are the more distant the one from the other. If this couple examined in the stereoscope, although the rectangles have exactly the same dimensions and are situated at the same distance from the eye, the mind, as the result of experience, will produce an erroneous effect and one will believe in the existence of three plane rectangles of equal dimensions, placed vertically at three different distances in space. Where the angle of convergence of the visual rays is greatest, the subject is closer and diminished; where the angle is smallest the subject is further off and enlarged. Every observer must have the same impression. It will be sufficient for the moment to state this fact; later, we shall prove the mechanism of it.

### The Laws of Stereoscopy.

After having made these fundamental remarks which contain indisputable experimental point, we ought to recognise the following four laws of stereoscopy:—

#### Natural Binocular Vision.

**FIRST LAW.**—When an object is looked at the conception of distance is the result of the aperture of the angle formed by the convergence of the visual rays.

**SECOND LAW.**—The idea of the size of the object is the result of the conception of its distance and the angle that the object occupies in space. The apex of which angle is found in the pupil of our eyes, or, in other words, the idea of the dimensions of an object looked at is the result of the conception of its distance and the space which its images occupy the retina of our eyes.

#### Stereoscopic Photography.

**THIRD LAW.**—In a stereoscope the eyes always see as though they were in the respective places of the two lenses at the moment of exposure.

**FOURTH LAW.**—The separation of the lenses at the moment of exposure determines the angle of convergence under which the solids photographed ought to be viewed in the stereoscope.

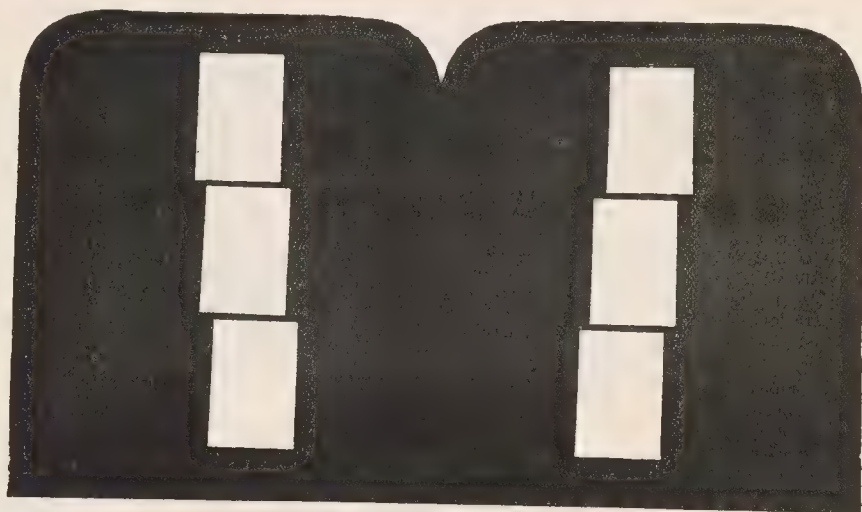


Fig. 5.

**B.—THE STEREOSCOPIC EXPERIMENT.**—Here (Fig. 5) are a couple of stereoscopic prints formed of rectangles actually of the same size, which are to be superimposed in the stereoscope two by two. As the rectangles are of unequal separation it is impossible to make the three superimpose without varying for each the angle of convergence of the

\* M. Marteau's experiments were performed with ordinary postage stamps, and they may of course be used in like manner here.—EDS. B. J. P.

**NOTE.**—The word "solids" is intentionally employed, it being intended that there shall be no question of stereoscopic vis-à-vis of a subject not having two dimensions, such as an etching, a design, etc.

To thoroughly grasp the third and fourth laws it is sufficient to take account of the fact that the stereoscopic effect is the result of the mental fusion of two different perspectives. Now, these perspectives arise from the two points of the view occupied by the lenses at the moment

of exposure. In the stereoscope the eyes always see then the two perspectives as if they themselves occupied the two places which the lenses occupied; that is to say, one has the exact reproduction of the lines of perspective of the object photographed when it is viewed under the angle of convergence of the two lenses, and at a distance at which these were placed.

Experience and custom which give us the idea of distances and dimensions, which were described in the two first laws, are peculiar to every species of animal endowed with binocular vision. These notions are the combined result of the use of the senses of sight and feeling. It is certain that the species which have a separation of the eyes different to ours estimate distances and dimensions as we do; that is to say, in conformity with reality. Although they may see differently from us, custom and experience guide them as they guide us. But if the mind could suddenly see nature with the eyes more or less separated than those of the species to which they belong, all conceptions of distance and volume would become immediately false. Stereoscopic photography enables us to prove the truth of what we have advanced, as we shall presently prove theoretically and experimentally.

### The Corollaries of the Stereoscopic Laws.

The corollaries to the first law are:—

1. *The greater the angle of convergence of the visual rays the nearer the object looked at appears in the mind of the spectator. If this angle is small, the object is localised in the distance.*

This results from the habit we have of forcing the convergence more in order to measure those objects which are near to us and attract our attention. When we look at near objects, the greater the convergence, and, according to our first law, the idea that we obtain of the distance is the result of this same convergence, from which experience we have learnt to estimate and recognise the distance of objects.

2. *If we could change the angle of convergence without changing the distance of the object, we should falsify the notion of distance; the appreciation of the dimension would also become equally false.*

According to the laws of perspective, objects occupy in space an angle which is greater the nearer they are to us; this angle decreases in proportion as the objects recede. Consequently, if we could falsify the idea of distance by augmenting the convergence of the visual rays, the objects would seem to approach without their images increasing, and would appear to us smaller than they are. Inversely, a diminished convergence localises objects at a greater distance without diminishing the image, and they would appear to us too large. (See the stereogram of the three planes previously given in the stereoscopic laws.)

### The Corollaries of the Second Law.

*If the angle of convergence remains constant, whatever may be the*

*distance of the object looked at, it may appear larger or smaller than in nature, but it will always appear at the same distance from the observer.*

In fact, according to the first law, it is the angle of convergence which determines the notion of distance of the subject. If the object is distant its image will be small, but if the object appears to approach it will have the appearance of being reduced. If, on the contrary, the object is seen with the dimensions which it has viewed at close quarters—but always under the same angle of convergence—the image on the retina will be larger, but the object will not appear to approach, though it will appear enlarged.

It will be immediately seen that the corollary of the second law is not like the rigorous consequence of the two corollaries of the first, and that these two laws and their consequences constitute an ensemble with which there is nothing to find fault. That we cannot give an exact verification is due to the fact that our eyes cannot change their separation. To this objection, which is quite just, we reply with the

### Corollaries of the Third and Fourth Laws.

1. *By means of stereoscopic photography we can see objects as though we had a separation distance between the eyes other than the human separation.*

2. *In stereoscopic photography, there is only one way of reproducing objects in their true proportions as seen at the distance which they occupied in front of the lenses at the moment of exposure; this is to photograph them with a separation of the lenses corresponding to the separation of the human eyes.*

In effect, the 6.5 cm., which separates our eyes, forms the base of a triangle, of which the apex is the angle of visual convergence, which is our sole guide for appreciating first distances, and, consequently, by deduction, volume.

One cannot raise the objection that it is immaterial what may be the distance at which one sees the object in the stereoscope, if the stereoscopic effect is satisfactory. Many stereoscopists reason thus, and base their theories on their illusions. But it is not sufficient that the stereoscopic effect is good; it is absolutely necessary that it should be true. This will be especially seen in the case of a stereoscopic portrait. Now, each time that the separation of the lenses does not correspond to that of the eyes, the objects will appear larger or smaller than in nature, and their distance, like their proportions, will appear false in depth.

One of my good friends, whom I hoped to convince of his error, showed me a stereogram, well made, and showing good relief. I believed that I saw an electric lamp hung on the rough trunk of an old oak tree. But it was a fine pearl which the jeweller had mounted in a shell to represent a small acorn, forming a pin; the bark of the tree was the material of the cravat in which the pin was stuck! The photograph was taken very close to two exposures, with a separation of the lenses of only three or four millimetres.

A. GODERUS.

(To be continued.)

## FOREIGN NOTES AND NEWS.

### Varnishing Lantern Slides.

M. Remond in a recent communication of the Société Française suggests the use of the celluloid varnish for protecting lantern slides from the effects of heat in the lantern, and states that when dry it is quite non-inflammable. The formula he suggests is:—

Commercial celluloid varnish	...	...	...	...	4 parts.
Absolute alcohol	...	...	...	...	1 part.

Apply as with collodion; drain off the excess and wipe the lower edge, and corner with blotting paper. Allow to dry in an horizontal position, and then pass the slide varnished-side down through the flame of a spirit lamp till all trace of moisture disappears. After this the slide can neither be damaged by the fingers, nor will any heat in the lantern hurt it.

### Indirect Catatypic Pigment Prints.

Although considerable interest was excited at the time of Ostwald and Gros' announcement of the catatype process, but little has been heard practically of the subject. A German patent has been granted for

the following process: a negative is made from a transparency on carbon tissue, supported on celluloid, and developed, and allowed to remain on its support. This image is then converted into a catatypic image; either by immersion in silver nitrate solution or by painting with the latter, and the silver is reduced by a developer; or the negative is soaked in solution of chloride of gold or platinum, and then treated with a suitable developer. For instance, the above pigment negative may be bathed with permanganate of potash solution, and it will then be actively catatypic as peroxide of manganese is formed in the film.

### Yellow Stains.

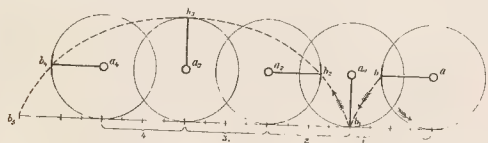
Professor Latner, in speaking of the staining of negatives by the use of developers containing insufficient sulphite, says that this is not a fog, but merely a compound of the developer, which is not removed by the ordinary acid fixing bath. It is not always possible to increase the quantity of sulphite in the developer, nor is it advisable to add too much to the fixing bath, as this hardens the negative too much. The real remedy is to thoroughly wash the negatives



between development and fixing; this entirely prevents any staining; mere rinsing of the plate is worse than useless.

### Why is the Top of a Wheel Fuzzy When Photographed?

Herr Josef Wara answers this question in the current number of the "Weiner Mitteilungen," and explains it with the following diagram. Assuming that the wheel revolves on its axle once in a second, it will take up four definite positions in every quarter of a second starting from a; at the end of the first quarter-second it will be at a1; at the end of the second at a2; at the end of the third at a3; and at the end of the fourth at a4. The spoke end designated b1, b2, b3, b4, will also take up the various positions shown. If the



movement of the axle is compared with the movement of the spoke, that of the former is equal in each quarter-second, whilst the end of the spoke moves less in the first quarter-second and more in the second, and so on, as shown by the dotted curve. The movement of the axle is in the first half-second 4cm; if the image of the wheel is about 8cm, the spoke end moves in the same period 3cm; in the second half-second the axle moves 4cm., and the spoke end 7cm. From this it is obvious that the end of the spoke moves quicker at

the top than the bottom, and this is why the top of the wheel is fuzzy.

### A Photographic Transit Instrument.

M. Lippman has communicated to the Paris Academy of Sciences a description of a photographic transit instrument devised by him to increase the accuracy of measurements. There is a telescope which follows the stars like an equatorial, and photographs them on a plate which it carries; there is a fixed slit, representing a meridian, through which light passes every second or at given intervals, and is conducted by a mirror and collimator, so that it imprints itself as a thin line on the plate. Since the plate is moving and the slit is fixed, there results a photograph of a field of stars together with a series of lines representing hour circles or meridians, the exact numeration of which corresponds to the instants at which the slit was illuminated—and the rest is measurement. The principle is easily intelligible, but after understanding it, one naturally looks for possible imperfections. The object of all such apparatus is to get rid of personal equation; but it is not clear that there may not be personality in the measurement of time on a plate, and also something akin to personality in the recording of the times of the exposures. In all determinations of absolute time, recourse must be had to a level or its equivalent, and in this case a scheme has been arranged to measure the error of verticality of the plane of light which makes the lines on the plate and corresponds to the meridian by photographing the image of the slit reflection from the surface of mercury as well as directly on the same plate. Some small difficulties in this have had to be surmounted; but some successful plates were presented to the Academy and the instrument seems promising.

## STUDIO ACCESSORIES.

THE professional photographer desirous of holding his position, keeping in the front ranks, and making his business a paying concern, must keep constantly before him the state of his studio accessories. Portraiture (writes "Wilson's Magazine") is primarily a matter of dress, and secondly of furniture. The sitters do their part in appearing before the camera adorned with articles of attire adapted to the momentous occasion, the photographer having thrust upon him the duty of providing an environment which shall not spoil the effect his clients desire to produce for their own satisfaction and the edification of friends.

### The Luxurious Style.

It is sometimes urged against the portraiture of our leading professionals that the furniture is too profuse, occupying so large a portion of the stage that the sitter becomes merely a detail, an afterthought, put in to supply the human element in a picture, which might be appropriately labelled: "Interior, with Figure." To the photographic purist, the "Art for Art's sake" man, this criticism may appeal; to the man of business it will be made in vain, being summarily dismissed as of no practical worth. With this view we entirely agree, confessing to some regard for a portrait containing a well-arranged selection of accessories. The photographer must please his clients, and when these are drawn from the upper classes—persons living in homes richly furnished—they require a portrait photography in harmony with such surroundings, desiring works having the air of wealth, of luxury, and it is thus in the interests of trade to meet the demand. In doing so the photographer violates no principle of pictorial representation, for in all times the artist has depicted his sitters in association with the things of their daily life. All artistic sentiment being against a duchess in a dairy, or a dairy-maid in a drawing-room.

### The Conventional.

Whilst it is necessary to keep the accessories in harmony with the social position of the sitter, it should not be overlooked that all classes are susceptible to a certain amount of flattery in this connection, being more pleased with a portrait giving them a social standing above, rather than below, that which they really occupy. In all cases the photographer, whatever may be the class that give him patronage, should be in advance, having accessories of a more

expensive and luxurious nature than his customers are likely to possess. Only in this way can he apply this very subtle form of flattery. He already flatters the features by retouching, and this latter device is flattery to the dress. In working along these conventional lines a difficulty of a technical character will arise, needing attention to be overcome. The furniture designed for household decoration is inconvenient for studio uses, not lending itself readily to photographic methods of composition and posing. It is too angular, possesses awkward scrolls, quite preventing the subject being brought close enough for securing a good effect. A small knob is sufficient to separate the sitter from a chair or table creating a lack of unity in the composition, making it a picture of two objects in place of the simple design intended. Photographers who have experienced this drawback are constantly on the watch for any article combining a good design with utility in studio practice, in this way renewing their stock. Attempts have been made in supplying accessories to suit professional purposes, not with much success, for, whilst quite adapted to that end, they diverge too much from domestic patterns. In a picture looking what they are—quite photographic. There is here a want yet to be supplied, a field is open for the furniture designer who is able to combine photographic utility with a pattern neither grotesque nor unusual.

### The Plain and Simple.

In general, professional portraiture must be conventional, the usual thing, the photographer, whatever may be his own desires or aspirations, being compelled to meet the demands of the public taste. In particular localities, however, a class exists who will patronise work departing entirely from popular notions. Novelty attracts, and the man with a strong personality can impress the public, lead them to support him, and acquire a taste for his own individual style. An effective portraiture will follow from discarding all accessories and paying close attention to expression, lighting, posing and drapery. Mrs. Cameron was one of the earliest of these unconventional types, though since her time others—such as those who model their work after the paintings of Rembrandt, Gainsborough, Reynolds, or Velasquez—have met with success. To abolish accessories is to give added importance to the background, it becomes the chief study, requiring every attention to make it harmonious with the style of the subject.

is for this reason that the above-mentioned painters have been so closely copied by the Cameronian type of photographer. To some tastes this simple portraiture is very agreeable, and, with the right man, and a fitting neighbourhood, enough patrons are secured to make commercially profitable. A few can even go beyond it, with work that approaches to the "soul-studies" characteristic of Watts. Mere sketches and suggestions in place of the clear, sharp, well-defined photograph. However interesting these productions may be, in the present state of public taste the demand for them must remain strictly limited, and the majority of professionals could not insist on supplying such work to their clients, and still retain a profitable connection. From a financial point of view it would be a distinct gain if expensive accessories could be abolished, since the charge in a business which they entail, not only in purchasing but in keeping in good condition, would go with them. This was impressed upon us on once visiting the studio of a photographer of this class, a well-known man, whose work is much appreciated; beyond a few backgrounds, painted by himself, some drapery and screens, his necessities were only of a nominal value. A scanty outfit, calling for little expenditure, reducing the cost of working expenses to a minimum, a consideration when competition is so keen as nowadays. Anything tending to keep down expenses without reducing efficiency being money saved. Here the business man must study his public, or it will economise his resources if he can rely on clients who are satisfied with a portraiture of the simple kind.

#### PHOTOGRAPHIC RECORD AT THE BRITISH ASSOCIATION.

PHOTOGRAPHY has not figured very largely in the proceedings of the British Association this year at York, but it is noteworthy that a special meeting, consisting of delegates of corresponding societies met to consider the assistance which will be given to, and desired from, the work of photographers who are applying themselves to photographic record. Mr. J. Hopkinson presided. He remarked that it was becoming more and more desirable to obtain a permanent representation of the features of our country, whether natural or the work of man, for at no former period had the destruction or mutilation of such features been more rife, and, paradoxical as it might seem, never before had so much interest been taken in their preservation. The sooner a systematic attempt was made to obtain and preserve a picture of everything that admitted of representation by the camera the better.

A paper prepared by Mr. W. Jerome Harrison, of Birmingham, was read by the secretary (Mr. F. W. Rudler). Photography, it was pointed out, gave us knowledge at first hand in a way which could not be given by artists. With proper knowledge and care the transcript of nature made by a lens was, as far as it went, infallibly correct. Mr. Harrison mentioned that there are a quarter of a million photographers in this country—including snapshotters—who could do useful work if some one would tell them what to do and how to do it. He suggested the formation of a small sub-committee to collect details as to the exact work which has already been accomplished or is in course of execution, to prepare and circulate printed matter having reference to the work of the survey, so as to make its aims and methods generally known; to endeavour to co-ordinate the photographic societies with the literary and scientific societies, so that both may unite in the work of the survey; to obtain lists of experts who would be able to advise upon such subjects as photographic methods, processes, and appliances, draw up county lists of objects and places to be photographed, and write brief descriptions of the objects photographed and draw up lists of reliable literature on the counties or other areas. The publication of series of prints of districts or subjects would be one of the best methods of popularising and making known the work of the survey. The movement, added the writer, had come to stay; it only needed co-ordinating and directing along the right lines.

During the discussion Professor H. H. Turner, Professor of Astronomy at Oxford, suggested that in addition to the ordinary photographs, stereoscopic photographs should be taken, from which they could, by calculations, ascertain the distances between various objects shown.

It was stated that it was now too late to appoint a committee

in York, but it was decided that such a committee should be appointed next year at Leicester, and several gentlemen were nominated to serve on this committee.

#### THE VALUE OF REGULAR CUSTOMERS' NAMES.

RECENTLY (writes Charles L. Lewis, in the P.A. of A. Annual for 1906), while conversing upon the subject of insurance with a man who does a large mail order business, I remarked that the company with whom my insurance is placed would not insure my negatives. He thought that very strange, and said: "You see that file there? Well, that contains ten thousand names upon which I have twenty-five hundred dollars' insurance. I value those names at fifty cents each." Then he went on to explain that the names were those who had either bought goods or inquired about them.

Now, if we photographers were to secure the names and addresses of all prospective customers who call to examine work and inquire prices, what a splendid list of names this, in addition to our daily register of sittings, would give us from which to secure future business.

Why should not the follow-up letters system be quite as effective in the photographic business as in any manufacturing or mercantile business? Any legitimate means of interesting the public, and securing their patronage, is good business.

This presents an immense field for operation and obviates any necessity for falling a victim to any of the schemes of clever sharks for getting photographs for nothing.

Various schemes worked upon the photographer have been a prolific source of income to many a man, who, without the easy pictures-for-nothing mark, could not make his salt.

To return to the subject: Go to your register, look it over, and see if there are not some names registered there which need attention—some person who sat and did not order as he might have done had he been better pleased; a memorandum made of some child whose mother said she wanted a colour picture some day; some lady who said her parents were coming to visit her soon, and they wanted a family group, etc.

With many of us, I doubt not, the first fifteen minutes' glancing over the register will suggest enough letters to keep the stenographer busy all day. Don't be afraid to ask your regular customers for sittings; you can do it with much better grace than you can strangers. This, with the proper attention to the suggested list of prospective customers, will keep the receptionist out of mischief and result in a large increase of good legitimate business.

## Exhibitions.

#### ANDOVER AND DISTRICT HORTICULTURAL SOCIETY.

At the recent exhibition on Aug. 6th the judges (Messrs. F. Marnier and Milman) made the following awards:—

Class A (Figure Studies).—Gold Medal, H. Holt; Silver Medal, Rev. E. G. Watts; Bronze Medal, T. S. Bloom; Certificate, H. Y. Summons.

Class B (Landscape and Seascape).—Silver Medal, H. Y. Summons; Bronze Medal, A. Roffey; Certificate (extra), H. Y. Summons; Certificate, Mr. Stratton.

Class C (Architecture).—Silver Medal, James Dunlop; Bronze Medal, A. W. Walburn; Certificate, H. Y. Summons; Certificate (extra), J. Dunlop.

Class D.—(Animal Studies, Flowers, Fruit and Plants).—Silver Medal, G. Dunn; Bronze Medal, C. H. Eden; Certificate, Rev. E. G. Watts.

Class E (Post Cards).—First Prize, Mr. Richardson; Second Prize, Rev. — Clarke; Certificate, Mr. Hilton.

Class F (Landscape or Seascape).—First Prize, Miss E. S. Best; Second Prize, Rev. E. G. Watts; Certificate, T. C. Beynon.

Class G (Architecture).—First Prize, Rev. E. G. Watts. Second Prize and Certificate not given.

Class H (Figure Studies).—First Prize, Rev. E. G. Watts; Second Prize, T. C. Beynon; Certificate, Rev. E. G. Watts.

Class I (Beginners' Class).—First Prize, Mr. Monger.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications have been made for Patents from July 30 to Aug. 4:—

**CAMERAS.**—No. 17,092. Improvements in photographic cameras. Thornton-Pickard Manufacturing Co., Ltd. George Arthur Pickard and Frank Shays, 6, Bank Street, Manchester.

**CAMERAS.**—No. 17,359. Improvements in focussing and exposing devices of photographic cameras, and in connection therewith, John Edward Thornton, Altrincham, Cheshire.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**DISHES.**—No. 16,111, 1905. The invention consists of a dish with the bottom composed of sloping surfaces radiating from the centre, such that the plate is easily and quickly removed, it being readily seized on one corner being depressed by the finger. Reference is drawn by the Comptroller of Patents to the patent 11,650, 1903, granted to Kodak, Ltd. Joseph Hutchinson, 119, Turner Lane, Ashton-under-Lyne, Lancashire.

**FLASHLIGHT.**—No. 18,422, 1905. The claims are for (1) a flash-lamp having a pan for the reception of the powder, which pan

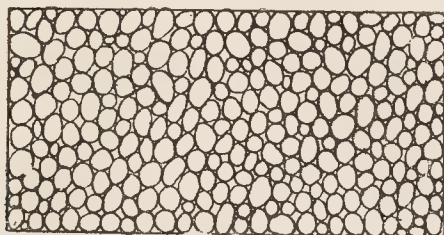


Fig. 1.

is open at the sides, and provided with a contracted opening at the top, so as to direct the light upwards and laterally; and (2) ignition by fulminating caps. Takerari Aiyhma, 11, Fukuromachi, Kanda, Tokio, Japan.

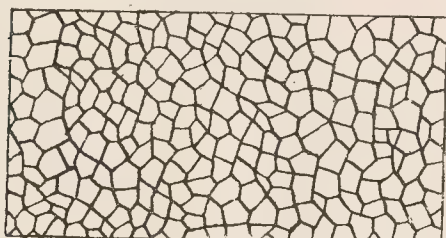


Fig. 2.

**CINEMATOGRAPHS.**—No. 24,426, 1905. This invention relates to apparatus for producing moving pictures, and more especially to fire-proof magazines for combustible picture-bearing films and to a compensating device adapted for use in connection with the spool on which the film is to be wound after or as it is unreel, the compensating device serving as the driving device for winding the spool, and being so constructed that the relative speed of the winding spool is automatically decreased as the quantity of film upon the winding spool increases, the speed of the spool being greatest at the beginning of the winding operation, and being gradually decreased as the winding is continued and the bulk of the film on the spool increases, thereby maintaining a substantially uniform tensional strain

on the film throughout the entire winding operation. Nick Power, 115, Nassau Street, New York, U.S.A., and Benjamin Morton, 253, Broadway, New York, U.S.A.

**SELF-MOUNTING PAPER.**—No. 25,922, 1905. The inventor proposes to coat paper (before sensitising) with shellac or other waterproof substance which is softened by heat. The finished prints are then mounted by passing a hot iron over prints, card mount, or by otherwise subjecting them to heat. Reference is made by the Comptroller to the specification of Denon Frères, No. 17,471, 1901. Warwick Brookes, of 350, Oxford Road, Manchester.

**COLOUR PHOTOGRAPHY.**—No. 9,100, 1906. The invention is a modification of the starch grain process of colour photography already the subject of Letters Patent (specifications 122,988 and 25,718, 1904). In place of filling the interstices of the coating of starch grains with black powder (e.g., charcoal), the inventors now subject the coating to rolling. The process is as follows:—After having spread on the transpa-

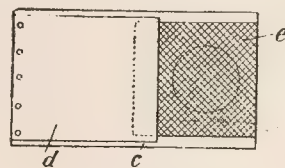


Fig. 1.

support, which may be glass, film, paper, etc., a layer of pitchy material, there is spread by the means already described in the above mentioned specifications a layer as uniform as possible of coloured particles, in which layer the grains touch each other without being superposed on each other, as shown at Fig. 1. These grains, composed of fucula, starch, or of analogous matter, are then brought to a suitable hygrometric

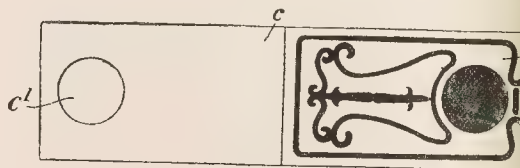


Fig. 2.

condition in order to acquire the necessary plasticity for the next operation. In this state the coloured coating is submitted at the same time as its support to a direct pressure or to rolling which crushes the suitably softened coloured grains and causes them to fill the spaces so as to form, as shown in Fig. 2, a mosaic covering the support at all parts. This method has, over that of filling with black powder, the advantage of

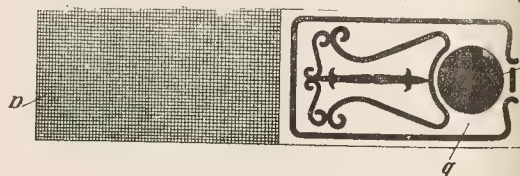


Fig. 3.

producing more luminous plates, and of regularising the thickness of the coating in such manner as to avoid as much as possible the diffusion of light. The coloured coating thus obtained is, as before, covered with a transparent varnish above which is spread the sensitive coating. B. J. B. Mills, for La Société Anonyme des Plaques et Papiers Photographiques A. Lumière et ses Fils, 21, Rue St. Victor, Lyons-Monplaisir.

**MASKS.**—No. 5,670, 1906. The invention relates to the printing of border negatives, in which the part having the border mask and the picture opening, and that having the picture mas-

and the border negative are made in one piece of material, folded upon itself, or are connected together in any suitable manner, and a gummed strip is provided to secure the picture negative over the mask, so that the negative always occupies exactly the same position with regard to the picture opening. Also all the parts may be secured in book-form, and a piece of material, such as gauze, wood veneer, or canvas, may be provided for the purpose of printing on the sensitised surface an attractive background. As shown in Fig. 3, the bottom sheet *a* is constituted by gauze, or it may be canvas, wood veneer, or the like, and over it is placed a sheet *b*, which represents the border negative and picture mask. On top of this is placed the border mask *c*, having the picture opening. Attached to the border mask *c* is a strip of suitable material *d*, provided with gum or other adhesive substance to which the negative or film *e* is secured. In use, the sensitised paper or the like is placed between the flaps *c* and *b*, which may be separate and connected together as shown in Fig. 3, or these two may be made of one piece of material folded upon itself. The gauze or other sheet *a* may be used or not, as it can be readily folded over or under the sensitised paper. The border negative is preferably first printed from, during which time the part to be occupied by the picture is protected by the mask *b*<sup>1</sup>, and after this printing is finished, the sensitised sheet is removed and reversed, so that the printed portion is now covered by the solid part of the border mask *c*, while the part that was covered by the mask *b*<sup>1</sup> is opposite the picture opening *c*<sup>1</sup> in the part *c*. The picture negative *e* is then over the mask *c*, and the arrangement is exposed as shown in Fig. 1 for printing the picture proper. It is to be understood that the applicants do not hereby suggest that the use of a border negative with a picture mask and a border mask with a picture opening, or of a background pattern or negative, is broadly new, or that the conjoint use of two or more of these devices is broadly new. Leipziger Buchbinderei Actien Gesellschaft vorm Gustav Fritzsche, Crusius Strasse 4-6, Leipsic, Germany.

#### FORTHCOMING EXHIBITIONS.

September 14 to October 27: The Photographic Salon.—Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.  
 September 20 to October 27: Royal Photographic Society.—Sec., J. McIntosh, 66, Russell Square, Bloomsbury, London, W.C.  
 October 6 to 13: Bristol Photographic Club.—Sec., J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.  
 October 17 to 20: Rotherham Photographic Society.—Sec., H. C. Hemmingway, Tooker Road, Rotherham.  
 Rotherham Photographic Society.—Annual exhibition. "Open."  
 October 17 to 20. Entries close October 8; exhibits, October 13.  
 November 15 to 17: Burnley Camera Club. Entries close November 10. Sec., Fred Whitaker, Mechanic's Institution, Burnley.  
 November 16 to 21: Southsea Amateur Photographic Society.—Hon. Sec., F. S. Hoyte, "Lismire," Stafford Road, Southsea.  
 November 20: Sefton Park Photographic Society.—Sec., A. W. Parr, 34, Loudon Grove, Liverpool, S.  
 November 27 to 30: Hove Camera Club.—Hon. Sec., W. H. Bone, 32, Sackville Road, Hove.  
 December 11 to 15: Southampton Camera Club.—Hon. Sec., S. G. Kimber, "Oakdens," Highfield, Southampton.

1907.

February: Birmingham Photographic Society.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.  
 February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.  
 February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge.  
 March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.  
 April 29 to May 14: Photographic Society of Ireland.—Sec., R. Benson, 35, Molesworth Street, Dublin.  
 October 24 to November 14.—West of England Exhibition (Photographic) Section. Entries close October 1. Sec., A. D. Breeze, 41, Union Street, Plymouth.

## New Books.

MESSRS. CASSELL AND Co. have issued, as a volume of their "Work" series, a handbook on "Photographic Chemistry," a digest, so it is admitted in the editorial preface of Mr. P. N. Hasluck, of articles "scattered over the columns of 'Work.'" It is scarcely to be expected that this digestive process can produce anything very admirable as a text book on one of the most difficult subjects to which a writer may apply his pen. As a result, we find the contents very miscellaneous in character, scraps of chemical theory being sandwiched between thick slices of text dealing with laboratory practice, such as distilling water and bending glass tubes. We cannot accuse the unknown author of gross misstatements, but the book is a tangle of facts jumbled together and overloaded with irrelevant matter to such an extent as to be of little use to the photographer who wishes to learn something of the chemistry of his subject.

## New Apparatus, &c.

The "Hana" Bromide Printing Machine. Made by Houghtons, Ltd., 88, 89, High Holborn, London, W.C.

The demand for photographic picture postcards having given an impetus to the supply of mechanical aids to the rapid production of bromide and gaslight cards, every new piece of such apparatus should be eagerly examined by professional photographers, as a new accessory to profit-earning in this now active branch of the

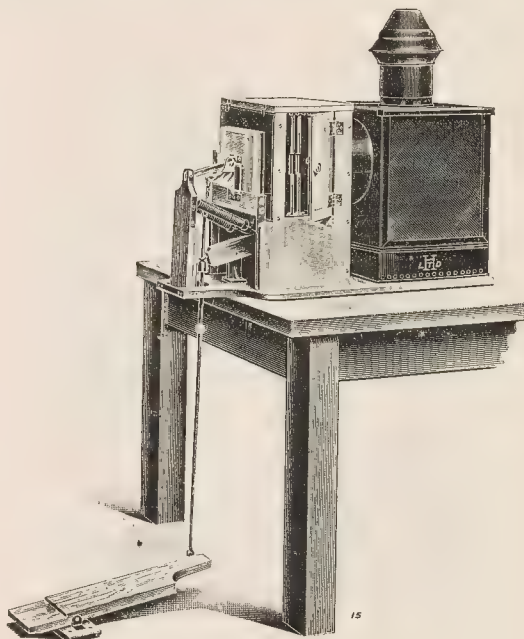


Fig. 1.

photographic business. It is one great recommendation to the "Hana" machine that its design was undertaken, and the first working instrument made by Mr. Hana, the theatrical photographer, of Bedford Street, Strand, for his own use in postcard production, and the appearance of the machine on the market has not taken place until some months' constant use had proved the ability of the machine to answer the requirements for the rapid exposure of development papers.



Among the good points of the machine, from a practical point of view, we signalise the following as of primary importance for rapid work:—

The negative is changed and fixed firmly in position in a few seconds.

In feeding sensitive paper or cards to the machine, each piece is placed instantly into exact register, a large edition of prints being uniformly identical.

These, as we have said, are the two chief qualifications for rapid work. The reader will gather from them and from the illustrations that the "Hana" is a hand-fed machine—the type of bromide printer which is proving itself the most capable of responding to every-day work, for the reason that it is free from complicated mechanism, that every operation is under inspection, and that changes in the brand of printing material, in the portion of the negative to be utilised or in other respects, can be instantly recognised as necessary, and as quickly made.

As will be seen from the drawings, the "printing frame" portion of the machine is the face of the wooden chamber (Fig. 1), having a door on the right. This face is glazed, and the negative is held firmly against it by the hinged frame immediately below the pressure back. The negative—which may be whole-plate or the very smallest—is centred over the opening, and on being fixed by a turn of a lever below the frame will give print after print exactly corresponding to the opening of the cut-out.

In making each print the paper or postcard is placed against two stops, and pressure applied to the footboard with the heel. This movement closes the back against the paper, and lowers the ruby window separating the light. To arrest exposure, the heel pressure is released, and the other end of the footboard pressed down with the toe, cutting off the light and opening the back. This series of exposures goes on as fast as the papers can be fed in, both hands being at liberty for handling the cards, and the exposures being controlled entirely by the foot. The chamber

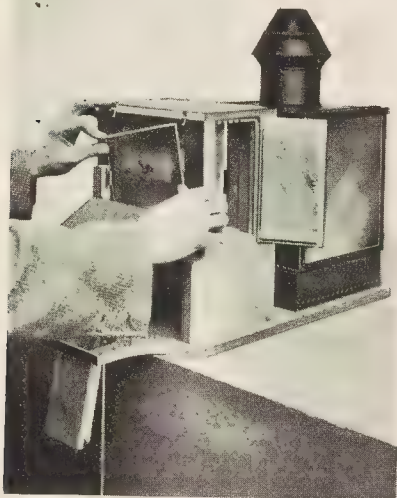


Fig. 2.

between the negative and the light is grooved to receive ground glass or opal when working with rapid bromide papers, and for the reception of a vignetting plate, which is provided with a large aperture, over which a suitably pierced card is held by a couple of springs, being adjusted to the negative while the effect to be obtained is in sight. On our paying a visit to his studio, Mr. Hana himself showed us the delicacy of the vignettes obtained in this way, and at the same time allowed us to see the machine doing

its daily work in a way which entirely confirms us in what have written of it.

We have written much, and yet not more, we feel, than a workmanlike and strongly-made piece of apparatus deserves. It is pre-eminently fitted for its work, is capable of giving with rapidity prints which lack nothing as regards sharpness and

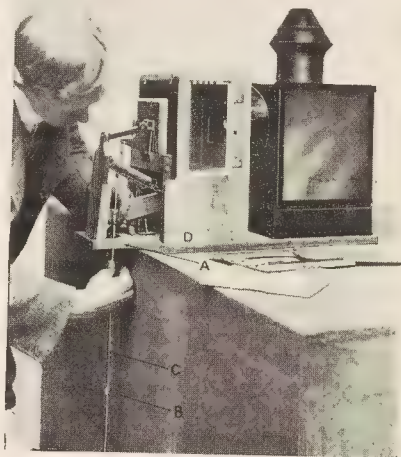
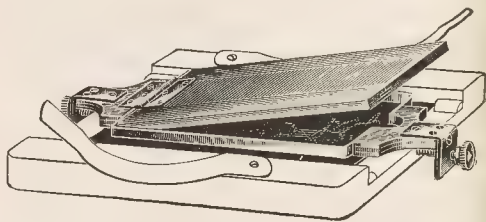


Fig. 3.

response with that part of the negative selected. The machine as now issued makes prints up to half-plate size, but will take negatives up to whole plate. The lantern portion is provided with a ruby and orange window on either side, affording a safe light for development of plates and papers. The complete apparatus costs £4 15s., complete with incandescent burner, and can be supplied also for oil or electric light.

The "Primus" Postcard Registering Frame. Sold by Messrs. W. Butcher and Sons, Farringdon Avenue, London, E.C.

In this very simple yet efficient accessory Messrs. Butcher have provided the means of taking postcards from a negative without loss of time in placing each card in position. The frame is fixed to any ordinary half-plate printing frame by the set screw at each end



and the cards are then dropped into the framework and exposed without loss of time in adjustment. For gaslight printing, pressure of the hand on the spring-back of the registering frame is sufficient. For printing-out papers the springs of the printing frame are employed. In either case the back of the registering frame springs up on pressure being released. The frame is strongly made, and costs 4s. 6d.

## New Materials.

Kodak "Velvet" Papers. Made by Kodak, Ltd., Clerkenwell Road, London, E.C.

Messrs. Kodak, Ltd., have introduced, under the above title, a new surface of paper in three of the leading and well known printing materials manufactured by them—viz., Solio (print-out), Dekko (gaslight), and bromide. The surface effect is almost identical in each case, and falls between a glossy and a matt, a happy compromise, which should be acceptable to both amateur and professional photographers. The amount of gloss is difficult to describe, but it roughly resembles that of a carbon print, as that term is usually understood. A carbon print, we know, may have any surface whatever, but the peculiar lustrous, yet not glossy, surface, which is familiarly described as "carbon," fairly represents the effect obtainable with the new Kodak "Velvet" papers. Of the three, the prints obtained on the Solio paper strike us as the most uncommon, and likely to be regarded by a photographer's customers as something out of the ordinary. The bromide and gaslight prints more closely resemble those of cold tone obtained on some brands of collodio-chloride paper, and it is no disrespect to the papers or to the emulsions they bear to describe them in this way. We would add that the new "Velvet" papers are manufactured in all the usual sizes, and are supplied at the same prices at which the several brands of paper are sold.

In order to give the amateur worker, wherever he may be, and however slender his resources, an opportunity of making a test of their P.O.P., Messrs. John J. Griffin and Sons, Ltd., Kingsway, London, W.C., are offering a sample outfit, consisting of six 4-plate pieces of glossy "Special" P.O.P., the same quantity of the matt paper, and one packet of "Tonix," the combined toning and fixing bath. The materials are sent post free on receipt of sixpence, and the outfit may be obtained from the leading dealers.

## Commercial & Legal Intelligence.

INDECENT Photographs.—At the Marlborough Street Police Court on Thursday, Edmund Dusedau, 31, a postcard publisher, of German nationality, of Plaistow, was charged on remand with selling four improper photographs to Detective-Sergeant Smith. The transaction took place in Upper Marylebone Street, W., about a week ago, and the prisoner was at once arrested. Sergeant Smith said that the accused had been previously convicted on three occasions, when thousands of cards were destroyed. Mr. Walter H. Cowl, solicitor, who appeared for the defence, urged that the transaction was an isolated one, and that the prisoner had now given up selling these cards. Mr. Kennedy said the prisoner carried on this corrupting business in spite of warnings. He would have to go to prison for a month and be recommended at the expiration of his sentence for deportation. Eighty of the cards would be destroyed.

An application was made for the discharge of George Wm. Austin, photographer, 15, Highbury Place, Islington, N., at the London Bankruptcy Court on August 9, before Mr. Registrar Giffard. Under the circumstances the Official Receiver reported that the debtor had committed the following offences under the Act: That the debtor's assets were not a value equal to a dividend of 10s. in the £, on the amount of the unsecured liabilities; that the bankrupt had omitted to keep such books of accounts as were usual and proper in the business carried on by him, and as sufficiently disclosed his business transactions and financial position during the three years immediately preceding the date of the receiving order. The Registrar, in giving his decision, said if the liabilities had been larger he might have suspended the discharge for more than two years, because of the debtor's carelessness respecting his book-keeping, but the

deficiency only amounted to about £400, and he should therefore order the discharge to be suspended for the minimum period of two years.

THE first meeting of the creditors interested under the failure of Ellen Jacklett, of Victoria Road, Aldershot, trading as J. W. Jacklett, photographer, took place last week. The statement of affairs disclosed gross liabilities amounting to £734 19s. 10d., of which £655 15s. 3d. was due to unsecured creditors. The assets were estimated to produce £116 6s. 4d., from which £79 4s. 7d. had to be deducted for the claims of preferential creditors, payable in full, leaving the net assets at £37 1s. 9d., and disclosing a deficiency of £618 13s. The debtor alleged her failure to have been caused through bad trade at Bexhill, and illness of herself during 1902 and 1903. The receiving order was made on her own petition, and she had since been adjudicated bankrupt. In the year 1894, on the death of her husband, she took over the business, which he had carried on up to that time at Aldershot as a photographer, and she carried on that business at the date of the receiving order. In or about January, 1903, she took over a photographic business at 7, Sea Road, Bexhill, which was carried on under the management of her son, but this business was closed in April, 1905. She made a loss in connection with this business between July, 1904, and April, 1905, of £296. The only book of account she had kept was a day-book. She had not taken steps to ascertain her financial position during the past three years. She was insolvent to the extent of £374 in July, 1904, but she did not become aware of the fact that she was in a state of insolvency until April, 1905, when she closed the Bexhill business. She admitted that she had contracted debts since April, 1905, which were now owing, with most of her present creditors. Of the unsecured creditors' claims, £42 was in respect of money lent, and the balance was due in respect of goods supplied and work done. Eventually the estate was left in the hands of the Official Receiver for summary administration in the usual manner.

W. H. HARRISON, LTD.—Capital £5,000, in £1 shares (2,500 preference). Objects: To acquire the business carried on by W. H. Harrison, of 7, Onslow Place, South Kensington, S.W., and to carry on the business of photographers, photographic artists, makers of scientific, photographic, and surgical instruments, etc. No initial public issue. Registered office, 4, Onslow Place, South Kensington, S.W.

THE Affairs of Mr. Van der Weyde.—Van der Weyde (Henry), photographer, 182, Regent Street, W., at the London Bankruptcy Court, on August 7. This bankrupt renewed his application to Mr. Registrar Linklater for his order of discharge. Mr. Walter Boyce attended as Assistant Receiver, and the applicant was represented by Mr. Hansell. According to the Assistant Receiver's report, the liabilities were estimated by the bankrupt at £12,627 13s. 9d., in respect of which proof of debt, amounting to £29,582 15s. 7d., had already been admitted by the trustee. The assets had realised £163 14s. 4d., and a first and final dividend of 1gd. in the £1 had been paid. The bankrupt attributed his failure to loss on trading and to inability to realise his inventions. The Assistant Receiver opposed the application, on the grounds that the bankrupt's assets were not of a value equal to 10s. in the £; that he had continued to trade after knowing himself to be insolvent; that he had contributed to his bankruptcy by rash and hazardous speculation and culpable neglect of his business; and that he had on a previous occasion made an arrangement with his creditors. The case had been adjourned to give the bankrupt an opportunity of making a reasonable offer to secure a sum to pay a dividend of 5s. in the £ on the amount of his liabilities. Mr. Hansell now stated that it had been found impossible to find sufficient security; up to the present the bankrupt's inventions had not resulted in anything substantial for the creditors, and, in all the circumstances, the case would have to be dealt with on its merits. His Honour suspended the order of discharge for two years.

THE Burnley Camera Club Exhibition this year will be from November 15 to 17. It will be opened by the Lord Bishop of Burnley, and Sir John O. S. Thursby, Bart., will occupy the chair.



## News and Notes.

**NEW Eastman Factories at Rochester.**—To provide a home for the manufacture of Graflex, Folmer and Schwing, and other high-class cameras, new factories have been erected at Rochester in Caledonia Avenue. The factory is specially devoted to apparatus for the professional photographer. Among other cameras made here are the Cirkut panoramic cameras. The Cirkut camera takes pictures 16ft. or more in length. The camera is mounted upon a revolving base which moves in a circle mechanically in unison with the unfolding of the long film negative, so that a section of the entire horizon may be swept by the pressure of a bulb. Some remarkable panoramic views have thus been taken. One of these is a view of the San Francisco fire, taken from the top of one of the hotels as the fire swept toward the photographer. What is said to be the largest photograph in the world was taken with a Cirkut camera. The photograph is a panoramic view of the city of Washington representing nearly a complete circle of view—about 350deg. It is more than 19ft. in length. Photographs of large size (writes the "Rochester Post") have been made by enlargement processes and by making a number of negatives and printing them on one piece of paper, but this is a single negative made at one exposure. To print this great photograph required a printing frame 20ft. in length. One thousand ounces of developer were necessary for making one print. The photograph was taken by E. W. Brehm, of Rochester.

**The Exhibition Picture** (from "The Photographer").—I printed it on bromide, coarse, which gave no definition; In fiendish glee despatched it to a tip-top exhibition; To my surprise it gained a prize; success at last was mine; The picture was accepted, and they hung it on the line. Then everybody praised it; 'twas the picture of the year; The critics wagged their heads and spoke of breadth and atmosphere; I felt a trifle mean to think how cheap was my renown, For I never told the management they'd hung it upside down.

**A PROGRAMME** of lectures on "Nature" subjects for the coming season reaches us from Mr. Martin-Duncan, of whose truly marvellous photography we have had reason to speak during the past few years. Mr. Duncan's lectures constitute such a happy combination of information and entertainment that a society may consider itself fortunate in arranging for one in its programme. In these days it is not easy to find a subject to talk about interestingly, and Mr. Duncan is to be congratulated on having found subjects close at hand of which he has obtained series of photographs quite sensational in their realism. Mr. Duncan should be addressed at 3A, Bradley Gardens, West Ealing, W.

**"HOUGHTONS' QUARTERLY."**—We may state, in further reference to our recent notice, that the object of this quarterly is to supplement the local dealers' catalogues, and our readers are asked to apply for particulars to their local dealers direct. Messrs. Houghtons are prepared to send a copy regularly to any amateur who would like to have it, and who at the same time sends them his dealer's name and address.

Mr. J. HUBERT writes us as follows:—"Having worked up an additional connection as a portrait painter, black and white artist, and retoucher, in Liverpool and Southport, I find it interferes somewhat with the business I have been conducting for so many years at 138, High Road, Chiswick, W., as, although I have informed some customers, whose work I personally attend to, others still send their negatives and copies intended for paintings, etc., to London. Will you therefore allow me to say that for the rest of the season, until the end of September, negatives and enlargements intended for paintings and retouching should be sent to my Liverpool address, 10, Bold Place. On account of the excellent postal arrangements my clientele in London and elsewhere will find no delay in the despatch of their esteemed orders."

**THE** late Mr. James G. Murray, A.R.E.—Artistic circles in Glasgow have sustained a great loss by the death of Mr. J. G. Murray, which took place at Cambuskenneth last week. Mr.

Murray was a native of Aberdeen, and began life in the "Press" office there. Having a taste for art, he went to Mr. Wilson, the well-known photographers, where he acted as "touch" and also did lithographic work. In 1886 he removed to Glasgow and after some years' service in Messrs. Maclure and Macdonald he joined Mr. R. Clouston Young in an artistic and design business, working principally for the lithographic trade.

We regret to record the death of Colonel J. Gale, one of the most pictorial workers, a member of the Linked Ring since its formation, and an Honorary Fellow of the Royal Photographic Society. Colonel Gale's name will long be remembered in connection with that particular type of pictorial photography which has no parallel in the present wave of impressionism, is thoroughly good photography, and relies for its qualities upon its admirable presentation of natural scenes.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—There are approximately ten thousand professional photographers in business for themselves in Great Britain. About five hundred and fifty—that is to say, about one out of nineteen—of them subscribe to the Professional Photographers' Association. Someone complains that the Professional Photographers' Association is "not doing what was expected of it." Does he mean what the five hundred and fifty expected of it, or what the other nine thousand four and fifty expected of it?

NEMO.

To the Editors.

Gentlemen,—With reference to "Disgusted Assistant" and "Disgusted Employer," there is cause for complaint, I think, on both sides. May I suggest, first, that there are many assistants who do not understand the meaning of efficiency? These young men will not as soon apply for a place of operator as printer. Now, having worked for some twenty years at photographic printing, I find that there is much to be constantly learned, and that because one does P.O. printing under favourable circumstances, one is not a printer in the right sense of the word. There is working under all sorts of conditions—variation of temperature, different waters from different supplies, various brands of paper, methods of toning, methods of conditions of printing, sizes of work, various classes of negatives, etc., all of which require time to attain, as well as tact. Then we have the "hundred and one" different printing processes, all of which require special experience. Is it likely that a young man or woman who can only have had, say, four or five summers' or winters' experience, and want a situation, can be expected to show efficiency? The P.P.A. does its best, but it cannot possibly be expected to look into each individual case.

Then the "Disgusted Employer" side of the question is that he wants a staff cheap. He takes some four girls and a young man to do his work, and, of course, cries out about their non-efficiency and carelessness. First, his four girls have come to him because he pays them. No doubt they eventually expect to get married, and are not going to centre all their interest on his work. I for one should not expect it, having seen a good deal of the young woman element in photography, and I find that, unless under a good (self-respecting) foreman, they will not improve the quality of the firm's work. Now, gentlemen, I would suggest that "A Disgusted Employer" get an experienced working foreman, who will, by management of time and material, save the expenses of three such girls as are employed by him. A word to the wise is generally sufficient.—Apologising for intruding on your space, I remain, Sirs, respectfully,

F. G. W.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Inst.	Name of Society.	Subject.
.....	Aberdeen Photographic Assn	Outing to Howe o' Bucksburn.
.....	Aberdeen Photo. Art Club.....	Outing to Banchory.
.....	North Middlesex Photo. Soc. ....	Outing to Uxbridge and Denham.
.....	Bowes Pk. and Dis. Ph. Soc. ....	Outing to the River Thames. Wool-
.....	Hackney Photographic Society	wich to the Mucking Lightship.
.....	North Middlesex Photo. Soc. ....	Excursion Prints Judged and Criticised.
		Exhibition of Pictures
		Ten Minutes' Papers by Members.

## Answers to Correspondents.

*All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

*Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

*Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*

*For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d., each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

Smith, 35, New Road, Grays, Essex. *Two Photographs of Grays Beach.*

E. Fritch, 25, Russell Terrace, Leamington Spa. *Photograph of entrance to Eton College Chapel, with the Rev. Dr. Ware posing to Mr. J. S. Sargent, R.A.*

Shackleton, 9, Cross Street, Abergavenny. *Photograph of Clydach Falls, Abergavenny.*

A. Baker, 113, London Road, Southborough, Kent. *Photograph of the exterior of Hotel "Ye George and Dragon," Speldhurst.*

H. Dee, 310, King's Road, Reading, Berkshire. *Photograph of the Reading Football Club, Ltd., 1906-7.*

Allison, 42, Scotch Street, Armagh. *Photograph of Memorial Statue to the Royal Irish Fusiliers erected on the Mall, Armagh.*

**EXAMINATIONS FOR PROFESSIONALS.**—I am anxious to know what books are published on photography for professionals, and also to get information about examinations in photography. I am at present a general assistant in retouching, mounting, spotting, etc., but have had no experience so far in operating, printing (silver prints excepted), and developing, and really know less about those branches than the ordinary amateur. It is my intention to take a studio in the future, and, of course, I want to be prepared for it. I have worked with two photographers, and neither of them has been willing to teach me anything in this way, even by taking a lower salary, and if I can obtain the necessary knowledge from books, and the use of a camera of my own, I shall be glad to know. I fear, perhaps, this may be too lengthy a question to answer in your paper, but perhaps you could mention someone who would give me the necessary information.—F. A.

You had better get the two volumes of "Professional Photography," by C. H. Hewitt, and write to the Photographic School, Regent Street Polytechnic, for prospectus of the classes.

**PROTECTION OF COPYRIGHT.**—About four years ago I was asked to photograph the abbot of a monastery near here, but on the understanding that he paid me for the negative which I de-

livered to him, the lay brothers doing the prints. The copyright, of course, was his. Now he is dead, and I wish to know if I can legally reproduce his portrait for sale, as it is unlikely that he has assigned the copyright, if ever it was registered.—OTHELLO.

The duration of the copyright has nothing to do with the ownership. It is determined by the author—i.e., it lasts for his lifetime and until seven years after his death. It will not have lapsed until you have been in your grave seven years.

**POSTCARDS.**—I see reference made in the "Journal" to some process of doing postcards while you wait. Could you give any particulars of such?—P. D.

As you do not give a reference, we are in doubt as to what you refer to. Probably the method involves the use of gaslight or bromide papers printed with one of the rapid machines, such as the "Hana," described this week.

**STAINS ON P.O.P.**—I enclose herewith two prints on P.O.P. by different makers. Could you tell me through your valuable paper the cause of the stains? They appeared just previous to toning. The first half of batch toned all right except one, and the others are all more or less this way, and refuse to tone even. As far as I can gather from inquiries it was impossible for anything to get into the washing water, and the dishes are used only for washing P.O.P. prints. The hypo being mixed previously by another assistant for fear of contaminated hands. I have had this occur four times recently, and it is very serious. My private opinion is that it is hypo in the washing water, though the printers say this is quite impossible. As about 100 prints are spoilt this time, it could hardly be a drop from an improperly washed enlargement, the only thing in the room at the time, and at the other end of large sink. Both assistants in this case are experienced and careful workers, and did not go near each other. After stains were first noticed the prints were immediately all re-washed, but it was too late, as they still refused to tone. It is not fault in paper. It is not fault in printing-room, or some of first batch would be spoilt. Ordinary washing and separate toning bath used.—"TRADER."

As far as we can judge, only hypo or other chemical (e.g., sulphite of soda, acids, etc.), can be the cause of the stains. Very moderate traces would be sufficient. We should say if you compel your printers to take precautions as to the purity of the wash water there will not be a repetition of the stains.

**COUPON BUSINESS.**—(1) Trade has been so quiet this spring that I think it is desirable to take some steps to revive things. I have read the various American articles on this subject in the JOURNAL, and have thought the coupon system might suit my purpose, although I have no particulars or very clear ideas of the said system. Do you think it is against the dignity of the photographic business, or the reaction unfavourable? I presume it means that you must run a cheap line, say, a dozen cabinet panels, perhaps printed in bromide, for 10s. 6d. My best line at the present is one dozen Aristo platino panels, carefully produced (good work, etc.), for 21s., in two positions. I should scarcely know what to say on a circular or how to word the coupons. I should be glad of your opinion and any details that would help. (2) What is the best method of writing titles on negative for postcard work? The best I can do is to reduce some part of foreground with dry pumicestone (fine), and write the letters backwards, with a pen and ink; but this is far from satisfactory.—COUPON.

One objection to the coupon business is that it is so closely associated with the methods of fraudulent parties, whose success in selling worthless coupons by house to house canvassing, are constantly being reported in the JOURNAL. If you consider the plan advisable—it usually succeeds best in districts of the cheaper class, such as shop assistants, mechanics, and small shopkeepers—we see no reason why you should not make it dignified, say, by having it to come into force on the occasion of some event in your own town, and arranging to close it at the end of a certain period. If you are, as you ought to be, a member of the P.A.P., and addressed the secretary, he would doubtless be able to put you in communication with some member who



would let you have a circular from which to work. (2) With the "Nameit" type outfit from your dealer, or by setting up the titles in large size, from type or with a rubber letter outfit, photographing a number together, and stripping each title on to its negative. The latter method is used by the postcard printers.

J. S.—Add enough 10 per cent. solution of potass ferricyanide to 4oz. per pint solution of hypo, to give a yellow solution. If too slow in action, add more ferricyanide.

STRENGTHENING BELLOWS OF CAMERA.—I have a 15 by 12 camera, the bellows of which are in good order at the sides, but the bottom has become limp, and will not keep in shape. Can you advise what should be done with it to stiffen it, so that it will hold in shape?—GEO. FRANK.

The only suggestion we can make is that you strengthen the gussets of the bellows by glueing strips of thin cardboard on the inside, and then blackening them over. If this does not give sufficient rigidity, you might put further strips on the outside.

PHOTOGRAPHING INTERIOR.—I have to photograph the interior of a large church by flashlight, and I shall be very grateful if you will kindly give me your valuable help. It is quite impossible to take it by daylight, as the spreading of the light from the east window (which is of clear glass) entirely obliterates the rest of the picture. I shall therefore be glad if you will advise me, although I am afraid I cannot give you much definite information as to the size of the building. But I imagine it capable of seating about 1,000 people. Would you therefore be good enough to tell me whether flashaxe candles would give sufficient illumination, or whether I had better use magnesium ribbon or powder, and, if so, what quantity?—M. D.

The "flashaxe" candles are very good for lighting interiors, but they must be placed so that they are not seen by the lens, and be fired simultaneously. We can give no idea as to the light that would be required without fuller particulars as to the size of the church, and its form, or even without seeing it. We think you would be far more successful by working by daylight. Cannot the light from the east window be subdued by placing a light sail cloth outside; or a dark tarpaulin might be used, and removed before the exposure is quite completed. This would be better than using artificial light.

COPYRIGHT.—We should be obliged if you would kindly let us know what steps we can take re the following. A publishing house or firm has placed on the market small negatives one inch square (reproduction of our local views) without our knowledge. As there is no name or address on their packet (containing negative and a small piece of P.O.P.), we have made inquiries of the shopkeepers where they are sold, and they say they do not know the firm's name supplying them. What we should like to know, can we take any action in the matter, seeing that the views are not copyright; and, if we can, how should we proceed? And if not, can we do so if we were to copyright?—W. C. CURNICK.

We should advise you to register half a dozen subjects, and then take steps to prove the sale of these subjects by the actual producers or their wholesale agents. Even the local shopkeeper has no right to sell the reproductions. You will find all the information on registration in the "Almanac."

GELATINE RELIEFS.—I should esteem it a favour if you could give me any idea as to where I can obtain a formula for making a bichromised gelatine solution, used in the swelled gelatine process.—EDDIE J. DUXFIELD.

The following may be used:—Nelson's No. 1 sheet gelatine, 2oz.; water, 7oz.; bichromate of potash, 90grs. As the film must be thick, unless you have the means of drying it quickly, there is the possibility of its becoming insoluble before it is dry. The most convenient way of working the swelled gelatine process is to form the film first and sensitise it afterwards. Sheets of gelatine suitable for the purpose are sold by most of those who supply lithographic materials. We

have had it from Cornelissen, Great Queen Street, W.C. soaked in a 3½ per cent. solution of bichromate of potash just flaccid, and then hung up to dry.

DAGUERREOTYPES.—(1) I should be much obliged if you would kindly give me some hints on copying an old daguerreotype want to avoid, if possible, taking the glass off; but the reflections are very troublesome. (2) Will you also kindly me a formula for gold-toning P.O.P. with soda formula J. S. M. W.

(1) We published an article on the subject in BRITISH JOURNAL of Dec. 1 last. There is no risk in removing the picture from its case, as the covering glass is simply bound to it with paper as a rule. To photograph, place the picture near the window, and at right angles to it, aiming at strong side light which is necessary to prevent reflection of surrounding objects entering the lens. The surface of daguerreotype plate is extremely delicate, and should on account be touched with the fingers. (2) Gold chloride, 1 sodium bicarbonate, 2grs.; formate, 8grs.; water, 20ozs. Immerse the prints in a 10 per cent. solution of salt before entering the bath.

CANVASSER.—Your present employer can certainly discharge you the spot if you do as you suggest, and you will thoroughly deserve it. Your moral sense appears to be defective or existent.

G. C. P.—The lens, we should say, suffers from flare, and strong light would give the patch of fog on the negative.

D. GIRDLESTONE AND OTHERS.—In our next.

THE Royal Photographic Society of Vienna.—By an act of Emperor of Austria on June 29 the title "Kaiserliche-Königliche" which corresponds with the designation "Royal" in this country has been conferred on the Photographic Society of Vienna, an honour, which is not a common one, should gratify the many stalwart supporters of the society, of whom some doubtless recall its establishment forty-six years ago. To none, however, should afford greater pleasure than to the present president, Dr. J. Eder.

THE late Mr. S. Poole.—The death is announced of Mr. S. Poole, one of the oldest inhabitants of Teignmouth. Until ten years ago Mr. Poole carried on the business of photographer now in the hands of his son.

MR. R. FELLOWS WILSON has moved from his studio in Bedford Gardens to No. 4, Sloane Street, W.

MR. E. J. THOM, late of 9, Giltspur Street, advises us of removal to more central premises at 63, St. Paul's Churchyard, London, E.C., where all communications as to his lines of paper mounts, backgrounds, etc., should be addressed.

In reference to our note of August 3 on Mr. Watmough's engagement with Messrs. T. Illingworth and Co. as demonstrator, we asked to state that Mr. Watmough will represent his firm in London and district, the provinces being in the hands, as hitherto, of Mr. F. J. Stedman.

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## The British Journal of Photography

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## SUMMARY.

M. Leon Vidal, we regret to say, died suddenly at his country seat, three weeks ago (P. 672.)

Copyright in sculpture. The rights of photographers, as instanced in a case mentioned by an Irish firm of photographers, should be noted by others. (P. 678.)

A question of copyright law, the marking of photographs as "copyright," is discussed in reference to two recent instances. (P. 663.)

In some notes on the three-colour prints, now to be seen at the Earl's Court Exhibition, Mr. F. C. Tilney makes a strong claim for the Continental worker. (P. 664.)

A French worker's apparatus for ascertaining the ratios required by three-colour filters and the intensity of three-colour inks is described on page 667.

Telephoto lenses, methods of colour photography, and cinematographs are among the patents of the week. (P. 673.)

A review of the portraiture of G. F. Watts, by Mr. A. V. Kenah, should encourage photographers to make a more serious study of art principles and of their application to individuality in portraiture. (P. 665.)

A recent Parliamentary report raises an alarm as to the danger to paintings—and therefore to photographs—from the increased proportion of sulphur compounds in coal gas. We recommend a method of framing, which in any case is one which may be adopted. (P. 662.)

A correspondent in Siam communicates his remedy for yellow stained negatives. (P. 678.)

Dr. Lindsay Johnson has published a new method of estimating the focal length of a lens, apropos of which attention may be called to the loose sense in which the term "infinite distance" is sometimes used. (P. 660.)

In improvising temporary lens-panels and similar accessories, the "three-ply" fret-wood is an extremely useful material. (P. 662.)

A camera specially designed for photographing fossils has been made for the United States Geological Survey. (P. 672.)

## EX CATHEDRA

### The Measurement of Focal Lengths.

In "The Photographic Journal" for August, Dr. Lindsay Johnson gives a method of determining focal length that may possibly be of considerable service

He points out that if we focus on two objects at an infinite distance, adjusting the camera so that one of the two images falls on the lens axis, then the distance between the two images is equal to the focal length, if the objects subtend an angle at the lens of 45 deg. If the objects subtend an angle of 18 deg. 26 min., or one of 26 deg. 34 min., then the separation of the two images is either one-third or one-half the focal length. If no objects subtending these angles are to be found, the angle between two convenient objects can be measured; the tangent of that angle is then a constant by which the distance between the two images can be divided to find the true focal length. Opticians who deal in both photographic lenses and theodolites or sextants will have no difficulty in fixing upon two suitable distant objects, but the ordinary photographer may have some trouble. We may suggest that a simple method of fixing the objects would be to sight one object over the points of two vertical needles, fixed points up in a drawing board, and then place a third needle in alignment with the second object and the rearmost needle. The angle included by the three needles could then be measured with a protractor. As an alternative, the procedure could be reversed, and the three needles set up at some definite convenient angle and two suitable objects found to fit them. It is, however, not absolutely necessary that the objects should be at an infinite distance. If sharp focus is first secured on infinity and the lens is then stopped down so as to secure plenty of depth, two near objects could be employed, and with a very short focus lens the objects and the camera might all be contained within the limits of a large room. To ensure accuracy, the lens would have to be placed so that its front node would come very approximately over the apex point of the angle subtended by the objects; also, it would be necessary to be sure that the focal length did not vary with the aperture.

### What is Infinity?

In describing his method of measuring focal length, Dr. Lindsay Johnson defines "infinity" as "any distance greater than six hundred times the focal length of the lens." The expression "infinite distance" is used in a very lax fashion by photographers generally, and there is a very common impression that any object beyond a certain number of focal lengths may be considered to be at an infinite distance. We have seen one hundred focal lengths given as the minimum distance, but while Dr. Lindsay Johnson's six hundred focal lengths is a better approximation, we



must point out that all such rules are founded on a misapprehension. An object may be considered to be approximately at infinity when its image is approximately in the principal focal plane of the lens, and if we calculate the displacement of the image from the principal focal plane, we find that under Dr. Lindsay Johnson's rule the errors for 3 in., 6 in., 12 in., 18 in., and 24 in. lenses respectively are .005, .01, .02, .03, .04 inches. An image that is one twenty-fifth of an inch out of place cannot be considered to be approximately in the focal plane, though a displacement of one two-hundredths of an inch may be negligible. The rule, in fact, breaks down for lenses over 6 in. focal length if one-hundredth of an inch is considered to be the greatest allowable error. The correct method of arriving at a minimum distance of approximate infinity is to first decide on the maximum permissible displacement of the image, and then divide that amount into the square of the focal length. The result is the extra-focal distance of the nearest object that may be considered to be at an infinite distance. In a problem concerned only with placing the focussing screen as nearly as possible at the principal focus, the question of aperture does not properly come in, but it may be as well to note that under the correct rule the circle of confusion representing a point at true infinity is very approximately the same with all lenses working at the same ratio aperture. Under the incorrect rules, the circle increases as the focal length increases.

#### Fitting Lenses to Cameras.

We have found convenient when using lenses belonging to other cameras. It is easy, of course, to have a second flange and panel when using the lens upon a second camera, but apart from the expense, the plan is not the most advisable. It is more convenient and economical to have the lens flange screwed to the panel of the smallest camera, and, if it is wanted for another camera, to make another panel fitting the larger camera, and screw upon it strips of wood the thickness of the smaller panel, so as to make a shallow recess to receive the latter. Four turn-buttons will secure it in place, and the one recess will take any other lens that is used on the smaller camera. A similar panel with recess can be fitted to all cameras of a larger size, including studio, copying, or enlarging instruments. The panels are easily made by using "three-ply" wood, which consists of three thin pieces glued together, with the grain running in opposite directions, to prevent warping. It can be bought at shops where fretwork materials are sold. If "satin walnut" wood is chosen, the openings can be cut with a good sharp knife or with the washer-cutter recommended in a former number. This same two or three-ply wood will be found extremely useful to photographers, for carriers, and the thousand-and-one little jobs necessary when enlarging or reducing from odd-sized negatives, as it will not warp or twist. But if it is to be kept in a damp room it is well to put a few small screws through it, to prevent the wood coming apart through possible perishing of the glue.

#### Processes at the R.P.S. Exhibition.

In our correspondence column this week is a letter in which the writer suggests that the process by which the pictures to be shown at the coming exhibition will owe their existence should be mentioned in the catalogue. Until the last two or three years this used to be done, but it was discontinued, for the reason, if we are not mistaken, that the declaration of the process was thought to be a reflection, in some obscure way, upon the quality of the photograph

as a work of art. In the pictorial section it is the picture themselves that are of chief interest, and not the process by which they are made; but there is a technical side to photography as well as the artistic—the former is that the Society is supposed to foster, as well as the latter—and there seems no real reason why the process employed in making the pictures should not appear in the catalogue. A rose by any other name will smell sweet, and a picture will not have its artistic merit detracted from because it is a toned bromide instead of being a sepia platinum print. Like our correspondents, including experts, find it next to impossible to decide the difference between, say for example, a good platinum-matt bromide print and a platinotype, without making a chemical test, and it is equally difficult to distinguish a good sepia-toned bromide from a sepia carbon, or a sepia platinotype, particularly if they are similar colour and on a similar rough paper, and particularly when they are framed and hanging on the wall. There are at the present time so many different processes in vogue, all of which yield such excellent results, that the practice would certainly add to the interest with which the exhibition would be visited by all except a small minority. There is another point, also, in connection with the subject. Many of the pictures exhibited are for sale, and the purchasers interested in obtaining a permanent print will doubtless like to know the process employed in its production.

#### Choosing the Carbon Surface.

The carbon print, as everybody should know, may have any surface, from the coarsest of the coarsest drawing-paper to that of the highest glaze of an enamelled P.O.P. Yet the term "carbon surface" is nevertheless one which is understood to represent the texture of a carbon print as usually produced on the ordinary smooth single transfer paper, a texture, too, which is very well imitated in several commercial printing-out papers. To many, the semi-gloss of this surface is distasteful, and it may be useful to mention how it may be converted into a matt without the aid of a coarser transfer paper. If, when the print is taken out of the washing water, after aluminizing, it is squeezed on to a piece of matt opal glass, and allowed to dry upon it, it will be found when stripped off to have the matt surface of the glass. If, on the other hand, a more glossy surface is desired than that yielded in the ordinary way, the print should be squeezed on to a piece of plain glass, or a ferrotype plate, in the same way as P.O.P. prints are sometimes treated, and it will then have a similar glazed surface. Double transfer prints can have their surface modified in a similar manner. In this case, after the prints have been stripped from their flexible support, they should be allowed to soak in cold water for an hour or two, so that the gelatine is thoroughly softened, before they are squeezed upon the matt or plain glass, as the case may be.

#### Danger to Photographs.

In a memorandum which has been recently issued as a Parliamentary paper, Professor Church, who was engaged a year or two ago to restore and arrest the further decay of the frescoes in the Houses of Parliament, says that owing to the increased licence allowed to gas companies in the use of sulphuric acid, which is so deleterious to pictorial and other artistic productions, is now more prevalent in the atmosphere of London than ever before. This is very disquieting as regards valuable works of art, but it is, in anything, more so with reference to photographs, especially if they are by a silver process. Fumes from burning gas have always contained a certain amount of sulphuric

acid and other sulphur compounds, though we must admit that Professor Church's strictures come as a surprise to us. We await authoritative figures in proof of them before accepting them. Nevertheless, burnt coal gas remains, as it has always been, a lurking danger to silver pictures, the more especially when they are but ill-protected by frames, such as is the case with many bromide enlargements. Under these conditions, it is not at all surprising that, in a comparatively short time, signs of change—yellowing of the whites and sometimes bronzing in the shadows—are visible, although considerable care was supposed to have been taken in the production of the prints. Seeing the existing state of things, it behoves the conscientious photographer to see bromide enlargements supplied by him are secured air-tight in their frames—or as air-tight as possible. Too frequently, when a picture is framed, no heed is paid as to its future; it is simply laid in the frame, the backboard put in and secured with brads, and a paper backing put on. As a result of this perfunctory treatment, the mount in time becomes soiled with dust or smoke. Very obviously, where dust and smoke can gain access, injurious vapours will also penetrate, with still greater ease, and consequent deleterious action on the picture. The proper course is to adopt the plan by which picture framers secure valuable engravings entrusted to them. First, the glass is secured in the rabbet of the frame with strips of good quality paper stuck on with paste. Then the print is placed in, and on that a closely fitting backboard is secured with brads. A piece of stout brown paper is then damped, allowed to expand, and then fastened with glue to the back of the frame only—not to the backboard. When dry, the paper will be as "tight as a drum," and should at any time the backboard shrink, no fumes would get in. If precautions such as these were taken in the framing of bromide enlargements they would have a longer lease of life, even when they are hung in rooms where gas is burnt.

#### MARKING PHOTOGRAPHS "COPYRIGHT."

In our issue of August 10 there were two references to the marking of photographs with the word "Copyright" under circumstances when some doubt existed as to the proprietorship or registration of the copyright. In the first case, that of the portrait of Miss Marie Corelli, printed as a frontispiece to her latest work, "The Treasure of Heaven," our remarks were based upon the information given by Miss Corelli herself in connection with the fact that the imprint indicated that the photographer was proprietor of the copyright. It seemed reasonable to suppose that the copyright in the portrait was hers, since she went to the studio and was photographed in the ordinary course of business. It also seemed reasonable to assume that it had been registered by the photographer as his, rightly or wrongly, in the belief that he was justified in doing so. One would not suppose that a photographer would mark an unregistered photograph "Copyright." However, it is at the same time perfectly conceivable that on the termination of the secrecy which Miss Corelli was pleased to observe as to her identity, she may have assigned the copyright of the photograph to the photographer, or she may have made an assignment in which the copyright was held jointly by herself and the photographer. It may be useful if we assume that things were as first suggested above, namely, that the copyright was legally Miss Corelli's, and that the photographer had registered it as his property. We have thus a very good case upon which to discuss a point in copyright law

that is well worth consideration. In the case of an infringement of this particular copyright—the actual facts being those we have assumed—what would or what might happen? In a case at law nobody can say what will happen. If the photographer were to take proceedings he would certainly have no case, because he would have no locus standi—not being the owner of the copyright. If Miss Corelli were to take proceedings, her claim would be limited to that of the owner of an unregistered copyright—that is to say, she would have very little remedy. But what about the photographer? Clearly, he would have been guilty of an illegal action in registering a copyright that was not his, and also in marking as his copyright photographs which were not his copyright. The law assumes everyone to be acquainted with the law, and ignorance of the law is no defence. What would be his legal liability under the circumstances?

The second reference we have alluded to is the case stated by a correspondent, and briefly it is this: A person going to a photographer and paying for his sitting receives the prints marked "Copyright," or "Copyright registered." For the purposes of argument we may assume that in this case the wrongful marking of the photographs was intentional—that is to say, that an illegal act has been wilfully done. From a legal point, however, as we have explained, the position is exactly the same.

We have assumed that it is illegal for anyone other than the proprietor of a copyright to mark a photograph "copyright," but the Copyright Act does not specifically treat it as an offence. Therefore it would appear that it can only be dealt with under common law, unless the ingenuity of legal minds can show that the tenour of the Act inferentially provides for it. In the absence of a specific method of treating the delinquent, the only remedy can be the recovery of damages actually proved. We mentioned in an appendix to the letter of our correspondent that no case involving this point is recorded in the proceedings of the Courts, and under the circumstances this is no matter for astonishment.

With regard to patents, and the principle of patents is analogous to that of copyright, the similar condition is adequately provided for. The law protects the community from the assumption of patent rights by those not entitled to them. It goes so far as to make it illegal to mark any article as patent, even when patent has been applied for and before it is patented. Patent law is more comprehensive than copyright law, and it protects the patentee and also the community from frauds, which have their analogues in copyright, but against which there is no easy method of invoking the law owing to the primitive state of copyright law. Statute law is, however, but the basis of actual law. It is said that an Act of Parliament is not effective law until its provisions are confirmed by the final Court of Appeal—the House of Lords—and that is sufficiently near the truth to be accepted as fact. Whether it would be possible to establish effective means of preventing the unauthorised marking of photographs "Copyright," it is impossible to say, but it is undoubtedly highly desirable, in the interests of all, that there should be such means. Modern reproduction processes have given photography an importance commercially that was never dreamed of even a few years ago, and it is increasingly necessary, not only that owners of photographic copyrights should have ample protection for their property, but that the community should have similar protection from the fraudulent assumption of copyright.

Under our legal system, in a case of doubt, what the law is can only be ascertained by submitting a case to the decision of the judges, and the initiative must be taken by someone who stands to lose the whole costs



of the inquiry in the event of the judges not concurring in his view of the legal position. No one voluntarily takes the initiative in this way unless he be peculiarly litigious-minded, or unless his interests are such that the gain in the event of success is worth the risk of failure; but the injury done to any particular individual by the practice we are discussing cannot in the nature of things be very great, and hence it is that no one has considered

it worth while to take the responsibility of testing the law of the case. The injury is a small one to a member of the community, but to the community great, and the duty of dealing with it is a public rather than a private one. It would come well within the scope of the Professional Photographers' Association to take the matter, but unfortunately it is not a sufficiently large body to bear the necessary expenses.

## COLOUR PRINTING AT EARL'S COURT.

THOSE overworked martyrs to whom an evening's relaxation is seldom, if ever, granted may, if they will, find an excellent excuse for a visit to the Austrian Exhibition in the display of examples of pictorial printing by methods that are indebted to photography. The study of these prints, arranged in cubicles around the Imperial Court, may form a peg upon which to hang an hour's enjoyment in the open air, beneath a blue sky bejewelled with fairy lamps, amidst the music of the band and the fragrance of cigars. These distractions, to say nothing of light laughter, *frou frou*, and a hundred perfumes, will not be found to dull the enjoyment of the colour prints. On the contrary, the fact of the critical sense being slightly submerged beneath the optimism of a gala night affords the appreciative faculty fuller scope.

The visitor will be struck by the undoubted merit of the examples. Should he ask himself whether an exhibition of reproductive work got together by British firms (those who do not send their work abroad) could surpass this in quality, he would be forced to admit that it could not. There is, in all the proofs shown, unmistakable evidence of the employment of men of taste and skill: we might venture to add, of artistic training. The key of the situation lies in that fact. Those of us who have had to do with the reproductive arts in this country know how often proofs pass and repass on account of blemishes so obvious that the wonder is that such proofs could ever have been submitted. Your Britisher usually has to be told inch by inch; the customer acting as foreman printer. Your Continental can show his customer what is wanted. His intelligence, his infinite capacity for taking pains, and his general nativeness, usually bring about a satisfactory result at the first essay. At least, this is so when he respects his customer. I have known of firms who, possessing a reputation of the highest kind, nevertheless allow anything to go to the English printers for whom they work, assuring themselves that "the English don't know any better." This is a shameful state of things; but it is undeniable. In a general way, the English *don't* know any better. The few who do lament the backwardness of the native engraver and printer, and go directly abroad for their goods.

Perhaps the present exhibition will give a fillip to British efforts. It may induce them to employ artists as overseers and directors, and it may bring them to the knowledge of this great fact: that it pays to employ brains.

As was to be expected in an exhibition of Austrian work, Vienna makes the bravest show, Prague coming next in importance. All the well-known firms send a choice selection. Particularly good are the specimens of four-colour printing, a method not worked in this country to any great extent, though examples of it are common enough, passing for three-colour work to the uninitiated. Amongst these are often the much-admired plates that adorn "The Studio," which are printed in Vienna by Messrs. Angerer and Göschl for the most part. This firm enjoys the lion's share of British patronage. It shows at the exhibition some triumphs of reproduction. For

half-tone blocks in copper and zinc its reputation is established.

The "Printing Office of the Imperial Royal Austrian Court and State" excels in the combination of photo- and chromolithography: heliogravure reproduced on stone and combined with chromo-lithography. The work from this State presents eminently artistic and interesting. There is also the "Imperial Royal College of Graphic Art," which sends all varieties of photo-engraving and combination printing, as well as "Graphic Impressions," whatever they may be. We do remember to have been arrested by their difference from surrounding proofs. Perhaps their name is merely 'falsin' for the common fuzzygraph.\*

Messrs. Husnik and Hausler, of Prague, were at one time represented by a branch, or office, in London; but they claim no such distinction in the present catalogue,† where they advertise themselves as making "Printing Blocks for one, two, and more colours in acknowledged prominent quality." Indeed, the English in the catalogue is a constant joy to the literary vulture, and makes a dry book well worth sixpence asked for it.

J. Löwy, of Vienna, is another household word here, and his excellent results in colour blocks and coloured collages should be seen and duly admired.

"Three-colour and four-colour prints in most faithful execution; Zincography in finest Autotype and brush manner, etc., etc.," is some indication of the *superlative* work done by the "Establishment for Experiments of the Graphic Art" in Prague, whilst the "Rotary Multiplying of Photographic Pictures in the Bromide of Silver Process" is the chief work of the Austrian Photographic Association in Vienna. Another firm makes a charmingly naïve distinction in the phrase "Export of Fine and Finest Playing Cards."

Carl Pietzner, who describes himself, amongst other things, as a "Grossbritannischer Hofphotograph," has a system of "Pietzner's Colour Photographs," for which he has applied for patents in all countries. Our investigators should know about it. Another startling invention is an "apparatus for the systematic alteration or distortion of plane pictures by images by means of an ordinary photograph lens." The arrangement is on view (!) shut up in its box, which resembles the polished cover of a sewing machine. It is accompanied by a collection of "photogrammes showing the value of the method for various purposes." This device is exhibited by Theodore Scheimpflug, of Vienna, and is patented in Austria, England, France, and America. It is certainly very ingenious. The most useful and satisfactory results seem to be the photographic flattening out of pictures that are upon curved surfaces, such as frescoes upon soffits, pendentives, domes, and so forth. No matter what shape the originals, all the lines in the results have proper verticals and horizontals apparent at a glance, as one would see them piecemeal at very close quarters.

\* Probably photogravures.—Eds. B.J.P.

† We believe Mr. F. C. Clarkson, of Colchester, represents them.—Eds. B.J.P.

From the Bohemian Graphic Society, "Unie," Limited, Prague, comes another wonder, "copper blocks without screen, giving exact facsimile of the original." This is presumably something upon the principle of the "Nature Grain" that Messrs. A. and C. Dawson brought out many years ago. The colour work of "Unie," Limited, is highly commendable and artistic. But, indeed, this may be said of practically all the exhibits in this section. In one or two cases an original is hung side by side with its reproduction, and though to the sharp and knowing eye there may perhaps be a shade of difference between them, yet at the distance of a few feet it is impossible to say which of the two is the original. After all, this is the proper test. A print may be made to look very charming, and, in a book or magazine, may be entirely seductive; but it may be very unlike the original from which it was copied. In my experience, originals are never sent back with proofs for approval; they always have to be specially asked for.

In the majority of proofs shown without originals in this interesting exhibition, however, one is conscious of a fine colour sense upon the part of the makers. The purple, or red, or yellow all-overishness which mars so much three-colour work, the inherently "bad colour," as the artist knows it, which has earned the process the stigmatisation of being called "rubbish," is delightfully absent. This is probably due in many cases to the fourth printing. A delicate light tint of blue, for instance, such as a tender sky may demand, is an

impossibility when there are only small dots of dark blue far apart to give it; but a pale ink pretty fully applied is a different matter. When this is pressed into service, the dark dots are free to do their shading duty in other parts without hurt to delicate passages. Of course, this method may mock all the theories and outrage the theorists; but when it comes to actual commercial practicality, how much are the theories of enthusiasts allowed to count? Is it not a fact that block makers are to this hour seeking their salvation in new and yet newer experiments in colour-filters with one hand, whilst they are turning out their marketable work with the other? Is it not a fact that the blocks are fine-etched, retouched, unmounted and knocked up from behind, burnished, tooled, and otherwise licked into shape, and all this in accordance with the customer's grumbles? Are there three ideal inks for all purposes in daily and universal use? Truly our theories are out of reach at present. They are proper and inspiring on the rostrum, or before the scientific prosenium; but behind the scenes we are "fine-etching" for dear life. "Fine etching" is the confession of a theoretical breakdown. More over, in this country it is the bane of artistic work, because as a rule the etcher himself is not fine enough. He frequently begins his career with a broom, or fetches in an array of cans on a broomstick at midday, and if he is a good boy and his cans are reasonably full he becomes promoted to the post of fine-etcher in time. They do these things differently in Germany.

F. C. TILNEY.

## THE INFLUENCE OF WATTS ON PORTRAITURE.

WITH the passing away of George Frederick Watts, the world was left the poorer of one of the sublimest painters that ever lived; a man whose whole existence was consecrated to art in order that through its medium he could preach great lessons of eternal truth that would be for all time intelligible, not only to the savage, but also to the cultured classes. The period in which Watts flourished was one in which some of the greatest of Englishmen lived; it was a period in which men acted up to what they believed to be right, and did not hesitate to mount the pulpit and publicly proclaim their faith.

### "A Sense of Joyful Austerity."

Born in the year 1817, and brought into contact with the greatest poets, philosophers, and statesmen of the day, it is not to be wondered at that Watts's nature became imbued and actively responded to the dicta of the Victorian era, and that he had the courage to preach his opinions and sentiments in his own inimitable manner, with the same certainty which distinguished the great Victorians from those who have come after them. It must not be supposed from the above that Watts was an aggressive character; on the contrary, no humbler or more peaceful man ever breathed, nor one who was more ready to depreciate the value of his work; but this great painter belonged to that school of men who regarded themselves as merely spokes in the wheel of life viewed as a whole, as opposed to the more modern view, which teaches us to look only at art for art's sake, as if art were something separate to itself rather than a detail in the unity of things eternal. It is necessary to understand Watts's idealism in order to appreciate and properly construe his work, for it is this spirit of cosmic utilitarianism which is to be found in all his canvases, and it was the keynote of his existence. I have seen it often stated that Watts was racially a Celt on account of his family hailing from Hereford, but while this may be true, I cannot agree with those who state that the Celtic spirit predominates his work. On the contrary, I entirely dispute it, and am at one with Mr. G. K. Chesterton in failing to see any signs of the Celtic spirit in Watts's mysticism. Mr. Chesterton, in his biography of Watts, published by Messrs. Duckworth and Co., in their Popular Library of Art, very tersely puts the case as follows: "The essential Celtic spirit in letters

and art may, I think, be defined as a sense of the unbearable beauty of things. The essential spirit of Watts may, I think, be much better expressed as a sense of the joyful austerity of things."

### Watts's Gifts of Idealisation.

Having Celtic blood in my own veins, I can most certainly endorse Mr. Chesterton's opinion, and having made a close study of Watts's pictures, I am of opinion that his definition of the prevalent tone of Watts's work is most fittingly described. In all this artist's work is to be found a vein of seriousness which is antagonistic to that of the pure Celt. He was gifted to the fullest extent with what Matthew Arnold described as "the imaginative reason," and he was fond of depicting robust figures. This we see in the strong back of "Eve Repentant," and in the great heavy hands of his "Mammon," to mention only two instances. Neither of these subjects would have been treated in such a way by a pure Celt, for he would certainly have preferred a frailer and more elfish representation. It is said of Watts that when he gained the Academy Scholarship, which gave him the opportunity of going to Italy to study his art, he never painted in the galleries! He merely wandered through them, and went home to work out his own dreams; he was no copyist, but was so imbued with the spirit of mysticism that he could see nothing or think of anything without forming his own ideas thereon, and, through the medium of his canvas, depicting his ideals for the world to gaze at. It is this deep poetical spirit that manifests itself in his portraiture and which raised it so far above the ordinary level of that class of art; it was the foundation of all his work on which his masterly technique was built up. To Watts a face was something more than a mere physiological phenomena—it was the index to the soul and inner mysteries of the personality of the sitter. To him an eye was not a mere organ of vision, the nose an organ for smelling with, nor the mouth simply an organ for eating and speaking with. They indicated far more than this to him, for he regarded them as demonstrative features which were capable of being affected by the character of their owner, and it was his delight to depict these attributes in all his portraits. Thus, in his picture of John Stuart Mill, which Mr. Macmillan regards as "the most exquisitely characteristic of his portraits," one cannot help feeling that the



high placid brow on which thought is so deeply impressed serves not only as the upper part of the philosopher's face, but also as a crown to glorify his precise, thin, and ascetic features. In the case of Dean Stanley, we have most delicately depicted his sensitive lips, which seem so well in keeping with the refined tone of his writings; while, in the portrait of Thomas Carlyle, the rough, fierce, and strangely-marked features admirably depict the attitude of this writer towards the problems of life. There seems to me to be two great things to be remembered in portraiture—truth and beauty—and to his capabilities of blending these together is to be subordinately attributed the success or failure of the artist's work. I say subordinately because it is naturally of far greater importance that the artist be endowed by Nature with both the spirit of truth and that of beauty, and unless these gifts exist within him, then his work, no matter how fine his technique may be, must of necessity only rise to a mediocre level. Of these two attributes undoubtedly the predominant place must be assigned to the spirit of truth, for it is on this gift that he will have to draw for his power of grasping the individuality of his sitter, and unless he can read through into the very inner person of the individual that he is painting, his work will lack force, and will be devoid of life, and will merely be a thing of beauty. It follows, therefore, that the painter must himself be endowed with a strong personality, for otherwise it would be impossible that he could act upon the individuality of his sitter.

It is his duty to interpret and not merely read or copy the face he is painting, and I think I am right in saying that this is a point which only too many photographic portraitists are entirely ignorant of; I would indeed have it regarded as the first theoretical axiom to be embraced and understood by all who essay to become exponents of the art of portraiture.

#### The Power of the Camera.

I am sufficiently an optimist to believe that this capacity of reproducing the individuality of the sitter can be effected as well by the means of the camera as it can through the medium of an artist's brushes. I would even go further and state that I think it can be better done, for once we have got our subject into that condition of repose or activity which we consider essential to the realisation of our conception of him, modern photographic means have placed at our disposal the power to almost instantaneously record it, while the artist has almost invariably to carry a mental impression thereof for a greater or shorter space of time, as the case may be, after his subject has lapsed into a more or less changed mood.

It is interesting to observe, en passant, that the truth of the above remarks has, like most other things, been the result of the process of evolution. Portraiture is as old as the art of painting itself, and we have only to go into any of the museums with which this country is so richly endowed to see on the mummy cases of the Egyptians the desire to perpetuate the features of the individual. In the fourteenth century we see the art carried to a further stage, when the type, rather than the individual itself, was set up as the criterion to be followed by painters. It was not until the fifteenth century that we observe the art of differentiating the individual universally practised, though it need hardly be said that this forms the true basis of all portraiture. As an example of this, at that epoch of the world's history, I may perhaps instance the fact that Signorelli represented himself and Fra Angelico as spectators in one of the frescoes of the "Last Judgment," at Orvieto, and even Rubens gratified the vanity of his patron by including the portrait of Nicholas Rockox on the wings of the altar-piece commissioned by him at Antwerp. In most of these early masterpieces we are struck by the fact that it is only the profile that is represented, and, indeed, it is not until somewhat later that we find the full or three-quarter face depicted.

In the sixteenth century we find that portraiture was practised in a more easy and graceful style, and the stiffness and general rigidity of execution which predominated the works of the early masters gave way before the broadening ideas and general advance of knowledge of that period; but it was not until the Renaissance that we really find the independent portrait established as we understand it to-day. In the early portion of this article I spoke of the effect of the nationality of Watts on the treatment of his pictures, but as it may be thought that I was thinking only of the works he produced

in the later part of his life, when he entirely devoted himself to idyllic painting, I wish to state here that I consider that in his portraits we can also trace exactly the same style of treatment, and I cannot help thinking it was on account of his masterly knowledge of humanity and his sympathetic feelings towards it, that we may to a large extent, attribute his success in later life, when he left entirely to devote himself to his symbolical pictures. And as there can be no better school for an artist than that which, *ab initio*, embraces the close study of men and women in all their various complexities, for it is a field of surpassing variety wherein we brought into contact with the principal actors in the drama of our times, and are thus enabled to see the panorama of life from many points of view.

#### Personality in Portraiture.

How many of us are able to grasp the inner significance of the facility I am unable to say, for it seems to me to bring us down to the question of temperament. If we can respond to the influence around us, and yet, as it were, bring our intuition to act as a sifted medium, we must inevitably make progress, for we shall be educating ourselves to think individually, and thus our work will bear the impress of personality. This is what we find in Watts's portraits; he made it his duty to discover the thoughts of his sitters, and having as it were, saturated himself with their ideas, he let his own individuality act as a complement to theirs, while at the same time retaining its own personality, with the result that his portraits impress us with a force of character which is entirely their own, and which we classify as the product of a genius. To a certain extent we are right in such a classification, but, on the other hand, we must be careful not to let our enthusiasm run away with us, for we should be doing, not only an injustice to ourselves, but also to the object of our admiration. Watts was endowed with an artistic temperament, and it was a labour of love with him to develop it that he was able to use it as a dissecting instrument with which he was enabled to clear away the envelopment of conventionalities, and present to us the soul of the subject as he conceived

#### Watts's Epigram on Photography.

I fear my optimism with regard to the future of photographic portraiture was not shared by Watts, as, according to Mr. M. H. Spielmann, speaking on June 7, 1905, in the Memorial Hall, Manchester, he (Watts) believed "art is genius, photography ingenuous"—nothing more. Watts's remarks on photography to Mr. Spielmann are particularly interesting, and I cannot refrain from quoting him: "The photographic lens will accomplish the mere copying of nature better and far more accurately than I or any other artist can ever hope to do. But it is the soul that a man puts upon the canvas for the delight and improvement of his fellow man that the lens cannot accomplish, and this cannot be done without full and proper, and I may say, the only, study; for the expression of that art could only become ridiculous and grotesque if the structure were not truthfully placed before the spectator." Well, I suppose we could hardly expect such a great artist as Watts to say more than this, but I cannot help feeling that there are many fine examples of photographic portraiture in existence which show a good deal more "soul" in them, than some of the pictures exhibited at Burlington House; but I certainly grant that they are the exception, and are, alas! all too few and far between.

Now, why is this the case? Well, I think there are several reasons for it. The chief one seems to me to be that the majority of men who make portrait photography their profession have not studied art sufficiently; in other words, they rely on the camera to make up for their deficient training. It is obvious that the result can only be disappointment. It seems that if they but master the techniques of photography they are quite satisfied, and consider themselves justifiably entitled to be regarded as photographic artists, an obnoxious term which is all too common in the profession; the fact that there are techniques in art of a far more complicated character than those in photography pure and simple is, to a very great extent, entirely overlooked by them. I am glad, however, to note that this is an error which is by no means so common now as it used to be, and the photographic press in this country is to be sincerely congratulated on the splendid way it is spreading abroad the truisms of art, and, moreover, the expansion of our public art

eries is doing more than probably anything else to spread a love of art among the people, with the result that they are becoming more exacting in their demands when they decide to "have their photographs taken." It was only quite recently that I was discussing this point with an American gentleman, whose connection with the trade has brought him into intimate contact with the most celebrated professional photographers in this country and in America, and it was not very long before we got involved in a discussion on the subject of the progress of photographic portraiture. He was strongly of opinion that his own countrymen were superior to ours in this field of energy, and considered that this was due to their greater willingness to exchange ideas with each other and their individual eagerness to be shown and to learn everything which could improve their work. He was particularly down on those who went in for the so-called "impressionistic" style, and somewhat dogmatically stated he regarded them as either mentally deficient or sluggish who strove for effect at the least possible expenditure of energy. I remember him showing me some half-dozen specimens of what are known as Rembrandt effects, which brought forth a storm of derision from his lips; in no single instance was there any transparency in the shadows, but these were hopelessly looked up until, to a practised eye, the result was an utterly inartistic anduddy production. Do you suppose this great artist ever turned out such work? I can assure you he never did, and, if you only carefully examine one of his masterpieces and make allowance for the accumulation of the dust of many years, you will quickly realise that his shadows contain the requisite amount of detail and transparency to give the necessary effect of living existence to the subject.

### Study Art—and Humanity

Well, so much for the need of a thorough knowledge of art techniques; I would now wish to impress on my readers the necessity of training and exercising those faculties of temperament with which they may be endowed, for it is this spirit which can only give life and individuality to their work. If you cannot feel yourself, how can you expect to define emotion in your pictures? If you cannot see the strong points of a face, which seem to predominate the whole head, how can you expect to give these their proper value in your production? You must approach your subject with a feeling of reverence, as Watts did, and train yourself to allow the individuality of the sitter to impress itself on you and to respond to it, for if you can do this you will be able to accord it that treatment which will result in your work being something more than a mere facsimile copy of the subject.

To a great extent Watts went further than this, in that he was a hero worshipper, and invariably allowed his enthusiasm to take such a hold of him that he more or less idealised the men he painted. A great man to him was something more than a mere hero; in fact,

he was awestruck with the possibility that any human being could be so wonderful, to assume, as it were, the very attributes of humanity itself, and it is his way of regarding men and women which seems to me to be the influence of Watts on portraiture; he has taught us to regard a great man as something more than a highly developed creature of flesh and blood, and has made us regard him as an embodiment of humanity itself. Mr. Chesterton considers that he overdoes it. Thus, to again quote him, he writes: "Tennyson, fine as he was, both physically and mentally, was not quite so much of a demi-god as Watts's splendid pictures would seem to suggest. Many other sitters have been subjected, past all recognition, to this kind of devout and ethereal caricature." This may be so, but to me, at least, it is infinitely preferable to its antithesis, the arrogant display of mere technique; the latter is hard and cold, the former warm and full of melody. It is comparable to the difference in the style of two musical performers. One may be many times over the greater master of his instrument, but all his endeavours seem concentrated on the mere correct manipulation of the piece he is playing, leaving a feeling of harshness and want in our minds; while the other, even in the performance of the simplest piece, seems to endow it with the very spirit of music, and is capable of arousing in us either a feeling of rebellion or of infinite calm, just as he pleases. Each man has his own tastes, and everyone must decide for himself what his choice will be; but to achieve success we must make up our minds to be always willing, nay, ready, to learn and to seize every opportunity to study the masterpieces of those who have achieved fame in our own field of work. A careful study of Watts's pictures, with Mr. Chesterton and Mr. Macmillan as our guides, will more than repay the time devoted to it, even if it only makes us love humanity a little more than we do, and causes us to realise our proper place in the intellectual and moral systems of this world. In conclusion, let me quote the lines of Colton on "The Road to Glory":—"The road to glory would cease to be arduous if it were trite and trodden; and great minds must be ready, not only to take opportunities, but to make them. Alexander dragged the Pythian priestess to the temple on a forbidden day. She exclaimed: 'My son, thou art invincible!' which was oracle enough for him. Those who start for human glory, like the mettled hounds of Actæon, must pursue the game, not only where there is a path, but where there is none. They must be able to conquer the earth like Cæsar, or to fall down and kiss it like Brutus, or, like Nelson, to snatch the laurels of Victory while she is hesitating where to bestow them. That policy that can strike only while the iron is hot will be overcome by that perseverance which, like Cromwell's, can make the iron hot by striking; and he that can only rule the storm must yield to him who can both raise and rule it."

A. V. KENAH, A.C.A.

## THREE - COLOUR SCREENS AND INKS.

M. LOUIS GEISLER points out in the current issue of "Le Procédé," that the coefficient of a filter, or the factor by which the exposure should be multiplied when no screen is used, depends upon the screen, the plate, and the light.

Obviously, a plate which has twice the red sensitiveness of another will require half the exposure under an orange screen, all things being equal, although both plates may require the same exposure for a black and white object without a filter. In the same way it will be found that there will be considerable variations in the exposure for the same plate under the same filter if, for the ordinary carbons in an arc lamp, the enriched carbons which give a bright orange light, rich in red rays, are substituted.

The method which has been usually adopted to determine the variation in exposure has been merely one of trial and error in photographing a scale of greys ranging from black to white. This method, however, necessitates a considerable number of exposures; it is long and tedious, and frequently neglected altogether in practice.

The instrument the author has used is founded on that applied by M. Cousin, engineer-in-chief of the mines at Nancy, to compare the luminosity of lenses.

The chief part is a circular disc pierced with one or more aper-

tures of a given shape, so that during one rotation of the disc the sensitive plate shall receive at different points along a radius light increasing in a given progression from one margin. For instance, with the disc shown in Fig. 1 the quantity of light increases from the least exposure in the ratio shown in Fig. 2, and from this it is seen that it increases in geometrical progression of the arcs of the circumference included in the apertures, so that the result is equivalent to that obtained by the sensitometric systems of Hurter and Driffield and Scheiner.

In order to make the apparatus as convenient as possible, it is given the form of a dark slide, and the general arrangement is shown in Fig. 3. Immediately at the back of the shutter slide is a frame-work which will take three screens, E, E<sup>1</sup>; whilst the fourth aperture is left without a screen so that the naked plate can be tested; or it may obviously carry a fourth screen if desired. At the back of the slide is a gun-metal disc C, through which passes the spindle on which the sector C revolves; in A A are four grooves which take four slides in which are placed the plates G, G<sup>1</sup>, protected at back by V, V<sup>1</sup>. P is a pulley attached to the spindle, which may be actuated by a motor or multiplying wheel.

To avoid reflections from any source of light save that which is to



be tested, it is convenient to fit this apparatus to a camera, which should be directed to a white surface uniformly illuminated by the light to be used. For very exact measurements, and to avoid any error due to the decrease of illumination towards the margins, the lens and camera front should be removed. Provided the sector wheel revolves sufficiently rapidly, that is, from 500 to 800 times a minute, the error of intermittent illumination is negligible.



Fig. 1.

The sector should be rapidly revolved, the shutter of the slide removed, and the exposure made. Development is effected as usual, all four plates being developed together, and development should be continued till that portion which has received the least exposure is distinctly grey.

After the usual operations of fixing, washing and drying, the negatives should be cut along one of the radii of the disc, which is

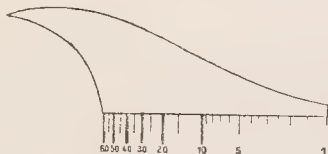


Fig. 2.

distinctly marked by notches in the rebate of the plate carriers. Each negative exposed behind the screens is successively compared side by side with that exposed without a screen till the densities are equal, then the distance between the edges of the least exposed parts is a measure in terms of the scale Fig. 2 of the light received, and is the ratio of exposures. The scale can, of course, be graduated in millimetres or actual terms of the coefficients.

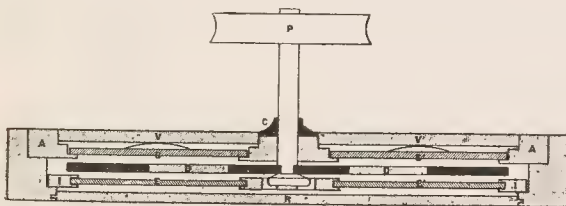


Fig. 3.

A similar apparatus may be used for testing liquid filters.

It may be interesting also to describe a method which has been employed for some years for the determination of the intensity of three-colour inks, with the view of obtaining blacks and greys without the predominance of one or other of the colours. This instrument was devised by M. Rosensthiel, who calls it a "colour balance" (Fig. 4), but these trials may be made without any special apparatus by merely using an electric motor or any arrangement which carries an arm revolving at a high speed. On this arm are

fixed discs pierced at the centre and along one radius (Fig. 5), similarly to those employed by Maxwell in his experiments on the mixture of colours. Two or three of these discs may be combined (Fig. 6), and the angles of each altered at will, so as to obtain combinations of the colours in all proportions.

Cards are covered with the inks to be tested in full intensity and fastened in equal angles by a screw, nut, or button to the arm

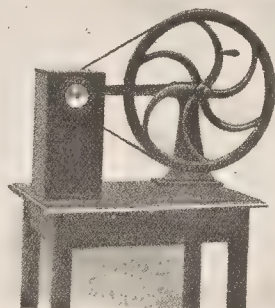


Fig. 4.

revolving, and the predominance of one or other of the colours looked for. The angles must be altered till a perfectly neutral grey tint is obtained. If this cannot be obtained the inks should be rejected. Supposing, Fig. 7, that to obtain a neutral tint the angles of the cards were respectively yellow 120 degs., red 140 deg. blue 100 degs., it is proved at once that the yellow and blue are

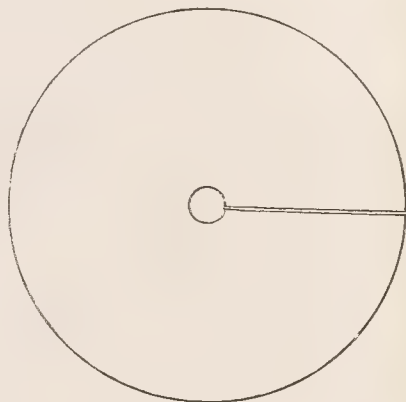


Fig. 5.

more saturated than the red. To obtain equilibrium we must reduce the intensity of the blue and the yellow by diluting the inks with varnish, and the ratio of the angles tells us precisely in what proportions we must do this. Comparing the red, the least saturated colour with the others, we can write:—

$$\begin{array}{l} \text{for blue} \quad \frac{\text{actual intensity}}{\text{highest intensity}} = \frac{140 \text{ deg.}}{100 \text{ deg.}} \\ \text{for yellow} \quad \frac{\text{actual intensity}}{\text{highest intensity}} = \frac{140 \text{ deg.}}{120 \text{ deg.}} \end{array}$$

We ought then to mix 100 parts of the blue ink with 40 parts of varnish and 120 parts of the yellow, with 20 parts of varnish to obtain in each case 140 parts of tint, which should be used.

The correctness of the results thus obtained can be checked by coating cards with the corrected inks, and proceeding as above; i

correct, a neutral grey will be obtained with sector angles of 120 degs. for each colour.

The want of transparency in the inks frequently obliges one to take into consideration in this regulation the order of printing. If they are printed in the usual order, yellow, red, and blue, it may be necessary in order to obtain perfect adjustment to make the angle



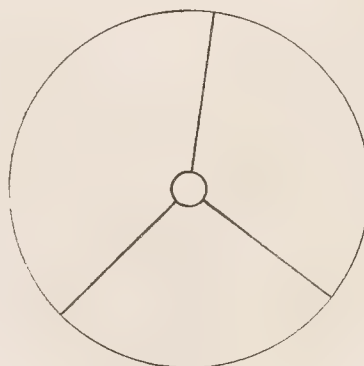
Fig. 6.

for yellow slightly larger than 120 degs., and that for the blue slightly less. The angles having been once determined it will be sufficient to adhere to these for any subsequent testing of the same type of inks.

It is easy to determine the intensity of the black which will be obtained by the use of the inks by comparing the grey which is obtained with the colours with that got by using a black and white disc, the former having an angle of 120 degs. The value to be given to the black sector to obtain equality is always less than this. Supposing that we conclude that the intensity of black by superposition is 110-120 degs., it will then be 9-10 degs. of that black

taken for the comparison, and assuming that other qualities are equal, one ought evidently to choose, from the point of view of the

Red.



Blue.

Fig. 7.

ease of production of black, those inks which give the nearest approach to unity.

## THE LAWS OF THE STEREOSCOPE AND STEREOSCOPIC TRUTH.

11.

### The Vigorous Consequence of the Stereoscopic Laws.

We now see that the convergence of the eyes and the lenses is the essential element in stereoscopy. If we wish to faithfully reproduce by the lenses that which we see with the eyes, then the axis of the eyes must converge towards the subject; the axis of the lenses ought theoretically to converge in the same manner. These instruments could not then be mounted on one and the same front, which is the invariable plan. Each of the lenses ought then to be mounted on an independent camera, fixed by the aid of a pivot on one common base in such a manner to permit of the lenses being placed closer together as the angle of convergence increased. In one word, the apparatus should be capable of the same movements as the eyes.

From the absolutely theoretical point of view, and pushing the striving for truth to its extreme limits, one ought at the same time to recognise, as the consequence of the above, that if the lenses cannot occupy the same plane, which would be excluded by their convergence, and not permitted by their being placed closer together, the negatives could not also be in the same plane. Consequently, as the positives ought to be seen by convergence and perpendicularly to their surfaces, the double stereoscopic print ought to have a fold in the middle. Finally, if one uses lenses to enlarge the images much reduced by apparatus of short focus, the axis of these lenses ought to correspond also to the convergent visual rays, and the ideal stereoscope would present the following conditions.

S (Fig. 6) is a sphere photographed stereoscopically by the lenses G D, separated rather less than 6.5 cm., since 6.5 cm. corresponds to the distance of separation of the eyes looking at the horizon, in which case the visual rays are practically parallel. The two negatives,  $s$   $s^1$ , having given the two prints,  $a^1$   $c^1$ ,  $A^1$   $C^1$ ; to see these images which form the stereogram having an angle in the middle, the eyes should be placed at G D, and if lenses were used, their plane ought to be respectively parallel to the plane of the objectives, G D.

This diagram shows that, contrary to the opinion generally received, the images of a stereoscopic couple are never superimposed in the stereoscope; it is sufficient that they should appear slightly nearer to one another than the separation of the eyes, in such a manner to fill for each eye the angle occupied by the object seen in nature, which, in our case, is the sphere S.

One can enunciate this truth in a very striking manner by saying that if the stereoscopic couple were transparent and placed between the spectator and the subject, it ought to exactly cover the latter, and correspond for each eye with nature itself.

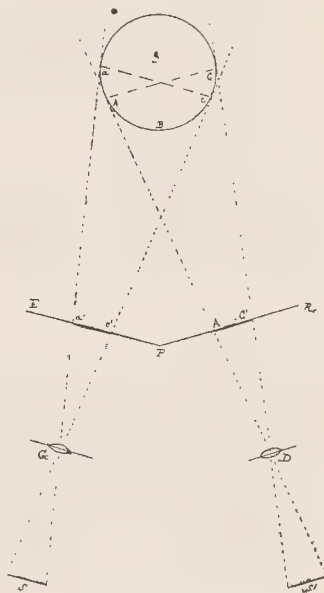


Fig. 6.

The above represents the absolute theory of stereoscopy in all its rigorously. From the point of view of practical photography, an ordinary stereoscopic camera renders the natural truth with sufficient approximation if the lenses are separated by the natural dis-



tance of 6.6 cm. For portraits, especially, one cannot exceed this separation, for, in the human figure, the least deformation is perceived.

Before proving by comparative stereoscopic prints the absolute truth of the laws which we have formulated, we will proceed to give the graphic explanation with the aid of the following figures:

G and D are the two eyes; the normal vision of the object A B is represented by the continuous lines. The distance of the object from the eyes being G S or D S, the visual angle of convergence is G S D. It is not shown in the figure, to avoid complication. The photograph of the object made with the lenses placed at G and D, gives the exact representation of the distance S, and the dimensions A B. If the lenses are placed closer together, and the photograph is made with them at the points  $g$   $d$ , the angle of convergence  $g$  S  $d$  is smaller

stereoscopic laws above. In Fig. 8 the stereogram which represents the stereoscopic prints is supposed to be at E P.

It will be seen that the two elements of each couple ought to be mounted one to the other in such a manner so as to be seen with the desired angle of convergence.

In Figs. 7 and 8, three stereograms are made at the same distance from the subject, but with different convergences. In Fig. 9 the distance of the subject alters, but the convergence remains the same. Normal vision is represented by the continuous lines; the eyes are at G D, and see the object A B at the distance D S. If A B is photographed with the same convergence, but closer, the lenses must be shifted to  $g$   $d$ . But, again, to see the image, the right eye ought to see it from the point  $d$   $r$ , and the object will be at the distance  $d$   $r$  S<sup>1</sup> = D S, but it will appear larger than in nature.

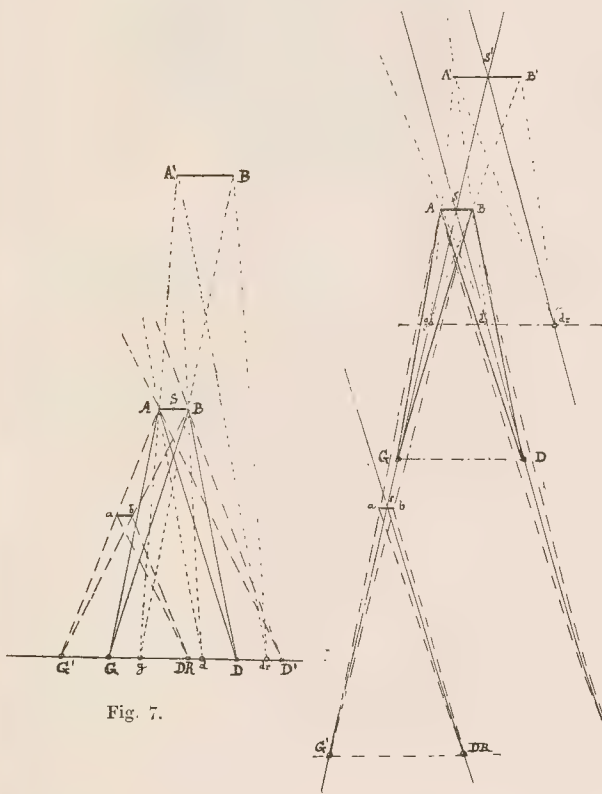


Fig. 7.

Fig. 9.

than G S D. But the eyes cannot be displaced to  $g$   $d$  to see the images; if the left eye placed at  $g$  does not move, it must shift the angle  $A$   $d$  B to  $A^1$   $d$   $r$  B<sup>1</sup>, so that its apex enters the right eye, for we suppose the distance,  $g$   $d$   $r$  = G D equal to the separation of the eyes. But when the fusion of the two images of A B will be advanced to  $A^1$  B<sup>1</sup>, the object will appear more distant and larger than in nature. If, on the contrary, the lenses are separated to G<sup>1</sup> D<sup>1</sup>, the angle of convergence G<sup>1</sup> S D<sup>1</sup> is greater than G S D; but to see the image the right eye ought to be placed at D R, the left eye being at G<sup>1</sup>; in fact, G<sup>1</sup> D R is equal to the separation of the eyes G D. But, then, the images will combine at a b, and the object will seem closer and smaller than in nature.

Figure 8 is the conclusion of the above; the three convergences  $y$  are shown starting from the same points G D, representing the eyes. One will immediately recognise in this figure the perspective of the three vertical planes figured by the stereogram which preceded the

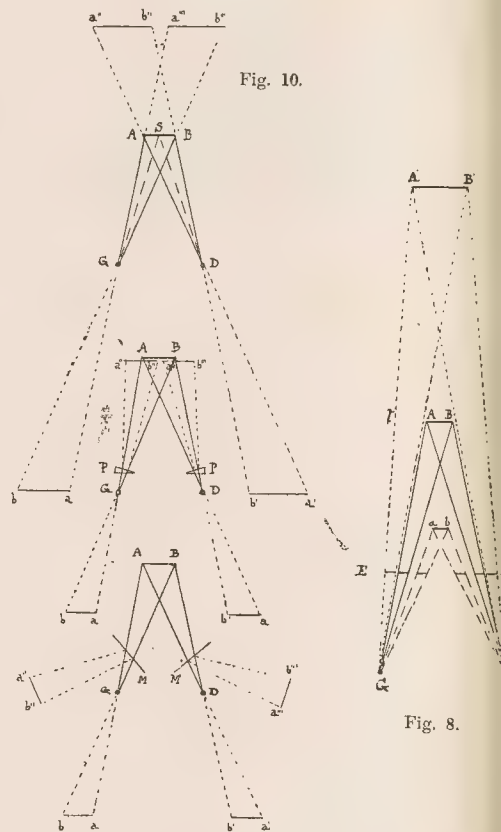


Fig. 10.

Fig. 8.

Fig. 11.  
Fig. 12.

On the other hand, if the photograph is taken from the points G<sup>1</sup> D<sup>1</sup>, the right eye cannot see the image of the right, except from the point D R, and the object will appear at  $s$  at the distance  $s$  D R = S D, but it will appear smaller than reality.

Fig. 9 shows how certain people deceive themselves into believing that it is sufficient to lessen the separation of the lenses to photograph a small object very close. They would only be right if the object was a geometrical point which has no dimensions, and, consequently, no lines in perspective. Small objects, if one would have them reproduced as they are, ought to be photographed like larger ones, at the distance at which they are to be seen, and with a lens separation equal to that of the eyes.

One does not see much at a lesser distance than ten or a dozen centimetres, with an angle of convergence of about 30 degs. But when one photographs at this distance, with lenses of extremely short focus, the image runs a great risk of being larger than nature, and, conse-

ly, the composition of the stereoscopic couple ought to be imitable in the ordinary way.

Supposing, in fact, Fig. 10, an object, A B, seen and stereoscopically photographed very close, the eyes and the lenses being placed at D. It may be possible, for the images,  $b$  a,  $b^1$   $a^1$ , may be larger in nature, and as they ought to be viewed—as always—at the distance of the lenses to have true perspective, it is necessary to place them further from the eyes than the distance D S, and as they are to be viewed with the angle of convergence G S D, the image

give, to those who still feel inclined to contradict, the opinion of one of our leading opticians on the separation of lenses greater than the separation of the eyes.

Speaking in his catalogue of his prismatic binoculars, he says actually: "Les stéréos-jumelles à prismes Krauss sont disposées de belle façon que l'écart des objectifs soit plus grand que l'écart des oculaires. Il en résulte un effet stéréoscopique augmenté. L'image est ainsi à la fois plus agréable et plus utile." Unfortunately, at the end he ceases to be correct, and as regards the greater utility we



Fig. 13.

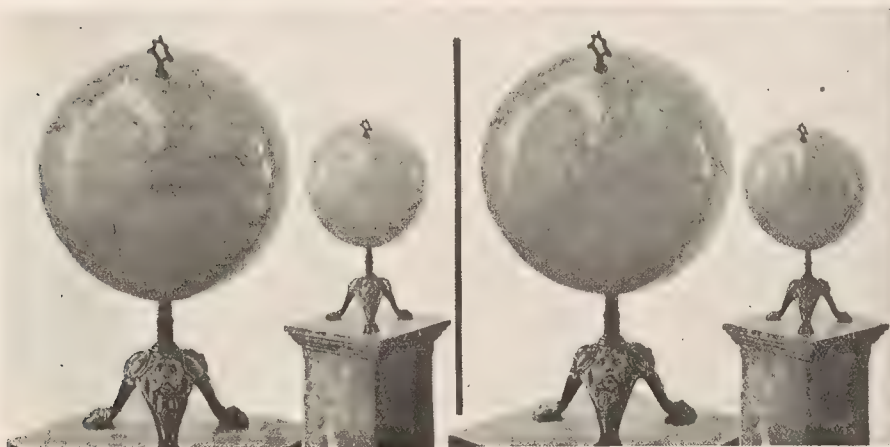


Fig. 14.

ended for the right eye ought to be placed at  $a^{11}$   $b^{11}$  at the left that intended for the left eye.

Under these conditions, in virtue of our first law, the stereoscopic vision will be located at A B in conformity with reality.

As in Fig. 11, the images are reproduced of the natural size, there is no means of forming the stereoscopic couple, the two images ought to occupy the same place, A B. It is necessary then to use expedients, to mount the images side by side, and superimpose them; this is a case in which to call in the aid of achromatic prisms P F. We know that the prisms distort the images in opposite directions, and the fusion will not be satisfactory.

It would be better then, in a parallel case, to effect the fusion—by aid of two mirrors M M, of which the inclination determines the place to be occupied by the images, in such fashion that the distance  $G M + M b^{11} = G B$ . Only by this system the object is reversed as regards right and left, unless the negatives have been reversed through the glass of the plate reversed in the dark slide.

Before passing to the experimental proof by stereoscopic photography of all that we wish to establish, it may be permitted us to

should be happy to know this. M. Krauss also adds: "Pour le théâtre où l'effet stéréoscopique trop accentuée eût été plutôt nuisible,



Fig. 15.

nous construisons notre jumelle avec l'écart des objectifs égal à celui des oculaires," that is to say, equal to that of the eyes.

(To be continued.)

A. GODERUS.



## DEATH OF M. LEON VIDAL.

We regret to announce the sudden death of Mons. Leon Vidal, at Port de Bouc, on the 5th of August. His loss will be universally deplored in photographic circles, for he was known by his writings during the last thirty years, and esteemed by his many friends all over the world.

To ourselves the loss of M. Vidal is one which we shall keenly feel, for we had reason to value his kindness and camaraderie in many ways. Of late years, colour-photography had absorbed a large proportion of M. Vidal's leisure. He took very great interest in the exhibition held at THE BRITISH JOURNAL OF PHOTOGRAPHY in the early part of this year, and subsequently made several communications to our pages on the subject. Always a fluent writer, his pen was never idle when he believed he was furthering the advance of photography.

The following appreciation of M. Vidal, by one who has known him for more than twenty-five years, is kindly sent to us for publication:—

Few men have more fully recognised the educational value of photography, or done more for the development of photo-mechanical work and the practical application of permanent printing processes for book illustration than he did. His parents were proprietors of the salt works at Port de Bouc, near Marseilles. He was educated as an engineer at the Lycée, St. Louis, but preferred the laboratories of the Sorbonne, becoming preparator to Dutas and Claude Bernard, and so coming into touch with the great savants, his contemporaries. In the summer he superintended the salt collection at his home, and made over the mother liquors, saturated with iodine and bromine, to Poitevin, who was then director and chemist of a neighbouring salt factory. He also interested himself in the researches of the great inventor of many modern photo-mechanical methods, and there can be little doubt that from this intimacy with Poitevin he was led to identify himself so specially with the practical development of these methods. In the winter he passed his time between the Sorbonne and the ateliers of the principal Parisian photographers, urging them to adopt permanent printing processes and those most suitable for book illustration, a subject to which he entirely devoted his energies. This practice of spending his summers in the south and his winters in Paris was continued to the last.

He was the author of several practical treatises on photographic and photo-mechanical subjects, among them "Calcul des Temps de Pose ou Tables Photométriques, 1865, 2nd edition, 1884; "Photographie au Charbon," 1869, 2nd edition, 1870, 3rd, 1877; "Traité Pratique de Phototypie," 1879; "La Photographie Appliquée aux Arts de Reproduction," 1880; "Traité Pratique de Photoglyptie," 1881; "Cours de Reproductions Industrielles," 1882; "Manuel du Touriste Photographe," 2 vols., 1885, 2nd edition, 1889; "La Photographie des Débutants," 1890; "Manuel Pratique d'Orthochromatisme," 1891; "Traité Pratique de Photolithographie," 1893; "Photographie des Couleurs," 1897; "Traité Pratique de Photogravure," 1900; and "Photochromie," 1903.

After the death of Poitevin his family confided to M. Vidal the publication of his photographic work, and the result was a new edition, in 1883, of the "Traité des Impressions Photographiques," revised and enriched with valuable notes and appendices.

In 1879 he took over the direction of the "Moniteur de la Photographie" shortly after the death of his friend Ernest Lacan, and ably edited it until last year, when he gave it over to M. Charles Gravier, with whom he had been associated for many years, and to whom the writer is indebted for much of this information regarding his old friend. In 1879, M. Vidal also succeeded M. Lacan as French correspondent of the "Photographic News," a position he held until comparatively recently. He was also a constant contributor to many photographic journals and publications in this and other countries.

He worked out the polychrome method of colour printing, founded on the Woodbury process, but like it, now superseded by simpler methods. It was, however, very suitable for the purposes intended of reproduction of jewellery, fine fabrics, porcelains, etc., with their colours and metallic lustre. Under his direction also some very fine albums of reproductions in collotype were brought out.

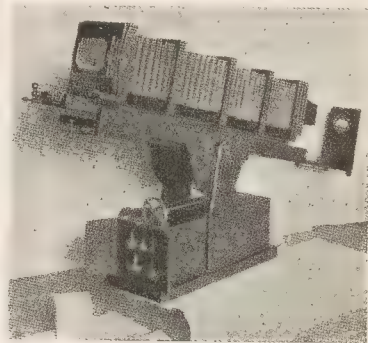
He was a Chevalier of the Legion of Honour, Officer of Public Instruction, and since 1879 was Professor at the Schools of Decorative Arts in Paris and Limoges, and delivered regular courses of lectures on processes of photographic reproduction.

In 1861 he created the Photographic Society of Marseilles, was President of the "Chambre Syndicale de Photographie" from 1886 to 1890. He was a member of the Société Académique de Marseilles, honorary member of the principal French photographic societies, and was elected an Honorary Fellow of the Royal Photographic Society in March last. In 1889 he started a society of mutual assistance, L'Union Photographique; later, the Société Photographiques Documentaires, and in this connection did good service to the Royal Photographic Society by obtaining for it the loan of several valuable specimens of early French photographic process for the Crystal Palace Exhibition in 1898. Four years ago he promoted the "Société de Photochromie." He was latterly particularly interested in the development of colour-photography, and was constantly working at it.

A man of most kindly and generous nature, he had many friends in all parts of the world, and was always ready to help them in anything the cause he had so much at heart. He leaves a widow and one son to mourn his loss.

## PHOTOGRAPHING FOSSILS.

We read in "The Camera" that the Folmer and Schwing Company, of Rochester, N.Y., has designed and built for the United States Geological Survey a special piece of photographic apparatus for photographing fossils, or other similar objects. In this apparatus the Survey use what is known as "the Williams' process." This method was worked out by Professor Henry S. Williams and his assistant, Mr. W. Carkhuff, and consists in an elimination of the colour of the fossil by a process of sublimation. Fossils cannot be photographed for scientific purposes in a haphazard manner. There



certain characteristics that must always be orientated in relation to the same position and illuminated in the same way in order to produce results of any practical value to the scientist. Some of these fossils are photographed at same size, while others are enlarged; great accuracy is required in this particular. As some of these fossils are exceedingly small and delicate, it is obvious that to do the work economically special apparatus is required. On a comparison be made between the first piece of apparatus used by the original experimenters with the apparatus just completed, a remarkable evolution in scientific camera building, as practised at the present time by the Folmer and Schwing Company, would command unbounded admiration. This special camera is mounted on a tilting base, so arranged that the camera may be elevated or lowered to any desired position, in order to secure the proper lighting of the subject. The operator can make any of the following adjustments on camera or subject without leaving his natural position while consulting the focussing screen; move the subject to and from the lens or revolve the subject support; move the camera horizontally or forth on the tilting stand, raise, or lower, or shift the front of the camera in either direction; revolve the back from a horizontal to a vertical position, or to any intermediate point; elevate or lower the subject support, in order to secure the proper lighting, by mechanical devices. The base of the stand contains two cabinets

storing lenses or small parts. The focal capacity of the camera, including cone extension, is 7½ feet. Length of stand top, with erect support and camera extended, 11 ft. Size of plate, 6½ by 4½ by 4.

## Patent News.

process patents—applications and specifications—are treated in *Photo Mechanical Notes*."

The following applications have been made for Patents from August 7 to August 11:—

IN CAMERAS.—No. 17,745. Improvements in hand cameras. P. M. Justice, for the Emil Wunsche Aktien Gesellschaft fur Photographische Industrie, Germany.

IN LENSES.—No. 17,955. Improvements in photographic films. Edward Geisler Herbert, 55, Market Street, Manchester.

IN LENSES.—No. 17,989. Improvements in photographic cameras. A. J. Boulton, for Antoine Cardon, France.

IN LENSES.—No. 18,028. Improvements in cameras. Frederick James Wheat, 5, Corporation Street, Birmingham.

IN LENSES.—No. 18,073. Improvements in lenses for photographic and other purposes. Cyril Frederick Lan-Davis, 25, Newman Street, London, W.C.

### COMPLETE SPECIFICATIONS ACCEPTED.

Full specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

CATATYPE PRINTING.—No. 10,078. 1906. The invention consists in means for protecting negatives, apparatus, or printing papers from the action of hydrogen peroxide, such means being necessary to prevent the access of hydrogen peroxide vapour to surfaces with which it should not come in contact, in the employment of the peroxide for catatype printing processes. The protecting surfaces may consist of paper, etc., saturated with potassium permanganate or other substances. A. G. Bloxham, for the Neue Photographische Gesellschaft, Berlin.

TELEPHOTO LENSES.—No. 4,523. 1906. The invention is a lens of the telephoto class—i.e., consists of a front positive lens, with a negative lens behind, and resembles telephoto lenses in having a focal length much longer than the distance from lens to focal plane. It is corrected for one definite focal length only. The

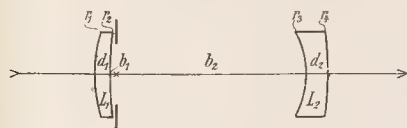


Fig. 1.

variation of the focal length being thus dispensed with, it is not necessary to remove, either in the positive element the aberrations characteristic of a simple collective lens—viz., spherical and astigmatic under-correction, or in the negative element the aberrations characteristic of a simple dispersive lens—viz., spherical and astigmatic over-correction, but only to so choose them that they compensate each other. The advantage gained is, that to both individual elements a simple form may be given, and yet in their combination is attained, firstly, satisfactory freedom from astigmatism, curvature of field and distortion, and secondly, at the same time, satisfactory spherical correction for a sufficiently large relative aperture. On the other hand, in the well known tele-objectives, in so far as they can lay claim to correction at all, the front element is always a corrected objective, and, notwithstanding this less simple construction, only the one or the other correction is satisfactorily attained. In objective systems also composed of a front positive element and a back negative element—but which do not fall into that class

known as tele-objectives, because their elements lie close together and the negative element has the greater focal length—the two elements are likewise given spherical aberrations of opposite character. In the more important element, however, that is, the positive one, the spherical under-correction is not, as is the case of the present invention, approximately that of a simple collective lens only, but by means of a collective cemented surface it is raised to a relatively large amount, to compensate which—

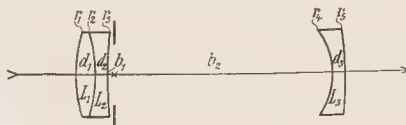


Fig. 2.

in contradistinction to the present tele-objective—a simple dispersive lens as back element would no longer suffice. In its simplest form, the new objective consists of two simple lenses, a crown glass meniscus as the positive, and a dispersive lens as the negative element. Satisfactory spherical, astigmatic, and orthoscopic correction is attained herewith. As to chromatic

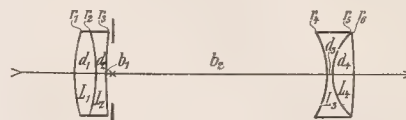


Fig. 3.

correction, comparatively large aberrations must still remain, so long as the choice of glasses is restricted to those now obtainable. These aberrations are, however, innocuous for several purposes. Chromatic correction is at once attained when both elements are individually corrected chromatically. Without detriment to the other corrections, the extinction of the chromatic

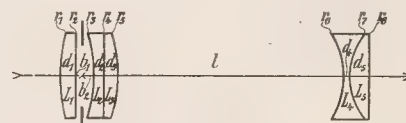


Fig. 4.

aberrations can, however, be almost entirely accomplished by constructing either the front or the back element of two lenses (separated or cemented). By such a three-lens formation of the new objective, all the known errors of the image can be removed to such a degree as to suffice for many purposes. Fig. 1 is an example of the lens, with spherical and astigmatic, but not chromatic, correction, consisting of two simple lenses. In Figs. 2 and 3 all three corrections are made as they are also in Fig. 4, the data for which latter are as follows:—

Radii:	Thicknesses and Distances
$r_1 = +185.5$	$d_1 = 13.7$
$r_2 = \infty$	$b_1 = 3.5$
$r_3 = -137.4$	$b_2 = 13.7$
$r_4 = \infty$	$d_2 = 8.6$
$r_5 = -139.8$	$d_3 = 13.7$
$r_6 = -81.8$	$l = 219.0$
$r_7 = +68.7$	$d_4 = 5.2$
$r_8 = \infty$	$d_5 = 18.2$

#### Kinds of Glass.

$n_D$	$n_G - n_D$
$L_1 : 1.59133$	0.01229
$L_2 : 1.61690$	0.02235
$L_3 : 1.59133$	0.01222
$L_4 : 1.60980$	0.01320
$L_5 : 1.61690$	0.02235

Carl Zeiss, Jena, Germany.



**COLOUR PHOTOGRAPHY.**—No. 15,185. 1906. The invention is a method of obtaining positives or printing plates from the Sampolo-Brasseur negatives, described in English Patent No. 8,290, 1896. These negatives were made through a screen, ruled into a revolving series of orange-red, yellowish-green, and blue-violet lines, and would give colour synthesis by the usual methods. But to obtain colour correct black and white prints a positive is first made and placed in the copying camera, with a black and white screen, ruled as in Fig. 1, which shows a black and white screen placed in contact with a Sampolo-Brasseur positive. It is in such a position as to hide two of the partial images and allow only the red one to be seen. It being the counterpart of the negative shown in Fig. 2, the shading is shown as that of a positive. If this diapositive is copied in the copying camera, exposing it for, say, 30 units of time—then the black and white screen is moved, so as to expose the green image and cover the red—and without moving the negative plate on which the red has already been impressed—exposing this green image for, say, 20 units of time—and then the black and white screen is again moved so as to uncover the blue image and expose this for, say, 10 units of time—then the resulting negative will appear as in Fig. 2. The positive print from this negative will show the orange quite luminous, the green less, and the blue least luminous—which is as it should be in good orthochromatic photography. It is preferred, while making the three exposures for this second negative, to move the negative plate the width of

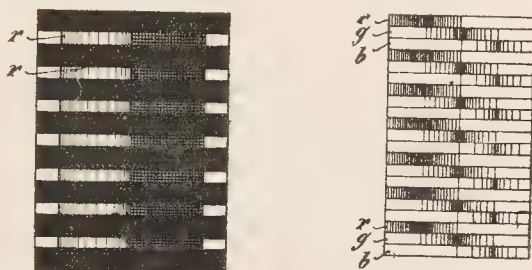


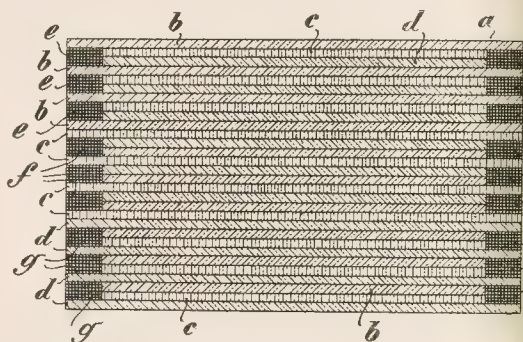
Fig. 1.

Fig. 2.

two lines in the vertical direction during the exposure of each colour positive, so that each red image is also copied upon those portions of the plate which correspond to the green and blue images of the positive, and similarly for the other partial images. This has the effect that the resulting negative is more brilliant than that produced without shifting the plate. It should be understood that the motion of the negative plate—which in this case is in a vertical direction—is always in the same plane as the plate itself, and in a direction normal to that of the lines. The purpose of this motion—which is repeated while copying each partial image—is to convert the original negative, made up of three partial images, into one negative made up of three whole images. The images are therefore superposed one over the other; as a result there will be no appearance of lines (the resulting fringes being absolutely negligible), and if the relative exposures have been correctly timed, the result obtained is the same as if the negative had been made through three plain unruled monochrome screens, with the exposures so timed as to obtain correct orthochromatic effects. In proceeding in this manner care must, however, be taken to bring the plate back to its original position before exposing the next image on the positive. It is to be noted that the essential difference between this new method and that described in the Patent No. 8,390 of 1896, is that in the new method two or more images (preferably three) of the original negative are copied on one plate, while in the old method described each of the three images constituting the original negative, is copied on a different plate—one for each image. Charles Louis Adrien Brasseur, 10, Fifteenth Street, New York.

**COLOUR SCREENS.**—No. 12,793. 1906. The invention is a line colour filter, provided with monochrome bands of colour designed so

as to indicate variations in the colour sensitiveness of the emulsion. In the drawing the bands *b* indicate one colour—e.g., *r*, *c* another, say yellowish-green, and *d* the third colour, the sequence of colours being maintained across the plate. In the arrangement shown in the figure, the lines *c d* are stopped altogether, or are wholly obscured, at the points *e*, while at points *f*, the lines *b d* are similarly treated, and at the points *g*, the lines *b c* are similarly treated; by preference, spaces *e f g* are placed at each side or end of the screen, the leaving extensions of the several sets of lines in different places on the screens. Or areas *b<sup>1</sup> c<sup>1</sup> d<sup>1</sup>* may be formed across the ends of the lines *b c d*, as indicated in Fig. 2, the colours of the areas *b<sup>1</sup> c<sup>1</sup> d<sup>1</sup>* being the same, respectively, as the colours of the lines *b c d*. The extensions (Fig. 1) may be placed upon the same glass as the screen or upon an independent glass plate, but, in order to ensure exactitude of colours, it is best to employ the first-named method. In either case it suffices, when a new emulsion is used in the process of colour photography to photograph a white surface, and, after development, to examine the deposits in the extensions or areas to see if



opacities are the same. And the same may be done with other colours, the comparison being between the colour of the completed photograph and the colour of the original object, such as a coloured print or a painting. But this complication is unnecessary if the screen is correct theoretically, and one uses an emulsion having the same curve of sensitiveness to the visible spectrum rays. If, on examination, it is found that the deposits are not equal or correct, the old method of correcting the defect is to use a compensating screen behind the objective, and substitute one such compensator for another until correct results are obtained. Such compensators are usually formed of two glasses, one a bluish-red and the other a yellow, whereby the green and the blue-violet, as well as the ultra-violet, have their action cut down or eliminated, as the case may be. But it is much easier to secure these results by the use of the compensators described in a prior application of mine for letters patent in Great Britain, which consist of two glasses, which are placed in the lens, one immediately before, and the other immediately behind, the diaphragm. One glass is tinted a bluish-rose and the other a yellow; the tints of these glasses augment gradually from one edge to the other, and in the direction in which they are moved. These glasses are considerably longer than the greatest diameter of the diaphragm, and each has a rack and pinion whereby it may be moved independently of the other. Indexes permit of the accurate adjustment of these compensators and tables may be used to guide the operator as to the position such compensators should have for different conditions of light atmosphere; or experience may be depended upon. The indexes of course, should show the original positions of the compensators. Charles Adrien Louis Brasseur, 10, Fifteenth Street, New York, U.S.A.

**CINEMATOGRAPH AND PHONOGRAPH.**—No. 2,157. 1906. The invention consists of means for the synchronous operation of combining cinematographs and phonographs, characterised by the fact that

the disposition of two rotating parts, one of which is actuated by the phonograph and the other by the cinematograph, these rotating parts being themselves connected to other visible parts which indicate in what sense it is desirable to modify the speed of the cinematograph in order that it may be synchronous with that of the phonograph. The full text of the specification and the diagrams are necessary for the proper explanation of the six claims. Oskar Messter, 16, Friedrichsstrasse, Berlin; and Leon Gaumont, 57, Rue St. Roche, Paris.

NEMATOGRAPHS.—No. 15,003. 1905. The invention consists of means for preventing or for locating the spread of fire which may occur in the film, consisting in forming on the end of the lens tube or connecting to the latter a chamber, preferably air or gas-tight, guiding means for the film mounted on said chamber, and a hinged door, carrying a subsidiary or second portion of the airtight chamber, and pressure pads and frames of a spring-controlled character carried by the frame of the subsidiary chamber or by the hinged door. Henry William Joy, Peace Field, Cross Lane, Marple, Derbyshire.

New Books.

“TRAITE Pratique de Photographie Stereoscopique.” By Charles Fabre. Paris: Gautier Villars. Price, 6 francs.

For M. Fabre’s services to students of photography in his capacity of editor of the “Traité Encyclopedique,” we have the very highest regard, and we number the volumes in question among the most recent contents of our photographic library. They show that M. Fabre possesses the encyclopædic faculty in a high degree, and it is an account of his very qualification in this respect that the present volume, in our estimation, has lost by attempting too much, has overreached itself in straining to perform a task which was impossible, and, moreover, was not at all useful or necessary. Although a large book of 200 pages, the text which deals with its subject proper, stereoscopic photography, might be contained in a volume at most one-quarter the size. And it would have been all the more valuable to the reader than it is at present, diluted with standard information on photographic processes and manipulation. We could dispense with chapters on intensification and reduction, because, after all, the application of these processes to stereoscopic negatives is not very different from that to any other description of negative. We could dispense with chapters on plate-making just as we do not crave for the incorporation of a treatise on locomotive construction in our Bradshaw. Boiled down and shaken together, a very good exposition of practical stereoscopic photography can be made of the material, for M. Fabre has omitted little, and has even a chapter on stereoscopy in natural colours, and, of course, one on the methods of stereoscopic projection.

The thirty-first volume of the “Aide Memoire,” edited by M. Charles Fabre, reaches us from the publishers, MM. Gautier Villars, 15, Quai des Grands-Augustins, Paris. As in previous issues it contains an epitome of important papers and items of progress of the day, and a directory of photographic societies. One other useful feature is a list of French patents, taken out in the twelve months preceding publication, arranged in chronological order. The price of the “Aide Memoire” is 1fr. 75c. in paper covers, or 2fr. 25c. bound.

New Apparatus, &c.

USERS of Kodaks and Kodak films should welcome the announcement that, with the object of allowing their patrons to have full advantage of the colour sensitiveness of the N.C. and Kodoid films, the Kodak Company have now introduced a light filter, at the low price of 1s. The filter is a thin stained gelatine film, mounted in a metal rim for attachment to the lens hood, and it is made in two intensities—“5 times” and “10 times”—and in four sizes, suitable

for the various sizes of Kodak cameras. The filters submitted to us are highly transparent, and with the Eastman film permit of a high degree of colour correction. A booklet now in preparation by the Kodak Company deals with the use of the filters, and will be sent gratuitously on application to Clerkenwell Road, London, E.C.

New Materials.

THE Kodak Company have now placed upon the market the all-popular sepia toner for bromide and gaslight prints, albeit that for many years they were, and still are, the advocates of the hypo-alum or direct form of sulphide toning. In fact, we think we may say that that process originated, as a practical method, with the Eastman firm, and in their hands has proved as permanent as any silver printing process. The new toning preparation is manifestly based on bleaching with a ferricyanide and bromide mixture, and darkening or “toning” with a weak solution of sulphide of soda. The bleaching mixture is put up in tablets, one of which, in four ounces of water, forms the bath. The stock sulphide solution is mixed with 32 times its volume of water. We have found the preparation to act most quickly on bromide and gaslight prints, and with excellent results. The price of the outfit, which is conveniently put up in a cardboard case, is 1s.

MESSRS. RAINES, of Ealing, send us an example of their latest work in the shape of a boudoir print on “Japine,” the new platinotype paper, from a negative of a full length portrait. A more handsome form of photograph or one more qualified to do credit to the photographer it is difficult to imagine. We gave our opinion of the new paper some time ago, and we are glad to find Messrs. Raines turning out such magnificent work with it.

By the same post we receive from the Platinotype Company a print also in “Japine” of the recent Convention group taken by Mr. Max Mills. The subject is not one which displays the paper to the best advantage, but the two prints which lie before us side by side together supply an eloquent tribute to the new variety of platinotype.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

August.	Name of Society.	Subject.
25.....	Hove Camera Club .....	Outing to Lewes.
25.....	Coventry Photo. Club .....	Outing to High Ash District.
25.....	Manchester Amat. Photo. Soc .....	Outing to Broadbottom Woods.
25.....	Halifax Camera Club.....	Outing to Kirkstall Park (if permission can be obtained)
25.....	Hull Photographic Society ..	Outing to Bishop Burton.
27.....	Southampton Camera Club .....	“Making of Enlarged Negatives.” Demonstrated. C. D. Kay.
27.....	Bradford Photographic Soc. ..	Members’ Prints and Portfolios.
28.....	Hackney Photographic Society	“Notes on Orthochromatic Plates. A. D. Port.
29.....	North Middlesex Photo. Soc. ...	Selection of Slides from the Society’s Collections.
29.....	Leeds Camera Club.....	“Criticism of Members’ Prints. A. Blackburn.
29.....	Manchester Amat. Photo. Soc.	Outing to York.

A WEDNESBURY Photographer’s Suicide.—Last week George Lowe (64), a photographer, carver, and gilder, of Russell Street, Wednesbury, was found dead under tragic circumstances. He had been downstairs, but went back to his bedroom, and a few minutes later was found lying across the bed lifeless, while a bottle, labelled “Cyanide of potassium,” was on a dressing table. Deceased, who had been in business for a considerable period, is said to have been depressed through bad trade.

THE exhibition of the South Manchester Photographic Society is announced for December next. The secretaries will send particulars from 43, Lapwing Lane, West Didsbury.



## FORTHCOMING EXHIBITIONS

September 14 to October 27: The Photographic Salon.—Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.

September 20 to October 27: Royal Photographic Society.—Sec., J. McIntosh, 66, Russell Square, Bloomsbury, London, W.C.

October 6 to 13: Bristol Photographic Club.—Sec., J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.

October 17 to 20: Rotherham Photographic Society.—Sec., H. C. Hemmingway, Tooker Road, Rotherham.

November 15 to 27: Burnley Camera Club. Entries close November 10. Sec., Fred Whitaker, Mechanic's Institution, Burnley.

November 16 to 21: Southsea Amateur Photographic Society.—Hon. Sec., F. S. Hoyte, "Lismore," Stamford Road, Southsea.

November 20: Sefton Park Photographic Society.—Sec., A. W. Parr, 34, Loudon Grove, Liverpool, S.

November 27 to 30: Hove Camera Club.—Hon. Sec., W. H. Bone, 32, Sackville Road, Hove.

December 6 to 8: South Manchester Photographic Society. Entries close November 21.—Secs., J. H. Haywood and M. W. Thompson, 45, Lapwing Lane, West Didsbury.

December 11 to 15: Southampton Camera Club.—Hon. Sec., S. G. Kimber, "Oakdene," Highfield, Southampton.

1907.

February: Birmingham Photographic Society.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 11 to 14: Cripplegate Photographic Society.—Sec., J. B. Parnham, "Chagford," Old Church Road, Chingford.

February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge.

March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.

April 29 to May 14: Photographic Society of Ireland.—Sec., R. Benson, 35, Molesworth Street, Dublin.

October 24 to November 14.—West of England Exhibition (Photographic Section). Entries close October 1. Sec., A. D. Breeze, 41, Union Street, Plymouth.

September 5: Kirkcaldy Photographic Society.—Sec., J. Rowan Thompson, 154, High Street, Kirkcaldy.

October 24 to November 1: Plymouth Exhibitions.—Sec., A. D. Breeze, 41, Union Street, Plymouth.

October 31: Watford Camera Club.—Sec., E. H. Jackson, 100, High Street, Watford.

November 7 to 8: Bedford Camera Club.—Sec., W. H. Hodge, 58, Beaconsfield Street, Bedford.

November 7 to 10: Hackney Photographic Society.—Sec., Walter Selfe, 70, Paragon Road, Hackney.

November 14 to 17: Rugby Photographic Society.—Sec., R. H. Myers, 13, Bridget Street, Rugby.

## Commercial &amp; Legal Intelligence.

MACLAURIN AND CO., LTD. (photographic dealers, London).—Issue on July 31 of £200 4½ per cent. debentures, part of a series created January 1, 1906, to secure £2,000, charged on the company's undertaking and property, present and future. No trustees. Total amount previously issued of same series, £400.

ERNEST ELLIS, of 169, South Parade, Cleckheaton, who was made bankrupt in 1898 whilst carrying on the business of an artist and photographer, applied last week to his Honour Judge Bompas, K.C., at the Bradford County Court for his discharge. The Official Receiver (Mr. C. L. Atkinson) stated that a first and final dividend of 4s. in the £ was expected to be paid on proofs amounting to £90. The discharge was granted, subject to two years' suspension.

THE Purchase of a Business.—Mr. George Taylor, photographic artist, trading as A. and G. T. Taylor, 70, Queen Victoria Street, sued Mr. H. J. Blount, 63, London Road, Derby, also a photographic

artist, for £1 18s., money which the plaintiff alleged he had been compelled to pay. Mr. Aldous, solicitor, appeared for the plaintiff. It appeared that the defendant bought a photographic business from the plaintiff. By clause 8 of the agreement it was stipulated that the orders taken by the vendors during the last 12 months and the books uncompleted shall be taken over and executed by the plaintiff. The agreement containing that clause was signed by the defendant. Amongst the orders upon the books were certain photographs which were to be executed, and in respect of which sums had been paid on account. The purchaser, Mr. Blount, to complete those orders, thinking he would not get much out of the transactions. In consequence, the plaintiff was sued, and he sued the defendant. In one case the plaintiff was successful, another he was unsuccessful, for the reason that the plaintiff had not given notice to the defendant of the legal proceedings which were being instituted by a former customer. In the present case Mr. Gilbert gave an order for a picture, the price of which was two guineas. The defendant had the picture, but refused to pay for it. Mr. Gilbert alleged he had paid Taylor the whole price except a sum of 6s., and the defendant said the books showed that he was due of 12s. to be due. Mr. Gilbert brought an action against the defendant, and notice was given to the defendant on May 1. In consequence of that action the present claim was now made. Mr. Taylor, in evidence, said he had sent £1 15s. to the Court. It was several other cases which had been brought. On July 24 he went to the Registrar of the Burton-on-Trent County Court to see whether Mr. Gilbert had drawn any money from the plaintiff. The answer on the back of his letter was: "This action was discontinued in 1906. No money paid into Court." The defendant alleged the reason for the discontinuance of that action was that he had not the signature of Mr. Gilbert for the picture. Mr. Aldous said that it was proved that a mistake must have been made. He could not give judgment being given for the defendant. Judgment was accordingly, the defendant being allowed three guineas as costs.

THE Eastman Kodak Company of New Jersey.—The usual dividends of 1½ per cent. (being at the rate of 6 per cent. per annum) upon the outstanding Preferred Stock, and of 2½ per cent. (being at the rate of 10 per cent. per annum) upon the outstanding Common Stock, have been declared payable on October 1, 1906, to the stockholders of record at the close of business on the 31st of September, 1906.

## News and Notes.

PHOTOGRAPHS of Scientific and Historical Paris.—The Paris Municipal Council have just announced that their annual competition for 1907 will be photographs of the Jardin des Plantes, the Luxemburg and Avenue de l'Observatoire, and houses outside Paris (Seine and Seine-et-Oise) over 100 years old. The historical buildings of the Jardin des Plantes (the residence of Cuvier, Buffon, etc.), and the facade of the Paris Superior School of Pharmacy is situated in the Avenue de l'Observatoire, will make this a particularly interesting competition. The public exhibitions of competing photographs will be held from May 15 to June 15, 1907.

THE Late Edward Telford Harrison.—The following is from the London papers of August 16:—"Edward Telford Harrison, Decedent.—Pursuant to Statute 22 and 23 Vic., c. 35. Notice is hereby given that all persons having claims against the Estate of Edward Telford Harrison, late of 127, Rue Lambrecht, Courbevoie (Seine), in France, Photographer, Deceased (who died on November 19, 1901), whose estate letters of administration, with the will annexed, granted by the Principal Probate Registry, on August 3, 1906, to Charles Mackintosh, the personal representative of Celeste A. Hamelin, Deceased, the residuary legatee therein named, are required to send particulars of their claims to us, the undersigned, the solicitor for the said administrator, on or before September 29, 1906, which date the said administrator will distribute the assets of the said deceased, having regard only to the claims of which he has then had notice, and that he will not be liable for the

any part thereof, so distributed to any person or persons of those claims he shall not then have had notice. Dated this 15th August, 1906. Stephenson, Harwood and Co., 31, Lombard Street, E.C., Solicitors for the said administrator."

**THE late J. H. Rawson.**—We regret to announce the death of Mr. James Harvey Rawson, of 11, Crescent Road, Sharrow, Sheffield, and a member of the firm of Rawson Brothers, cutlery manufacturers, Carver Street. When photography was in its infancy, and a few others started the Sheffield Photographic Society, of which for some years he was president.

**PRINTING from Stereoscopic Negatives.**—An interesting method of avoiding the transference of the prints from the stereoscopic negative is mentioned by M. Fabre in his "Traité Pratique," which we review on another page, and would seem to be a novel

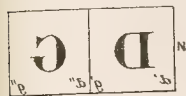


Fig. 1.



Fig. 2.

means of printing at one operation from negatives which possess the correct separation. Assuming D and G (Fig. 1) to be the two negatives on the same plate, a piece of sensitive paper double the length of the whole negative is cut and folded, as in Fig. 2, the sensitive side of the paper being outside. A piece of black paper is placed between the two halves of the paper to prevent



Fig. 3.

the light passing through, and the negatives are printed from, first on one side then on the other of the folded strip. The paper is then cut, as shown in Fig. 3, and each piece mounted without further trouble. As we have said, the negative must possess the proper separation, and a further limit to the usefulness of the ingenious plan is that most emulsion papers will crack where folded. With albumen paper and others lightly coated, the device should be of service.

**THE Frahm apparatus** for frequency or speed measurement by means of resonance—either mechanically or electrically set up—with one or more of a series of vibrating tongues of known periodicity has now been in use for over two years, and has proved very satisfactory. Numerous attempts to make it a self-recording instrument have, moreover, failed, chiefly owing to the friction between the recording pen and the paper. This difficulty, says the "Electrical Engineer," has been overcome by making the record photographically.

**A NEWCASTLE Photographer Missing.**—Nothing further has been heard with regard to Mr. H. C. Deakin, photographer, of Newcastle-under-Lyme, whose clothes were found on Rhyl beach recently. The clothes were discovered placed neatly in a heap in a hollow of the sandhills to the east of the town, and appeared as if the owner had left them there while he bathed. A thorough search is being made for Mr. Deakin.

**DETECTIVE Photography.**—Photography was responsible for the capture of a bicycle thief in the Manchester district last week. Joseph Ferguson, alias Hill, 23 years of age, was committed to the Sessions on three separate charges of stealing bicycles. One was a motor-cycle, which, it is alleged, Ferguson endeavoured to sell to a cycle dealer. The dealer, however, had seen a photograph and description of a man "wanted" by the police for cycle stealing, and, thinking that he saw a striking resemblance, he made an

appointment with the man for the next day. Ferguson kept the appointment, but instead of a customer awaiting him he found himself confronted with two detectives.

**THE Royal Photographic Exhibition.**—Our readers should notice that the latest dates for exhibits to reach the secretary, in packing-cases, is Wednesday, September 5th. Pictures and other exhibits may be delivered by hand, unpacked, up to Thursday, September 6th, in each case to the New Gallery, 121, Regent Street, W. Entry forms for the exhibition are obtainable from the secretary, Mr. J. McIntosh, 66, Russell Square, London, W.C.

**THE R.P.S. One Man Shows.**—The next House Exhibition is announced for November 6th, when photographs by Mr. Henry W. Bennett will be arranged at Russell Square. The date of this exhibition will mark the reopening of the Society's premises after the alterations at present being undertaken, by which the present meeting room and council room will be thrown into one, and a single room thus obtained capable of accommodating a much larger audience.

**THE Traill Taylor Lecture.**—The ninth Memorial Lecture to the late Traill Taylor, for many years editor of the BRITISH JOURNAL OF PHOTOGRAPHY, will be delivered on October 23rd, at the New Gallery, Regent Street, W., by Mr. E. Walter Maunder, F.R.G.S., on "Photography in the Work of the Greenwich Observatory."

**ATTEMPTED Suicide.**—At the Portsmouth Police Court last week Jacques Gandle, a photographer, living at Oyster Street, Portsmouth, was charged on remand with having attempted suicide by throwing himself into the sea near the Clarence Pier. In his possession a letter was found in which the prisoner stated that he did not care if he was buried or cremated, and that he "died with a clear conscience and without fear." The Medical Officer of the Prison now reported that the man was of sound mind and suffering from melancholia. The Bench handed the prisoner over to a relieving officer.

**MR. HORSBURGH**, photographer, West Maitland Street, Edinburgh, attended at Drummond Castle on Saturday, when he had the honour of sittings from their Majesties the King and Queen of Spain, the Earl and Countess of Ancaster, and shooting party.

**ADDRESS Wanted.**—A correspondent, Mr. S. Wells, 23, Market Place, Richmond, Yorks, asks for the address of the Sciopicon Company, whom he has addressed unsuccessfully at 10, Highbury Quadrant, London, N.

**OZOBROME.**—This curious word (writes Mr. Chapman Jones in "Knowledge") is derived from "ozone" and "bromine," though it indicates a process with which ozone has nothing to do, and bromine very little. It is a method recently patented by Mr. Thomas Manly (who, a few years ago, introduced the ozotype process), by which a bromide print is made to furnish one or several carbon prints. This means that the facility of making a bromide print either by contact or enlarging methods, necessitating only a few seconds' exposure to artificial light, may be combined with the advantages of carbon or pigment prints, with their permanency and the wide choice of colours that they permit. Indeed, the new method presents notable advantages as compared with the ordinary carbon process, for not only is daylight unnecessary for the exposure, but the print is not laterally reversed, though there is no double transfer, and in one modification no transfer at all. The process seems, on the face of it, to have so much to commend it that the essential difference between it and carbon printing by the ordinary methods must not be lost sight of. Carbon printing, as hitherto practised, is a printing-out process, and the charm of a carbon transparency, as well as its reliability for reproduction purposes, lies largely in this fact. Probably no method gives a more exact representation of the negative, for the possibilities of altering the gradation by accident or design are hardly worth consideration. But in the "ozobrome" methods, the result depends upon development in the same sense in which the negative is developed, and while this may sometimes be an advantage to the skilled worker, it renders all sorts of errors possible. This radical difference must ever be borne in mind.



## Correspondence.

- *Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- *We do not undertake responsibility for the opinions expressed by our correspondents.*

### PROCESSES AT THE ROYAL.

To the Editors.

Gentlemen,—May I be allowed to make a suggestion with regard to the forthcoming exhibition of the Royal Photographic Society? It is that the processes by which the pictures are made should be mentioned in the catalogue. If this were done it would, I think, give increased interest to the show. I am an amateur, but with somewhat limited experience, and last year I was quite unable to distinguish the different processes by which the pictures were produced. If the Council of the society could see their way to do this, I think it would be of general interest to the visitors who, like myself, are not really experts in photography.—Yours, etc., C. A. MASON.

[We refer to our correspondent's letter under "Ex Cathedra."—Eds. B.J.P.]

### REMOVING YELLOW STAIN.

To the Editors.

Gentlemen,—I have noticed occasionally, in your "Answers to Correspondents" columns, replies to queries as to best method for removal of yellow stains in negatives, and was rather surprised to see that you consider there is no satisfactory means of overcoming the difficulty.

We are not particularly concerned with the cause (which is generally imperfect washing), but I do not think it would be outside the subject to make this remark in your reply. However, I have had occasion to use the following solution, and, although it is slow, I have found it serve the purpose admirably. I claim no originality whatsoever, having first seen the preparation recommended for stains in bromide prints.

Thiocarbamid .....	20.0
Acid citric .....	10.0
Water .....	1000.0

Plates to be immersed until clear.

—I remain, dear Sirs, yours faithfully, J. McRELTY,  
Proprietor, the British Dispensary.  
New Road, opposite Custom House Lane, Bangkok, Siam.  
July 11, 1906.

### NOTES FROM RUSSIA ON ARTICLES IN THE "B.J."

To the Editors.

Gentlemen,—Re testing prints on self-toning papers, I have repeatedly found, in testing coloured papers and colours for fading properties, that the colours under test fade sooner when air has free access to them than when pressed in contact with the protecting cover in a printing frame.

When engaged in factorial development, how would it be for the operator to don spectacles of red glass upon quitting the dark room, so that upon re-entering the red illumination would remain about the same?

As regards the Greenwich Observatory, many years ago (forty or more), when the Baltic railway was laid, a branch line to Pulkowa was almost finished, but as it was shown that the vibration caused would most likely interfere with the researches at the observatory, the company was ordered to abandon the branch. The embankment, overgrown with grass, remains to this day. Free England will, I

suppose, rather remove the Greenwich Observatory than cause an electric station to be destroyed.

As you will most likely hear more of Mr. Procoodin Gorsky (on "coo" and "Gor"), perhaps it would be better if his name were in English as I give it, being more approximate to the Russian pronunciation. I may mention that Mr. P. G. has been a co-worker with Dr. Miethe, and has considerably improved upon his method of taking negatives from nature for the three-colour process by running a large establishment here for half-tone process by which enables him to spend money on three-colour research. St. Petersburg. C. T.

### THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—I have read the letters of "A Disgusted Assistant" and "A Disgusted Employer." There are always two sides to a story, and as I have been both an assistant and an employer (had happy men and women to work in unison), perhaps you will allow me to add my contribution to the discussion. An old miller remarked to me, "When I engage a new man I let him have his own way the first few days, and if I notice his way is better than mine I take advantage of it. If not, I say to him, 'I want the sacks emptied or lifted or arranged like this,' and I let him my method." Now, reading "Disgusted Employer's" letter appears to let his workpeople have their own way, to his detriment. Let our friend show his new hands how he likes and intend work to be done. They only work as they have been taught to teach them better, and all will be satisfactory, then their satisfaction will be increased to mutual satisfaction. ARCHER CLARKE

### COPYRIGHT IN SCULPTURE.

To the Editors.

Gentlemen,—A short time ago there was erected in this town a memorial statue to the men of a regiment who fought and fell in South Africa, and, with commendable promptness, our printer photographed it previous to the public unveiling, and it has been locally published and copies sold. For this display of enterprise we have received a letter from the artist, a H.R.H.A. of some repute threatening us with dire punishment and commanding us to discontinue further sales and withdraw any we have sold.

From the abstract of the Copyright Law, which we take from B.J. ALMANAC, and from your answers to various correspondents on the same subject lately, we take it we were quite within our rights to photograph it, and do as we please with the photograph, and, further, we have registered this photograph, and informed the artist (upon inquiry) that if he wishes to reproduce our photograph he must pay the usual fee in common with any other person.

We shall be pleased to have your opinion on this and our advice in the matter, as it will doubtless be interesting and instructive to a large number of your readers.—Yours, etc.

H. ALLISON AND CO.

Armagh. August 17, 1906.

[Sculpture enjoys protection under Copyright Law, to the extent that it is an infringement to produce any cast or mould of it, it is not an infringement to produce drawings or photographs of it. That this is an injustice to the sculptor we will not deny, the fact remains, and the artist whose work has been photographed by our correspondent is either ignorant of the law relating to copyright or chooses to assume ignorance of it. The Royal Commission on Copyright of 1878 reported that: "Upon the whole, we are disposed to think that every form of copy, whether by sculpture, modelling, photography, drawing, engraving, or otherwise, should be included in the protection of copyright. It might be provided that the copying of a scene in which a piece of sculpture happens to form an object should not be deemed an infringement, unless the sculpture should be the principal object, or unless the chief purpose of the picture should be to exhibit the sculpture." This suggestion twenty-eight years ago has not yet become law, and our correspondents therefore have the law with them in the case they have taken.—Eds. B.J.P.]

## Answers to Correspondents.

All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

R. Collis, Westgate Studio, Canterbury. *Photograph of a Panoramic View of the St. Lawrence Cricket Ground, Canterbury.*

Bishop, 13, Guildford Lawn, Ramsgate, Kent. *Photograph of the new Turbine Steamship "Kingfisher."*

W. Harrison, 5, Belle Vue, Bude, North Cornwall. *Photograph of Stamford Hill Monument, Stratton, North Cornwall.*

J. Greenway, 27, Abington Street, Northampton. *Photograph of Northants C.C. and West Indians C.C.—Combined group. Photograph of the West Indian Cricket Team.*

USE ASSESSMENT.—I am writing to ask your opinion on the question of paying a rate lately put on my studio. About seven years ago I took to a studio, my late predecessor having had it sixteen years. I bought the studio as it stands, but have paid £8 per year for the land it stands on. Ten months ago I took another shop and studio in a more prominent position, and after getting settled went to see the landlord of the piece of land and he agreed to let me have it in future at £4 per year, as I now only use the old studio as a store place and for picture frame making. I had always paid the rates, it being assessed at £2 5s. all the years I paid the £8 rent, but as soon as my rent was dropped to £4 the rates were raised, it being now assessed at £6. I do not pay them through my landlord, but direct. Now, what I want to know is, can they assess me at £6 when I only pay £4 per year for the land and the studio, my own? I have appealed against it, but have only got £1 taken off, thus making it assessed at £5 now. If they cannot make me pay, what course am I to take?—D. G.

All leases, with the erections thereon, are subject to assessment to the public rates, and are charged upon the best rent that can be obtained. A rent of £4 being paid for the land the studio is assumed to be worth £1, and the assessment appears reasonable. An appeal can be made to Quarter Sessions, but the expense would be enormous for so small a matter. The assessment hitherto has been much too low.

TRANSPARENT BLUE PAPER.—Some time ago Mr. C. C. Vevers, Leeds, advertised a new transparency blue paper. An order for the same has been returned by the Post Office, marked "Gone Away." Mr. Wray, the optician, thinks that Mr. Vevers is dead. I shall be glad to hear from any firm who can supply this paper by the quire, equal to that sold by Vevers.—A. C.

A semi-transparent fabric is supplied by Messrs. Reeves and Co., under the name of "Linaura." It is easily sensitised with

ferro-prussiate, and may meet our correspondent's requirements. Messrs. Marion, with other firms, supply a thin sensitised linen.

CHEAP ENLARGEMENTS.—I should esteem it a great favour if you could kindly inform me as to the following: A firm had made me an offer to keep me busy all the year round if I could make them 20 x 16 enlargements, unfinished, at 8d. each, mounted. There are several firms that do this kind of work. What I want to know is, where I could get the bromide paper cheap enough to be able to get a reasonable profit. I have also to make a negative from photographs. Also which would be the best and cheapest way in working them?—N. D. M.

With the best intention of assisting our correspondents through the "Answers" column, we would suggest that you cannot expect us to assist you in cutting prices in this miserable way. You had better accept things as you find them, and see if you cannot turn out better work at something above such prices as you name. We doubt if such can be done, except with home-made bromide paper, or by the so-called solar process, of which we have several times given particulars.

REDUCER STAINS.—Will you kindly help me in the following? (1) I reduced some bromide prints, 10 x 8, with the ferri-hypo reducer, but when dried I found same all yellow stained. How can I remove this stain? (2) I left a plate developing (in a metol-quinol developer); a part of same accidentally got uncovered, and now this part is stained a chestnut brown. How can this stain be removed?—A. DAWSON.

(1) We very much fear there is no remedy, none which will leave the print good for anything. You may try a weak solution of ammonium sulphocyanide (5 grs. per oz. of water). A better reducer for bromide work is the iodine-cyanide, on page 960 of the ALMANAC. It will not stain. (2) We should advise you to bleach the negative with mercury chloride solution, and darken with soda sulphite, in which process perhaps the stain may disappear. Or you may try the bath recommended by a correspondent from Siam in another column this week.

THE RIGHT TO THE NEGATIVE.—Although I have seen your answer to the following question over and over again, is it asking you too much to confirm the following? A sitter comes into my studio for a dozen pictures. I give a receipt for same, without any mention of the negative. Whose right is invested in the negative? Can the sitter claim it in any shape or form?—F. R. O.

The negative is the photographer's, but to be used by him only at the direction of the sitter. See the article on page 675 in the ALMANAC.

COLOUR PHOTOGRAPHY.—You would greatly oblige me by recommending the most direct and least expensive method in colour photography. I have gathered, from occasional contributions which I have read in your paper, that it is not necessary to go to great expense. Unfortunately, I have not kept these back numbers, and shall esteem it a favour if you will put me on the right route, in order to attain proficiency in this branch of the science. I wish to deal with transparencies especially.—A. HERBERT.

For transparency work the most satisfactory process is the Sanger-Shepherd (Sanger-Shepherd and Co., Gray's Inn Passage, Holborn, London, W.C.); the same taking outfit will supply you with negatives for prints, which may be prepared by the carbon processes of the Autotype Company, or the Rotary Photographic Company, or by the Pinatype process (Fuerst Bros.), or by the imbibition process of Messrs. Sanger Shepherd and Co. We should advise you to get an elementary book on the subject, such as the recent "Natural Colour Photography," by König and Wall (Dawbarn and Ward, 2s.).

COLOUR PHOTOGRAPHY.—(1) In König and Wall's "Natural Colour Photography" (p. 76) I find it stated that a chromoscope, constructed from the directions of Professor Miethe, has been placed on the market by Birmopol, of Berlin. Can you tell me if this



instrument is to be had in England? If not, can you tell me of any one who would make one at a reasonable price, according to the detailed instructions given in the same book? (2) My three-colour negatives are all taken through Sanger-Shepherd's screens, and in many cases make excellent pictures by his "subtraction" process. Would these negatives be suitable for the production of transparencies for the chromoscope? (3) Would you give me your opinion on the following plans for transparencies? (4) The blue transparency to consist (as in Sanger-Shepherd's process) of an ordinary lantern slide, converted into blue, and the red and yellow transparencies, each on a separate glass, by the Pinatype process, and the three bound up together. It does not seem to me that the separation of the yellow image from the other two by the thickness of a lantern slide would make any material difference. If so, it seems a simpler plan to use that given in the Pinatype instruction book.—**COLOUR PHOTOGRAPHY.**

(1) So far as we know, it is not. Messrs. Sanger-Shepherd and Co., Gray's Inn Passage, London, W.C. (2) Yes. (3) In our experience in testing a somewhat similar method it is not possible to obtain a sufficiently sharp register of the three images.

**TONING BROMIDES.**—Would you kindly inform me of a good and quick toning bath for sepia bromides, one that will produce quite a cool sepia? The sulphide bath gives too warm a tone for what I require.—**R. A.**

The only other bath we can recommend you is the copper one—you will see the formula on page 979 of the *ALMANAC*—but we think it is possible you will get the cooler colour you want were you to try one or two other brands of paper. The colours with the sulphide process vary distinctly with the different commercial brands of paper.

**TONING P.O.P.**—I have seen some salts, with evidently a pinkish fluid poured over them, which, when dissolved, form a pink mixture, used as a toning and fixing bath for P.O.P. It gives a light or deep brown tone. Can you tell me where I can obtain a formula for same? It is very cheap, I believe.—**K. R. W.**

We cannot identify the salts from your description. Salts of a pink colour, such as those of manganese or cobalt, are not usually included in toning baths. If you can send us a sample of the substance we might be able to help you. But if the mixture is so cheap that it cannot contain gold we advise you to avoid it altogether.

**STAINED BROMIDES.**—Can you please give me a reliable formula for removing yellowness from under-exposed bromide prints (caused by forcing), (amidol developer)?—**TROOPER.**

See reply to A. Dawson.

**DAMAGED NEGATIVE.**—I have rather a valuable negative, taken about eighteen months ago— $6\frac{1}{2} \times 4\frac{3}{8}$ , dry plate, varnished—the film of which is coming away from the glass. Would you be good enough to inform me, through your "Answers to Correspondents" column, the best way of dealing with the plate, in order to preserve it from further injury?—**PUZZLED.**

Before attempting to do anything with the negative we should advise you to make a transparency from it, so that the negative can be reproduced if necessary. Place the negative in a dish of strong methylated spirit, to soak for half an hour or so, to dissolve off the varnish. The solution of it may be aided by gently rubbing it over with a flat camel-hair brush. Then rinse in one or two lots of fresh spirit to ensure the entire removal of the varnish and allow to dry. Then put the plate in cold water, and the film will probably leave the glass, when it can be floated on to a fresh plate. If the film expands unduly it can be brought back to its original dimensions by immersing it in spirit. The cause of the negative behaving as it has is that the film was not free from hypo when it was varnished.

**WATER SUPPLY.**—I have just received from the corporation of this town a notice to be filled in, asking that a water meter might be fixed to my supply, for which I have to pay about 6s. or 7s. per quarter. As I do not require their water for photographic purposes, but am supplied with rain-water from large tanks, can they compel me to have meter? Your advice will greatly oblige.—**PUZZLED.**

As you have a water supply to the premises, and employ water in your business, which, necessarily, requires a good quantity, we expect the corporation will compel you to have a meter. You will, we imagine, find it difficult to connect the corporation that you do not use water from the house in the business, and that you get sufficient for that purpose from a rain-water tank. If, however, you never use the corporation water in the business, and you have the meter, you will probably find your water bill less than it is at present.

**MERCURY TONING.**—Could you kindly give me, through the medium of B.J., a reliable mercury toning formula for bromide prints and postcards?—**SEASIDE.**

You can use a bleaching solution of a mercuric chloride, half an ounce, in a pint of water, and after washing the prints, darken them in fresh hypo solution, four ounces to the gallon. But why should you prefer a mercury process (which is of doubtful permanence) to the sulphide or copper methods, which are reliable?

**TONING P.O.P.**—(1) Is there any remedy for over-toning in the combined bath? When young hands are put to the work during a busy season they so frequently carry too far, and spoil the prints by accumulating. (2) What toning process would you recommend for prints very much over-printed? (3) Is there any remedy for yellowed postcards, toned in the combined bath? Some stand months and others seem to go in a few days, especially those toned in very hot weather.—**SEASIDE.**

(1) There is no remedy that we can say is of any value for over-toned prints, and the only preventive we can suggest is in using the bath. You may transfer the prints to a bath of soda sulphide, which will prevent the toning action continuing after removal from the combined bath. (2) It will be best to tone after fixing in a plain hypo bath, in which the prints will reduce more than when treated in the usual combined bath. They may then be toned in the combined bath or in the sepia baths—in the latter case after well washing. A very good remedy for over-printed proofs, and one which can be used after toning is made by adding five ounces of 10 per cent. solution of sodium in sulphocyanide, and half an ounce of 10 per cent. solution of potass ferricyanide to 24 ounces of water. The reducer will not spoil the tone. It may be used weaker or stronger than here given, according to requirements. (3) We think complete fixation and washing is the secret of avoiding the trouble. You must recollect that the thickness of the cards obstructs rapid penetration of the hypo and of the wash water. Attention is needed to keep the cards moving in the fixing and to see that they are thoroughly washed.

**THE Photographic Salon.**—We would remind our readers that Monday, September 3rd, is the receiving day for the Photographic Salon, on which date all pictures must be delivered at the Gallery, 5a, Pall Mall East, either personally or through an agent. The Salon opens on September 14th. The secretary, Mr. Reginald Craigie, will be happy to send entry forms to those applying to the Blenheim Club, St. James' Square, London, S.W.

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## The British Journal of Photography

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## SUMMARY.

Tanqueray is prosecuting his free portrait frauds in the Argentine according to a correspondent, who communicates particulars of its latest form taken by the circular from Paris. (P. 698.)

An exhibition of portraiture by the late Mrs. Julia Cameron and H. Hay Cameron opens at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY to-day (Friday), and will remain open until October 6. Admission is free daily from 10.30 to 4.30 (Saturdays, 10.30 to 12.30). (P. 685.)

The present Cameron exhibition will be followed, on October 11, by one of portraiture brought together by the Professional Photographers' Association. Each exhibitor will send one print only, and all sent in will be shown; there will be no selection. Members of the P.P.A. intending to send in should advise the Secretary at 89, Albany Street, London, N.W. (P. 683.)

An American photographer, I. Benjamin, of Cincinnati, has established himself in Paris. (P. 688.)

The rights of a photographer in dealing with retouchers, enlargers, and others to whom negatives may be entrusted, are the subject of note on page 683.

In posing stout people, an American photographer reports his satisfaction with the plan of allowing the sitter to lean slightly over the back of a chair. (P. 692.)

In showing his various grades of work, the photographer should begin with the most expensive the customer will look at, and be slow to offer the cheapest. In asking for payment at the sitting and in charging for proofs, in the event of the sitter declining the photographs, he may take a firm yet courteous course. Some notes on these topics are taken from an article by Dundas Todd, in the "Photo Beacon." (P. 686.)

In arranging his window, the photographer should study colour schemes based either on contrast or harmony, and should endeavour also to provide a constant variety of subjects likely to prove of public interest. These and related matters are discussed in an article on page 683.

## EX CATHEDRA.

### Photographic Obstruction on the River.

A recent issue of the "Standard" devotes nearly a column to the nuisances which impede the practice of the Harvard and Cambridge crews for their coming contest on the Thames. Of these, says the "Standard," "The 'camera fiend' has probably been the cause of much of the trouble. He is beginning, in fact, to become nearly as much of a nuisance on the river as he has lately been in the Divorce Court, and it is unfortunate that there is no authority on the river which can eject him as summarily as Sir Gorell Barnes has done. In one case the Harvard crew were pulled up dead by a man in a punt who was so intent upon taking a snapshot of the eight as it passed that he paid no heed to the direction in which his boat was drifting." Our contemporary proceeds to take a somewhat gloomy view of the modern journalistic enterprises when it saddles the illustrated papers with the blame of creating the craze for photographing every public event. But it will be news to most people to learn that snapshotters have been a nuisance in the Divorce Court. Our recollection is that it was the artists and draughtsmen whom Mr. Justice Barnes drove from his court that his witnesses might not be embarrassed. The dim precincts of the Divorce and other Courts of Law can scarcely be described as a happy hunting ground for amateur photographers. However, we agree with our contemporary that if enthusiastic amateurs or those working for the illustrated papers impede the practice of the two crews on the river in the way they are said to have done there should be some means of putting a stop to the nuisance, if only for the credit of English sport—and photography.

\* \* \*

### Street Photography.

In street photography one of the greatest nuisances that the photographer has to contend with is the people who will persist in posing themselves in front of the camera. Many are the dodges resorted to to get over this trouble, and yet many picture postcards of street scenes that we see in the shop windows are considerably marred by having a group of street urchins in the foreground, or perhaps by one or two of the shopkeepers standing outside their shops with their arms akimbo, all anxious to appear in the pictures. More use in this connection might be made, we think, of working with the reversing mirror or prism, as is done in the majority of process establishments. The mirror or prism box being attached to the lens, a dummy lens is in turn attached to it, and the camera pointed across the street, when in reality the exposure is being made down the line of the thoroughfare. This device has been used with much success in hand-camera work—the late Mr. A. M. Geddiss, of Dublin, did some very good work with it—and it might



afford a valuable occasional aid to the touring landscape photographer. The drawback to the method is, of course, that it gives a negative reversed as regards right and left. While this may be an advantage if the pictures are intended for reproduction by, say, the collotype process, it is only an inconvenience when the printing is to be done direct from the original negative; but as it is usually the practice to make reproduced negatives for printing from, there is not much objection to the mirror on this account. In any event a non-reversed negative may be obtained by exposing the plate glass side to the lens, with the precautions, of course, that the glass is clean, and that an allowance of one-sixteenth of an inch is made in focussing.

\* \* \*

### Fortifications and Photographers.

On more than one occasion of late we have cautioned photographic tourists of the inconveniences they may bring upon themselves by their ignorance of the fact that the taking of photographs of fortifications—of which there are so many around our coasts—is not allowed. Many who are fully alive to the restrictions in foreign countries seem to be unaware that the same conditions prevail in this country, and that the regulations are now being more rigorously enforced. Since we last referred to the subject another case has come to public notice. A foreigner was observed by a sergeant of the Royal Garrison Artillery, who are dismantling the fortifications of the Scilly Isles, in the act of taking photographs of the Artillery's appliances. He was forthwith deprived of his camera, and the films exposed to light, so that they were spoilt. The man could speak but little English, and after being searched was allowed to go free. The sergeant's method of dealing with this case was certainly effective, though somewhat drastic, inasmuch as the exposures may not all have been on the appliances of warfare. In this case the photographer does not appear to have been long detained, but in other instances the supposed delinquents have been taken to the police station for the examination of the plates, at the loss to the tourist of some considerable portion of his holiday outing. We may be excused for again directing attention to this matter, but we are in hopes that the inconvenience to which the photographic tourist unwittingly exposes himself will not be disregarded.

\* \* \*

### Bleaching Solutions.

So many after-operations depend upon a preliminary so-called "bleaching" of the image, that any information with regard to the action of different solutions is of great practical interest. In the extract from Dr. E. Sedlacek's work on toning bromide prints, which we published on August 17, there are several statements on the action of bleaching solutions that are worth note, and also some that we feel bound to criticise. A most important statement is that "it is essential to differentiate between pure halogenising mixtures and those in which oxidation first takes place with subsequent halogenisation." It is most important to differentiate between these two classes of bleaching solutions, because it is commonly assumed that the final results are the same, which assumption is quite contrary to fact. Pure halogenising solutions, such as chlorine water, bromine water, or a solution of iodine in potassium iodide, give pure chloride, bromide, or iodine of silver, which is undevelopable without exposure to light. On the other hand, solutions such as potassium bichromate, copper chloride, potassium ferricyanide, and potassium bromide, etc., give silver compounds that are readily developable without any

exposure to light, and that are probably akin to O. Lea's "photosalts." Moreover, the results have proved in many cases to be impure silver compounds, or, rather, admixtures of silver compounds with other compounds derived from the bleaching solution. The most notable example is potassium bichromate and hydrochloric acid, which gives a silver "photochloride" and a chromic compound. The conditions that govern the production of these "photo" compounds are not by any means understood, but, from work we have done ourselves, appears to be dependent on the quantity of free halogen available. If chlorine alone is present, as in chlorine water, pure undevelopable silver chloride is produced; no free chlorine is present a photochloride is formed. In respect to the bleaching power of a solution of iodine potassium iodide we distinctly differ from Dr. Sedlacek. So far from considering its action to be so slow as to render it almost useless, we should class it as extremely powerful and rapid. Much depends on the strength of solution, but one per cent. of iodine in a two per cent. solution of iodide is practically instantaneous in its action.

\* \* \*

### Potassium Bichromate and Hydrochloric Acid.

Some of Dr. Sedlacek's remarks in reference to this solution we are obliged to criticise. In the first place he states that it contains no free chlorine, free chromic acid. A fresh solution, however, undoubtedly contains free chlorine, and in considerable quantity if an excess of acid is present, while we are disposed to think that the existence of free chromic acid is somewhat doubtful. The most important constituent of the solution appears to be potassium chlorochromate, and a simple solution of this compound will behave in just the same way as the mixture of bichromate and hydrochloric acid. We have never noticed any tendency on the part of this mixture of bichromate and hydrochloric acid to reduce (i.e., dissolve) the silver image, allowed to act for a long time it will, however, dissolve away the chromium compound which exists in the bleached image, and possibly this effect has given rise to the belief that the solution is a solvent for silver.

\* \* \*

### Business Lodestones.

A correspondent who writes us in appreciation of the notes on the commercial side of the photographer's business which have appeared in our columns of late, confesses that the value of good appearance in the get-up of an establishment, from the arrangement of the window down to details of stationery, has not impressed him with such emphasis when recently he had occasion to make a couple of domestic purchases—some bookshelves and a closed stove. The former he first selected from the catalogue of the manufacturers, and was led to favour a particular firm from the fact, which he recognised at the time, that the price list was elegantly produced with attractive halftones printed on fine art paper. In comparison with the lists of other firms the goods looked better, and inspection showed that expectation was justified of the catalogue and the goods were actually superior. The rule may not always hold good, but we think it will in the majority of cases. Usually the firm which understands how to produce a good article also realises the value of a good means of offering it to its customers, and such a means is a catalogue undoubtedly is. In the case of the stove, our friend recalled the fact of having seen a shop window in the City of London with three or four such stoves installed

and burning, and particulars of their cost and heating value prominently displayed. That window display had made a lasting impression on his mind, and he was led to seek the establishment as a purchaser. The introspective habit of our friend might be copied by photographers desirous of placing their wares before their customers in such a way that the inducement to purchase is a strong one. By analysing the methods of firms from whom he himself purchases, the photographer may expect to learn a good deal which he can copy, with variations, in his own business.

\* \* \*

**Pictorial Schismatics.** The correspondents of a weekly contemporary continue to be much exercised upon the questions raised by an artist in a lecture recently delivered at Russell Square. These questions are by no means new ones. They have been bones of contention for years. Lecturers and writers have dealt with them until one would think there is positively nothing else to say about them. The claims of detail, the sins of fuzziness and flatness are nevertheless once more provoking earnest and vituperative correspondence. The fact is difficult to understand unless we surmise that the charming and witty style of the last exposition has supplied an attractive gloss to a threadbare fabric. Photography of the pictorial sort is always between three points of attack. There is the artist, who appears, as a rule, to advocate clean, unmanipulated prints from sharp negatives; there is the artistic photographer, who will have none of that sort of setting-back from picture painters, but who continues to assert the "art" of his craft by making bids for qualities that belong to the graphic arts; further, there is the straightforward photographer of the old school who cannot break away from tradition, together with the amateur amateur, who scorns the artistic photographer's tricks because so far he is green in the business. These three classes are at loggerheads, and it is to be presumed that they always will be.

\* \* \*

**Their House in Order.** If there is a way by which agreement may be approached between these factions it will probably be found in the simple course of allowing merit of any sort to be its own reward. The banal practice of medalling is undoubtedly much to blame for angry divisions in the camp. To award a medal is to sow a crop of grievances, for that distinction is the unpardonable one. Praise from the Press, or purchase from the walls, is nothing by comparison. And, indeed, it must be admitted that a medalled picture, flaunting the greatness thrust upon it throughout the whole course of an exhibition, is an aggressive thing, to say the least. The custom causes a premium to be put upon any peculiarities the work may show; it gives rise to fashion-mongering; the success it implies inspires the vainglorious; and, lastly, when by chance the honour is misplaced the fact is highly lamentable. The excesses and affection of the too "arty" amateur would not flourish and survive were they not condoned by judges who occasionally mistake their ecstasies for criticism. Were each picture to run its fair course for fame, without applied distinctions, there would be an end to the whispering knots of dissatisfied aspirants which are now common objects of our galleries. Moreover, the mere imitator, who is after all the real culprit, would be considerably discouraged for lack of popularised patterns.

### The Exhibition Season.

Within a week or two the "Salon" and "Royal" exhibitions will be open, and the photographic exhibition season may then be said to be in full swing. During the next two months visits to London will be paid by many of those in the country interested in photography, and we may therefore draw attention to the little exhibition of the work of Mrs. Julia Cameron, which opens at our office to-day, and to the one which on October 11th will replace it. Mrs. Cameron's photographic portraiture, done nearly fifty years ago, is often referred to as anticipatory in its aims and character of much which is put forward as advanced work at the present time, and we are therefore right in assuming that many will be glad to have the opportunity of inspecting a collection of about forty examples which have been brought together by the courtesy of Mrs. Cameron's son, Mr. H. H. Hay Cameron, and the Auto-type Company, who are publishing carbon prints from a number of Mrs. Cameron's negatives.

\* \* \*

### A Single Picture Exhibition.

From October 11 to November 10 the little gallery at these offices is to house a collection of examples of portraiture by members of the Professional Photographers' Association. The exhibition consists of single examples typical of the work produced by each exhibitor in the course of his business. Each exhibitor will send one print, and there will be no selection. Every print sent in will be hung. It is hoped that as a result of this exhibition photographers in different towns will be afforded the opportunity of inspecting what they cannot see elsewhere, namely, specimens of the work which their brother professionals in other towns are producing for sale to the public. The "single-picture exhibition" which was arranged on these lines in America last year was a source of very great profit and interest to those assembled at the convention of the New York Society of Professional Photographers, and it is hoped that members of the P.P.A. will be no less enthusiastic in making a collection representing the present position of professional photographers in this country.

\* \* \*

### Retouching Disputes.

The photographer's right to his negative is a form of proprietorship which is apt to be regarded too lightly by those having dealings with the photographer. It is not uncommon to hear of cases where a retoucher or enlarger who works for the profession has had negatives entrusted to him on which he has, for example, done a certain amount of retouching. Where such a business is done on a "cash before delivery" basis, instances have come before our notice of the retoucher refusing to deliver the negatives until his bill has been paid. It is scarcely necessary to say that he cannot legally take such a high-handed course. The photographer can enforce the return of his negative and the retoucher can sue the photographer for the money; or, if he will not part with his labour until he has been paid for it, he can clean off the retouching and deliver the negative to his customer in the state in which it was sent to him. Similarly in the case of enlargements, a firm doing work of this kind has no right to retain negatives entrusted to them pending payment of, say, a former account. Instances where such action has been taken occasionally come to our notice, but there is a remedy which usually proves effective, and that is for the photographer unable to recover his property to drop a note to the superintendent of police in the district, who will generally take steps to remind the delinquents of their responsibilities.



## THE PHOTOGRAPHER'S WINDOW.

## II.

IN our former article we entered at some length into the construction of the shop-window, and expressed a hope that we should be enabled to say more about the actual arrangement of the specimens at some future time. As a fulfilment of this wish we, in this paper, intend to confine ourselves to that subject. It may be said at the very outset that most windows suffer, as, indeed, may be said of many exhibitions, from the fact that the specimens are overcrowded. A small, select, frequently changed show, with sufficient space to isolate without making the items appear solitary, is much the best policy, and far preferable to a large, chaotic and crowded display.

The work shown at one time should be of a fairly harmonious description. That is to say, should not be composed of too varying or contrasting pictures—say, red carbons, weak plats., and weaker oils jumbled up cheek by jowl. We do not mean that all the work should be absolutely of the same tone, or that coloured work is to be barred—but discretion must be exercised.

On the bottom may be placed a few cabinets, panels, etc., on struts, never lying flat on their backs. Next may come a few more important works, raised slightly, and then, above all, one or two big enlargements on easels. But do not always try to make the back pictures rise high, and, above all, do not raise them in well-defined steps. Avoid all appearance of showing after a pattern; a studied carelessness is much better. The great point is care in placing the prints so that they are not killed, or do not kill other prints in near proximity. A few small cabinets only we think advisable on the floor, and they may reasonably be examples of the different styles done; but, beyond once more warning against overcrowding, we would leave the general arrangement of a window to be decided according to circumstances.

There is another view of window displays, however, that is exploited by one or two of the best men, and that is specialisation, and, if the work done at a gallery is varied enough, there can be no better way of making a display, for it will be found that in all matters of art a scheme in harmony is much more easy to manage and bring to a successful consummation than a contrasting one, though it may be said these latter methods, when successful, are much more striking than the former.

To elaborate a little it will be as well to give a short description of how this specialisation is carried through, leaving the reader, of course, to devise other schemes for his requirements.

The first show, then, may be carbon prints—say, in tones of brown with perhaps a red chalk here and there to relieve the monotony, for repetition without variety is bad art. In this case the curtains behind would be dark brown, if the scheme were entirely in harmony, or dark green if a note of contrast is to be added; usually if the mounts are brown and prints also the curtains are green, and some of the frames are green; whilst if the mounts are green the background is brown, although this is really of no importance, the only point gained being that the prints stand off from instead of being part of the background when viewed from a short distance. In one of the best shows we have seen the scheme was in brown against old gold (a sort of brown) hangings. The small prints in brown, then, should be as varied in subject as possible, and a few prints in the Cosway and other fancy masks included. Also a folder or two in harmonising colour might be inserted. The larger pictures will, of course, be framed, and should be in a

quiet brown or green wood frames, and on no account gilt, which will clash and throw the whole show out.

There should be at least two or three enlargements about 24 by 18 in the background to pull things together, for collection of all small work looks niggly and irritates onlooker.

Another scheme may be all platinotypes and blue prints against a dark grey or black background, with perhaps two or three small warm-toned prints to throw them up, but be sure they are not aggressively warm-toned or they will merely attract attention to themselves.

In one very successful show that was most distinct the window was draped in dove grey. All the prints were of a sketchy-light order against white backgrounds, and mounted on large rough white paper and light grey mounts. In the background were two black and white drawings, also in sketchy style. The whole was most striking, and successfully pushed a new line of work for ladies and children.

But these examples will suffice; harmony is the prevailing note, but a few hints on specialisation in other directions will not be amiss. A show of men only is bound to create attention, because "it is different," and if you get a window of local celebrities—councillors, and what not—the point is enhanced tenfold.

A window of children only will exploit this branch of your work as no other means of publicity could; so will a window of groups—ladies, and any other style you make. They make an impression because "it is different," and because they appeal by themselves, there being other styles to distract the attention and leave a mere muddle of ideas in place of one distinct and good impression.

Then again, some photographers make a good hit showing photographs of local interest. The local football team with the new cup, the newly-elected mayor, church constable, or other worthies. The characters in the "swell" dramatic performance, or the attendance at the mayoral fancy dress ball, or the group of a wedding party.

Then there are certain local happenings that depend for their force on quickness of production. If you get a photograph of a fire, sewer burst, scene of a street accident, or anything of that sort, and get it in your window within twenty-four hours, you get talked about. We recall the case of a photographer in the North, who resided in a seashore town, made great capital when the local pier was washed away in the night, and his postcards were selling 10.30 a.m., and a big enlargement was exhibited in his window at 12 o'clock.

Of course, such opportunities do not often arrive, but there is another point which can be taken advantage of, and that is to have what one might call topical shows. If you are in a garrison town you will probably take many men in uniform. If in a hunting centre photographs of ladies and gentlemen on and off horseback in hunting costume will appeal to the locality. For even your clients do not wish to be taken in, or do not possess uniforms or special costumes, they are familiar with them and it is a safe card to let the public have photographs of things they understand.

An "Ex Cathedra" note recently remarked that specimens would make a stronger appeal and be more attractive if the costume was appropriate to the weather. This indeed, cannot be gainsaid, for a shiver mentally runs down one's back when looking at a portrait of a lady in outdoor summer costume whilst the ground is covered with snow. Of course, evening and indoor attire generally is pretty similar winter and summer, and may be exhibited all the year round, but the caution re outdoor costume is worth attending to.

A photographer recently revived the old idea of taking

people apparently in a snowstorm, and his window attracted much attention. The effect is easily obtained with a brush and colour on the glass side of the negative. The actual falling effect is obtained by dipping an old and soft toothbrush in liquid crimson lake, shaking out superfluous liquid, and then holding the brush about six inches above the negative and tapping it sharply with a pencil or other similar object.

A strikingly inappropriate show, however, sometimes attracts more attention than an ordinary conventional one would. The above snow pictures exhibited in June would create a mild sensation, and this is not to be despised.

But the show must be obviously inappropriate, and not slightly so, or the effect may be put down to carelessness.

In connection with the above, we might cite an instance of a large firm of textile merchants of Bradford, who, in the month of August, 1902, a year that may well be remembered as being extraordinarily cold, wet, and inclement, made an exhibition in their windows of furs only. One never looks at shops of this description as a rule (except when with female relations), but this show, so inappropriate in one way, and yet so apt in another, made us pause, and thus notice a shop that had never before made any sort of impression upon us.

## PHOTOGRAPHS—ANCIENT AND MODERN.

THE exhibition, which opens to-day in the little gallery at the offices of the BRITISH JOURNAL OF PHOTOGRAPHY, should prove interesting to the many who, for pleasure or profit, employ the camera for portraiture. There are few, we suppose, who have not heard of the work of Mrs. Julia Cameron, though those who can recollect its appearance at the annual exhibitions of the Royal Photographic Societies years ago cannot number very many, and perhaps there are fewer still who, in their journeys upon the South Western Railway, have alighted at Brockenhurst in the New Forest and spent half an hour in examining a small collection of portraits by Mrs. Cameron, which hang in the waiting room. Though we have referred above to Mrs. Cameron's work as ancient, it is so only chronologically; in aim and character it belongs to the modern movement in photography, and many of the portraits in the collection now brought together might be instanced as possessing qualities which have been esteemed and extolled by those who, by act or precept, have joined in the revolt against the stereotyped professional portraiture of the "curtain, pillar, and vase" type, such as flourished almost universally in Mrs. Cameron's time and is not killed outright yet. Not long ago we drew prominence to the work of Major Puyo, of the Photo Club de Paris, in advancing the making of good portraits by the introduction of the so-called "anachromatic" lenses, the slight want of critical definition in which permitted the photographer to relieve his photograph of biting sharpness of delineation. Mrs. Cameron had no "anachromat," but she was accustomed to open out the stop of her single lens beyond the prescribed limit, in order to avail herself of the benefits of spherical aberration.

In other respects, the collection is interesting, for it includes portraits of men, such as Tennyson and Browning, made by Mrs. Cameron, and many years afterwards by her son, H. H. Hay Cameron. Mr. Cameron's fine series of portraits, including those of the present Archbishop of Canterbury, Henry Irving, and Lord Roberts, are fittingly shown with those of his mother, and will be seen to possess a variety which is scarcely seen in those of the latter. These, it should be stated, are all carbon prints, by the Autotype Company, and, though technically excellent, cannot claim to have any personal supervision in their production, such as a photographer of the class of Mrs. Cameron would certainly exert. The following is the list of the photographs:—

BY MRS. JULIA CAMERON.

1. Thomas Carlyle.
2. Lord Tennyson.
3. Sir John F. W. Herschel.
4. Longfellow.
5. Joachim.
6. Charles Darwin.

7. Thomas Carlyle.
8. Lord Tennyson.
9. G. F. Watts.
10. Robert Browning.
11. Zoe.
12. Three Fishers.
13. King Arthur.
14. Christobel.
15. Mary Mother.
16. Ophelia.
17. The Meeting of Sir Launcelot and Queen Genevieve.
18. Alethea.
19. Stella.
20. "Call, I follow, I follow, let me die."
21. The May-Queen.
22. Miss Ellen Terry (at the age of seventeen).
23. The Angel of the House.
24. The Angel in the Sepulchre.
25. Nestling Angel.
26. A Study.
27. The Passion Flower.
28. A Day Dream.
29. Sunrise.
30. Florence.
31. St. John the Baptist.
32. The Kiss of Peace.
33. A Child's Head.
34. Portrait of Mrs. Julia Cameron. (From a Painting by G. F. Watts.)

BY H. H. HAY CAMERON.

35. The Five Foolish Virgins.
36. The Archbishop of Canterbury.
37. Miss Bagge.
38. Miss Ramsay.
39. A Child's Head.
40. G. F. Watts.
41. Dr. Jackson.
42. Mrs. Stuart Wortley.
43. Master Jimmie Marshall.
44. Portrait of a Boy.
45. E. J. Levison, Esq.
46. Tennyson and Browning (bearing the poets' autographs).
47. Henry Irving as "Becket."
48. Miss Muriel Paget.
49. Lord Roberts.

The exhibition will remain open until October 6, from 10.30 to 4.30, except on Saturdays, when the hours are 10.30 to 12.30.

THE United Stereoscopic Society.—This Society's second annual competition of members' work will be held in November, 1906, when a bronze medal is offered for the best slide entered in each of the general classes. The secretary of the society is Mr. A. J. Snow, 74, Lloyd Road, Walthamstow, E.

West of England Exhibition.—In connection with the photographic classes in the above exhibition we are asked to say that the detailed schedule is now ready, and will be sent on receipt of a stamped foolscap envelope. The secretary's name and address are Mr. A. D. Breeze, 41, Union Street, Plymouth.



## BUSINESS TACTICS.

THE methods which photographers across the Atlantic have found efficacious in intensifying the volume of business and assisting to sell a more profitable article have found their way into our pages during the past few months, chiefly in the form of addresses read and discussed at the conferences and conventions which are so large a feature of photographic life in America. Most of these have come from professional men, proprietors of studios, who are speaking of things as they, individually, have found them. Of a different order, but no less useful, is an editorial in the current number of the "Photo-Beacon," in which F. Dundas Todd presents a kind of *pot-pourri* of the ways and means adopted in the States among professional photographers. Mr. Todd's article is good enough, it seems to us, to present practically unabridged.—ENDS. B.J.P.

"When a prospective customer steps into the reception room, the first sixty seconds is really the most important part of the interview, as in that brief minute the reception room lady or photographer must have created in her mind a pleasing impression, either learned from her directly or estimated by sizing up just how much money she is willing to pay and how much more she can be tempted to spend." Thus said a photographer to a meeting of his brother craftsmen recently, and almost all of them admitted there was much truth in his statement.

### Have your Place Spick and Span.

First impressions count for much, and are hard to obliterate even by opposite ones that are made later. Let me illustrate. If a lady were told that while arrayed in her best gown she would be asked to sit in a dusty chair while she was being photographed one might be reasonably certain she would never enter the studio where such conditions existed. Yet a travelling man told me recently that while waiting in a certain gallery, owned by a rather successful photographer in a large residence city, he overheard a lady sitter, handsomely arrayed, beg to be excused for a moment, saw her retire to the dressing room, then return under the skylight, carrying in her hand a towel. From the conversation, which he could not avoid hearing, it was plain the posing chair was dusty, and she was preparing to wipe it.

I have been in this photographic gallery and know the reception room is rather presentable, but I am convinced if the lady had seen dusty chairs in this room she would never have made the appointment. First impressions are important, more so than those that succeed, but the latter should not be neglected.

Anybody can sell a customer what is wanted, but the good business man endeavours to sell an article that is more profitable to him, at the same time retaining the customer's good will. We are all in business for profit, if we were not the awful avalanche of trash of all kinds that is sold every day in the year would never be produced, and it is sound business to make the biggest profit possible while conforming to the recognised rules of the game. If the customer is evidently a \$3 one then the photographer has to tempt her to spend at least \$1 more. Failing that, he must angle for 50 cents. And so on all along the line, no matter the prices.

### Two Guiding Rules.

Every man does his business more or less his own way, and it is utterly impossible to lay down hard and fast rules, but I find there is a general consensus of opinion on two points. First, no small pictures should appear on the walls of the reception room, or where they would be readily noticed. Only 8 by 10 or larger pictures should be displayed openly. Secondly, the regular line of work should be kept in drawers, or preferably in a display cabinet, such as is now offered. For those who have not seen one, I may say the cabinet contains about half a dozen frames, about 30 inches by 40 inches, which stand upright while in position. As each is lowered by a forward movement, the one behind becomes visible. This cabinet permits any one class of work to be shown together, and at the same time all prints are kept clean and free from dust. I hear it spoken of very highly wherever it is in use.

### Be Slow to Offer the Cheapest.

Some definite system must be followed in making or exhibiting the various grades of work that are made. There has long been quite

a contention as to whether the lowest priced or the most costly should be shown first, but I find most men agree that the expensive the customer will look at is a good place to begin.

Let us suppose a case. A customer is in the reception room the lady behind the desk has sized her up as a \$10 possibility—an effort. The door of the display cabinet is lowered, and customer's eyes are at once met with, say, three very large prints on heavy paper and unmounted. The customer will be almost certain to express an opinion of them and to ask the price. "Twenty dollars a dozen." If her intention is to pay about \$4 a dozen, she will almost involuntarily remark, "I don't want anything like that; something about \$4 is all I want to pay."

The photographer would be foolish to at once show his \$4 stuff. There is no need for hurry at the present juncture, and there while talking pleasantly about whatever may be interesting to the customer, he lowers the next frame, on which will probably be \$12 or \$15 pictures. If the customer expresses a desire to see cheaper priced work, the next frame is lowered, and so on, but the golden rule here is never go further back into the display case than must, and in the majority of cases a skillful salesman or saleswoman can add at least 50 per cent. to the sum the customer intended to spend.

### The Profitable Odd Lines.

Many photographers tell me that they consider the arrangement come to at this stage as being merely temporary, though the customer looks upon the styles as being definitely fixed upon. When the prices are returned this should be considered as a second opportunity inducing some variations that will add to the value of the order. We all know that such staple goods as unbleached cottons are sold at a fairly uniform price, and at a low margin of profit, simply because most customers have had experience in buying this class of goods but when we come to ladies' hats the customer is up against a very different proposition, and every husband is aware that a few flowers and ribbons arranged on a straw frame become very decidedly enhanced in value. It is a recognised fact in all businesses that big profits are to be got on the odd articles, so photographers ought to follow this lead, and therefore tempt their sitters with work that is outside of the regular cabinet style.

### The Question of Part Payment.

It is a recognised principle in business that all articles produced for personal use are paid for in advance, because they are consumed or at least material is consumed, in providing the service. For instance, we pay for a railway journey at the beginning of the trip and for a theatre performance before it starts. Photographs are under the same list, and ought therefore to be paid for in advance as the material and time cannot be recovered and put to other use should the customer refuse to pay. The principle of a deposit therefore is a sound one, but the application requires to be handled with considerable tact. In some studios one finds such a notice as this on the walls: "No sittings made without deposit of \$1." Many years ago in one gallery I dropped into I found the photographer had such a notice on a small stand in his operating room, and just when he was ready to make the exposure he pulled this into position and requested the poor sitter to look at the card. I fancy many of his customers felt anything but pleasant when this notice was suddenly presented to them at such a critical moment.

Coming back to the reception room and the question of part payment: It is sound business to get a deposit at the time of sitting, but many photographers think it unwise to ask for it until after the sitting, and then the question must be put very tactfully. Some men like one phrase, some another. For instance, one man will ask, "Do you wish to make a part payment on these now?" while another will prefer this question, "How much do you wish to pay now?" because this phrase makes it apparent that so much must be paid.

When I come to speak of handling a customer under the skylight, feel like saying "don't handle at all. Hands off" is a mighty good rule, and I find that first-class men never on any pretence touch the customer. Many people have decided objections to being touched. I speak with feeling here, as I happen to be built that way; and

would refuse to do business with any one if I knew I was going to be handled.

### Charging for Proofs.

The question of proofs has got to be a big problem these days, since the amateur is everywhere in the land, for it is no unusual thing for the customer to finish the proofs from which no order is given and thus get the benefit of different positions for nothing. As a consequence there is growing up a custom among photographers to stamp in the back of each proof some such statement as this: "Please mark your order on the proofs you wish finished and write your name; all proofs not returned will be charged for at the rate of finished prints." Some photographers are willing to make one toned unmounted proof from the negatives not ordered from to be mounted in the baby book, but even here one must use judgment, as one photographer tells me of one of his customers, who brought in her little boy one day, with seven different suits of clothes, and had him taken in two positions with each suit, then wanted only one

unmounted print from each negative at 25 cents. He faced the problem by informing her that this rule only held good provided one dozen was ordered from at least one negative.

"When will my pictures be ready?" is the usual question asked by the customer. Photographers have gained for themselves a rather unsavoury reputation for broken promises, and it is about time to reform. They should never promise for a definite date, but instead should offer to notify by dropping a postal when proofs are ready.

I am often asked the question, should the photographer urge the customer to take prints from the negative he thinks best or permit him to choose. In the first place, I will say that no photographer should ever submit a proof from a negative he would not like to finish from. From the others let the customer take her choice. She is paying for the service, and therefore has the option. When I want bacon and eggs for breakfast I would resent very emphatically the waiter's interference, if he urged me to take beefsteak instead, because it is my palate, not his, that is to be tickled.

## EXPERIMENTS WITH SILICIC ACID EMULSIONS.

(A Paper in the "Zeitschrift für Wissenschaftliche Photographie, Photophysik und Photochemie.")

Among the many unsolved problems of scientific photography are the nature of the latent image and the existence of solarization. Hitherto these phenomena have been chiefly studied in gelatine and collodion emulsions, but lately (1), on the supposition that the organic vehicle of the emulsion complicates the results, experiments have been undertaken with films free from such vehicle. These researches have led to one important conclusion among others—viz., that solarization is not, as has been assumed by some writers, dependent at all on the tanning of the gelatine, but arises from a special alteration of the silver bromide. Whether the composition of the surrounding atmosphere plays a part in the process, as it does in certain phenomenon of the latent image, is a matter to be settled by further experiments. It is known that a primary plate (i.e., one obtained immediately on exposure), after fixation, is developed by a developer containing silver, and that the image remaining after fixation is only incompletely or with great difficulty decomposed by nitric acid. Doubt has been often (2) expressed that this extremely permanent substance of the latent image consisted of an organic body. In order to put the matter to the test we have attempted to prepare an emulsion of silver bromide in an inert inorganic vehicle, and to make corresponding experiments under these conditions.

Encouraged by some work of the late C. A. Lobry de Bruyn (3), we carried out experiments with emulsion of silver bromide in silicic acid. De Bruyn, in the course of his work on the physical condition in water of bodies which jellyfy, prepared a silver bromide emulsion as added, and to the other 5 ccs. of N/10 potass bromide solution. On mixing the two mixtures, de Bruyn obtained a white emulsion which jellyfied in 2 to 3 minutes. It exceeded in sensitiveness a ripened gelatine emulsion. Our own repetition of this experiment gave the result that the setting of the silicic acid took place further than was desired, so that even by working very quickly the silver nitrate solution could not be added to the bromising solution in the proper time, as it was seldom possible to coat several plates with the same emulsion; a variation in the process appeared most advisable to us, especially as the emulsion prepared according to de Bruyn's directions contains large quantities of sodium nitrate which are removable with difficulty.

### Preparing the Emulsion.

We, therefore, proceeded to prepare the emulsion with colloidal silicic acid, purified as highly as possible by dialysis. As the solution which is deprived of electrolytes to the greatest extent sets very

quickly, we set out to prepare, first, a solution of only an approximate degree of purity, in the following manner:—30 ccs. of solution of sodium silicate (density, 1.3) and 30 ccs. of pure, strong hydrochloric acid, were each diluted with 120 ccs. of water, and the acid poured, while stirring, into the water-glass solution. The mixture was subjected, in two portions; for three days to dialysis in running water. As a dialysing vessel, a beaker with the bottom knocked out, was used, a piece of pig's bladder, cleaned with alcohol, closing the aperture. When dialysis has continued only so long that on addition of silver nitrate to the silicic acid solution only a weak opalescence is produced, the solution can be stored for several days without jellyfying. To prepare the emulsion, a portion of this stock solution is given some further dialysis until silver nitrate shows no opalescence. Such a solution is not even now free from electrolytes. Graham (4), it was who, in his classical researches on dialysis and diffusion, assumed that a perfectly pure silicic acid solution was obtainable, but E. Jordis (5) has, however, shown that a quantitative purification of the solution, or of the gel, is next to impossible. He takes the view that in the absence of "solution former" (i.e., of the electrolyte used in the preparation), no state of solution is possible. The way in which electrolytes favour solution was well-known to Graham, but in what way the almost infinitesimal proportions of electrolytes are retained by the silicic acid is a much debated point. While the old view was that of absorption or adsorption, Jordis assumes that the acid by virtue of its "amphoteric" character (simultaneous formation of H and OH ions) may cause both sodium and chlorine to combine chemically at the same time.

### The Emulsion Formula.

The preparation of the silver bromide emulsion was as follows:—

I.		II.	
Silicic acid sol.....	35 ccs.	Silicic acid sol.....	35 ccs.
10 p.c. potass bromide sol. 5 "		10 p.c. silver nitrate .....	25 "

Solution I. was added to solution II. from a dropping funnel with constant shaking. There was formed a very fine grained emulsion which was left standing for half-an-hour in the dark, was filtered through flannel, and then coated on to the plates. For a plate 9 x 12 cm., 10 ccs. was used. The filtration is necessary to remove any non-colloidal (coarse grained) particles of silver bromide which would fog in the developer not being protected by the film of gel.

The plates to be prepared were placed in light-tight boxes to permit of the slowly setting emulsion jellyfying in them without being moved. Almost pure silicic solution, stored for a long time, gelatinises most quickly on precipitation of the silver bromide. That freshly prepared, especially at a lower temperature, requires addition of ammonium carbonate. The setting is complete, on the average,

(1) "Liebig's Annalen," 121. 1-77. 1862

(2) "Zeitschrift für Electrochem." II. 288-335. 1905.

(3) Karl Schaum, Bericht über den V. International Kongress für Angewandte Chemie, zur Berlin. June, 1903. Bd. IV., pages 344 to 346. Karl Schaum and Wilhelm Brau: "Zeit für Wiss. Phot." I., pages 877 to 883. 1903. Hermann Weiss: "Zeitschrift für Physikalische Chemie," 44. 308-332. 1905.

(4) First probably by Hartwick. See J. Sturtevant, Edser's Jahrbuch. 1889. p. 289.

(5) "Rec Trav Chim Pays-Bas et Belgique." 19. p. 236. 1900.



after four to six hours. The plates are then washed (to remove excess of potassium bromide) until the wash water is no longer rendered turbid on addition of silver nitrate.

On drying, the film partly leaves the glass: the defect is not remedied by a gelatine substratum. From the very brief details which de Bruyn gives it must be supposed that he was successful in working with the dry films. As the examination of dry films appeared very desirable, particularly from de Bruyn's statement that the sensitiveness, in the dry state, exceeded that of a ripened gelatine emulsion, we made a number of attempts to employ the dry film, but without success. We eventually decided on the plan of working with the washed and still wet films as sufficient for examining solarisation, and the formation of the latent image.

The opacity of the washed plates is less than that of most gelatine plates of medium sensitiveness. By transmitted light the films showed, as a rule, a blueish-white colour. On protracted exposure to daylight they became greyish-black.

If the emulsion is prepared by the silver oxide ammonia process, the emulsion darkens very quickly in daylight to a violet-black. We have not continued the experiments with this emulsion, as the presence of ammonia was not required for experiments, and, further, the ammonia greatly interferes with the setting of the solution.

#### Sensitometry of the Films.

The wet films were exposed in a tube sensitometer. As it was necessary, for many experiments, to obtain two plates with exactly equal exposures, we installed a double-tube sensitometer. Two metal plates were provided with sixteen circular holes, the sizes of the openings increasing in the ratio of  $1:\sqrt{2}$ , giving this for the sixteen areas, the following values in 89 mm. :—

181	.....	128	.....	90.5	.....	64.0
45.3	.....	32	.....	22.6	.....	16.0
11.3	.....	8	.....	5.7	.....	4.0
2.8	.....	2	.....	1.4	.....	1.0

The diameter of the separate holes was accurate to  $\pm .05$  mm., and it was found that corresponding openings did not differ by more than  $\pm .025$  mm. On the inner side of each plate sixteen tubes of matt black paper were fastened corresponding to the holes; they were fixed at their lower ends to a thin sheet of zinc in which sixteen large holes had been made. This arrangement is easily fixed to a light-tight metal-chamber and to the plate-holder.

In the first experiment a plate was exposed for the same time as a Hauff transparency plate which had been soaked in water for half-an-hour. The exposure was made to daylight through a window covered with several thicknesses of oil paper, and it was found that on three seconds' exposure the gelatine plate developed up to No. 14 of the holes; the silicic plate only to No. 3. The plates were laid on white paper and examined perpendicularly when making this comparison. As the area of No. 3 is forty-five times that of No. 14, the speed of the silicic plate may be put down at 1.45th that of the Hauff transparency plate.

As developer, the normal ferrous oxalate of Dr. Eder (6) was used with prolonged exposure, the silicic acid plate showing a tendency to fog, especially where the edges dried. As Lobry de Bruyn makes no mention of the way in which the plates were exposed in his experi-

ments, it is not impossible that the remarkably high sensitiveness found by him was really fogging of the dry film.

Under the microscope the silver bromide was visible as an extremely fine grain.

#### Solarisation.

The plates were exposed in the sensitometer for one hour at metre from the window covered with oiled paper. After eight minutes' development, the action of the developer was arrested; fog commenced to show itself. After fixing it was seen that areas Nos. 1 to 4 showed distinct reversal against the background, which was somewhat darkened by halation. Areas No. 5 and 6 were neutral; 7 and 12 were over-exposed, and 13 to 14 normally exposed. No. 16 was invisible. These results supply fresh proof that solarisation has nothing to do with the tanning of the vehicle of the emulsion, but is connected with a modification in the silver bromide. We have later ascertained that in the case of silicic emulsion, as in that of gelatine, solarisation is increased by previous treatment of the plate with oxidising solutions (7), such as nitric acid of 1.3 density, the action being partial or complete according to the time of action, so that it is possible to obtain normal negatives from plates which have been exposed up to the point of direct blackening.

#### Secondary Development and the Latent Image.

Plates exposed for one hour in the sensitometer at one metre distance from the window, were fixed immediately after exposure in 1.5 hypo solution. The photo-bromide formed disappeared completely. The plates were then washed for half-an-hour, and developed in metol developer containing silver nitrate.

After one-half to three-quarters of an hour traces of the image appeared; the development was complete after two hours, and it was then seen that areas 1 to 12 were blackened, the first four strongly. Some pairs of plates were now given equal exposures, one plate of each pair fixed directly, and the other after previous treatment with nitric acid. Both were afterwards developed. Between fixation and the acid bath the plates must be thoroughly washed for 2 or 3 hours, since any residual traces of thiosulphate will be decomposed and appear as sulphur in the film. After two hours' secondary development the following results were obtained:—

Plate without acid treatment.....	11 areas.
Plate with 1 hour in nitric acid (1.2).....	9 areas.
Plate with 1 hour in nitric acid (1.3).....	9 areas.

The density was distinctly less in the case of the acid-bathed plates than in the others.

J. M. Eder (8), in his discussion of the "Nature of the Latent Image," comes to the view that the latent image consists partly of sub-bromide of different stability toward thiosulphate and towards nitric acid. As mentioned earlier in this paper, that part (stable towards nitric acid) of the developable image which remains after primary fixation, has been frequently ascribed to an organic silver compound. But under the conditions of our experiments no organic compound could be formed (9), and hence the conclusion of Dr. Eder may be accepted without question. There is no longer the opportunity, in the case of gelatine or collodion emulsions, to give another interpretation to the fact of the permanency of part of the latent image.

KARL SCHAUM.

EDUARD SCHLOEMANN.

AN American photographer, I. Benjamin, of Cincinnati, is establishing himself in business in Paris. His enterprise was marked by a meeting at his studio with a few of his professional brethren, including S. L. Stern, of Milwaukee; J. C. Strauss, St. Louis; G. W. Edmonton, Cleveland, and others, which occasion of fraternization is the subject of a photograph in the current issue of the "Photo Era." Mr. Benjamin, so we learn from the same journal, invades Europe with high credentials from America. He studied art at the Cincinnati Art Academy from 1883 to 1888, and was the founder of the Art Students' League of Cincinnati, serving as its president for seven years. He twice received the Grand Prize of the Photographer's Association of Ohio, and was awarded a silver medal for portraiture at the International Exhibition of the American Institute of New York in 1896. He was medalled by the Michigan Photographers' Association, and

also by the P. A. of A. He received a gold medal for miniatures at the Milwaukee Convention; also Salon honors at Philadelphia, Pittsburgh, and Ohio, and a silver medal from the International Exhibition at Turin, Italy. He has been active professionally in Cincinnati for nineteen years.

Mr. G. H. Stanford, Boscombe, has had accepted, by the King of Spain, three photographs of His Majesty taken during the latter's visit to Cowes.

(\*) See "Hardruch der Photographie." III. (5th ed.) 1903. p. 897.

(\*) "Sitzungsberichte K. Akad. Wien," 114, IIA. July, 1905; "Zeitschrift für Wiss. Phot." III. 329 to 353, 1905.

(\*) Karl Schaum ("Phys. Zeitschrift," II. 552, 1901), has brought forward the possibility that the vehicle of the emulsion in those places where there is exposed silver bromide, through the action of the halogens, may be altered by the decomposition products of the developer, so that a separation of silver from the developer may be promoted. This supposition appears very probable in the case of the silicic emulsion.

(\*) See "Hardruch der Photographie." III. (5th ed.) 1903. p. 213.

Edinol ... ..	20
Eikonogen ... ..	9
Glycin ... ..	7
Hydroquinone (usual strength) .....	5
Imogen Sulphite ... ..	6
Katchin ... ..	10
Metol ... ..	30
Metol-hydroquinone ... ..	14
Ortol ... ..	10
Pyrocatechin ... ..	10
Pyro.Soda or Pyro.Potash ... ..	18
1 gr. Pyrogallol, no bromide	12
2 " " "	10
3 " " "	8
4 " " "	9
1 " " ½ gr. bromide	5
2 " " ½ " "	4
4 " " 1 " "	40
Rodinal... ..	40



## THE LAWS OF THE STEREOSCOPE AND STEREOSCOPIC TRUTH.

### III.\*

To produce a true stereo picture is a much more delicate matter than one would think, and when we say true we will consider the practical side of the question, knowing well that the theoretical truth cannot be attained, for a reason which, amongst others, has already been made clear. To approach as near as possible to stereoscopic truth, the following conditions should be fulfilled:—

1. Choose the point of view—that is to say, place yourself in such a way as to see the subject as one wishes to see it in the stereoscope.

2. Place the apparatus at the said point of view, so that the lenses occupy the place of the eyes.

3. Take care, in consequence, that the lenses are separated by the same distance as the eyes, the normal separation of which is 6.5 cm.

4. Mount the prints in such a way that the right eye sees that produced by the lens on the right, and the left eye the other. The expression ordinarily used by the majority of authors is: "To mount at the right the print of the left," a piece of instruction which cannot be more erroneous. The fact is that photography produces an upside down reversal of the images. To see the double print uncut, it is reversed; but by doing this one has brought the right print to the left. After cutting them the prints should be mounted in their respective places.

5. Theoretically, the prints should be cut so that one does not contain anything which is not contained in the other; but this is impossible, for the images are different, and cannot be superimposed. Practically it is sufficient if the front planes have their homologues in the two images, for it is those which ought to have the greatest relief. In this case the rest will be satisfactory, although there will be still a small excess of the distant plane on the right of the image on the left, and a similar excess of the distant plane of the left of the right image.

6. It is useful to mount the prints on a black ground. The image can then appear as though seen through an open window, if one sacrifices a half millimetre vertically on the right of the right print, and also a half millimetre on the left of the left print. This operation will bring the black ground to the front plane, for the homologous vertical lines will be one millimetre nearer than the front planes of the image itself. The eyes ought then to converge more to see the black ground than to see the subject, which will locate the bottom in front of the picture, and will act like a window. This is a point of which the International Congress of Photography did not think when it fixed at 70 millimetres the separation of homologous sides of the stereoscopic openings, after having fixed on the same separation of 70 millimetres for homologous points in the stereoscopic couple. And as regards this last, the Congress ought to have made clear whether it intended to speak of points situated on the horizon or in the foreground.

7. In the stereoscope the images ought to be seen with the same convergence of the visual rays as that which existed vis-à-vis in nature. The most certain means of arriving at this result is to mount the two prints so as to separate by 6.5 cm. homologous points situated on the horizon, and to use a stereoscope of which the oculars are full lenses—and not prisms—separated also by 6.5 cm. from centre to centre. Then one will look at the horizon with parallel vision, and the convergence towards the foreground planes proceeds naturally. It is unfortunate that commercial stereoscopes do not satisfy this condition; their lenses are separated too much; in consequence of which one does not look through their centres but through the eyes. The result is that they act like prisms, which produces an apparent distortion and displacement of the images in bringing them nearer. This is why in this case they ought to have a separation greater than that which alone is rational, and as we shall indi-

cate. The separation which is usual in these instruments is for similar points on the horizon.

8. Finally, the distance between the eyes and the print should be equal to the focal length of the objectives. This is indispensable for it is only under this condition that the images will occupy the desired angle. If lenses are used, it is necessary to arrange the apparatus, so that the angle occupied by the image is good, that on the retina the dimension of the image corresponds to that which will produce nature itself.

### Tangible Proofs.

A referendum has been made apropos of stereoscopic pictures obtained under abnormal conditions, and giving presumably the representation of the object photographed, and some incredible conclusions have been printed. Among others may be cited the one of M. Donnadieu, who, in his last work, pretends to have obtained the better representation of a cube by photographing it with a separation of only one centimetre. Those who expressed an opinion on this in the referendum have never seen the model in nature.

It is not the way to proceed. If the opinion of people is wanted on the resemblance of a portrait, it is necessary to place side by side the original sitter or a true stereogram, which may be used instead. It is in this way which we shall do, in the two examples which will serve to resume to the reader of all that we have said and shall say.

We have here, first, a well known work of art in bronze—Les Liliules. It was photographed three times at the same distance, with different separation of the lenses; the lens on the right kept in its place. The second of these images corresponds to normal separation of 6.5 cm. To see the three stereograms ought then to vary the convergence of the visual rays. It is this reason that the three couples are not at the same distance separation.

I have mounted the whole at a separation greater than that which I strongly recommend, so that they can be seen with the commercial stereoscopes. Whatever be the kind of stereoscope employed it not be reproduced by the exact convergence as it ought to be. One may suppose that the middle statuette represents the dimension apparently agreeing with reality.

Examine this statuette well, and you will immediately have the impression that of two others, that to the left is further off from you and it looks larger. That on the right, on the contrary, appears to come nearer and to be smaller, and at the same time the two images on the right are identical, printed from the same negative, and those on the left have exactly the same dimensions, for they were photographed at the same distance.

If you compare, then, the attitude of the three statues you ought to be able to recognise that that on the left is the "most flat" of the three; there is a slight difference between the planes occupied by the two hands and by the two feet. An artist will recognise at once that the right arm, from the shoulder to the elbow, and the right leg, from the knee to the foot, are too short. The robe flattens the calf, and the pedestal seems oval and larger than in Figure, which agrees with reality. If now we turn to the third figure, that on the right, we find the relief exaggerated. The pedestal is out of depth, the figure takes an immense stride, the right leg and right arm are too long, and the robe is distended as though blown by the wind.

If one demanded in a referendum to an unprejudiced public, which of the three stereograms was the best, it is probable that 90 per cent. of the observers would say that with the exaggerated relief. Why? Because their stereoscopic education is falsified by the exaggerated relief which is found in almost all existing stereograms, which are almost all made with too great a separation of the lenses.

What is the result of this state of things? Let us take the view

\* The following is the conclusion of the translation of the paper by M. Goderus, the preceding portions of which appeared in the BRITISH JOURNAL for Aug. 17 and 24. The figures referred to in the present instalment accompanied the text published in last week's issue.

\* The referendum here referred to took place at the beginning of this year under the auspices of the Association Belge, de Photographie.—Eds. B.J.P.

of towns; when you actually see them after the views seen in the stereoscope, you do not recognise them, or if you do you have some such reflections as the following: "I certainly imagined that this place was much grander: that the Rue N— certainly was not as large as this!"

Here is another example in which two stereograms were made of the same subject, a globe, with the same angle of convergence, but at different distances. The left image was made at the distance of a metre, with a separation of 6.5 cm. between the axes of the two lenses. The right image was obtained with a separation of 13 cm. and two metres distance.

The angle of convergence remained the same as in nature. This angle is also the same on the proofs, where the centres of the two spheres are respectively equidistant—namely, cm., contrary to our theory, for the reasons indicated apropos of the previous example. When these two globes are examined in the stereoscope, they will appear as though their centres were at the same distances from the eyes—that is to say, they appear to be side by side at one metre from the observer. However, the little globe does not appear as though it were a reduction of the large one. This alone corresponds to the proportions of the model, and gives the true inclination of the globe on its axis.

When they are carefully examined it will be seen that the little globe seems less inclined than the large one; their axes are not parallel, as they should be if the small one was an exact reduction of the large one. This is due to the fact that the perspective lines of the little globe, seen at the distance of one metre, like the large one, correspond to those of an object seen at double the distance and with a double separation of the eyes.

To those who may ask why we have not mounted the prints so as to show the pedestals of the two globes of the same height, we reply that the lenses were exactly opposite the centre of the map of the world. This centre in the case of both images should be on the horizon line.

One could have reversed this example and photographed first at

two metres with the normal separation of 6.5 cm., and then at one metre with half the separation. This would then result in the little globe being exactly represented as in nature, and the large one would be deformed in its proportions.

### The Probable Objections.

1. If the statues were mounted so that they were equidistant two by two, they would be aligned on the same plane. That is true, but the perspective of depth of the first and third would still be more false than actually, for the components do not answer better to the angle of convergence which determines these lines.

2. If the prints of the two little globes were mounted with a separation greater than that of the large ones, the fusion of the first planes would be situated further behind. It is still true that one could create the illusion of the true distance of the object and its true dimensions as regards height, but its proportions would remain changed. One would not be able to perceive this vis-à-vis with an isolated object, of which the lines of perspective are not very accentuated, but in a landscape, the view of a town, an interior, a geometrical solid, a portrait, especially, the fact will immediately become evident.

Here, without comments, is a striking example: two portraits of the same person, the one taken at a distance and then enlarged, and the other taken close to, and then subsequently reduced, so that they are the same size. As the one can be seen at a convenient distance, while it is not possible to get close enough to the other to see it, this latter, which is, however, equally true, though it was made with a short focus lens, seems a monstrosity.

In certain cases it is this want of *a priori* evidence, this evidence to convince the eyes, which induces thoughtless people to lay down the laws which we have considered, because they have not observed before making both the negative and the print, they have arrived at a result which seems satisfactory to them, in default of an immediate comparison. From that to formulate the erroneous principles is only a step; as for the experts, they are always discovering the most ridiculous theories.

A. GODERUS.

## REPRODUCTIONS BY LITHO-PHOTOGRAVURE.

The above title is not that at the head of an article in Tuesday's "Times," reviewing the invention of Sir Joseph Wilson-Swan and his son, Mr. Donald Cameron-Swan, which is the subject of a communication from a correspondent. Yet as the article raises several points in book production, which may be noted even by those whose enterprises in this direction do not extend beyond a professional or trade catalogue, it may be advisable for us to quote a large portion of the writer's text.

The new method combines the intaglio (or photogravure) process of making engraved plates, with the lithographic process of printing. In other words, it combines the most perfect process of photo-engraving with one of the cheapest and most rapid printing methods. The advantages gained will be more clearly seen if we review some of the illustrating processes of the past half century, considering their relative strengths and weaknesses, which course will show clearly the many problems solved by a discovery that effect the union of two well-known methods.

In wood-engraving, the dominant style of illustration through most of the 19th century, which preserved for us the works of Leech, Tenniel, Harrison, Weir, Whympere, and many another, the print is made from the surface of a wood block (or an electrotype therefrom), from which the whites of the pictures have been cut away by gravers, guided by hand and brain. In half-tone engraving, developed in the last quarter of a century, the print is made from an enormous number of tiny dots left on the surface of a metal plate by the etching away of the intermediate spaces by acid, guided by photography. In wood-engraving the lights and shades are governed by the size, shape, and distribution of patches of black and of white, and the variety of size, shape, and distance apart is practically unlimited. In half-tone the dots are distributed evenly all over the surface of the engraving, and the difference between lights and shades is made by the sizes of the dots.

### The Bane of Art Paper.

In wood-engraving the whites—which are not to receive or print ink—may be cut very deep in comparison to their width; in half-tone the spaces between the dots are exceedingly shallow, and this difference has caused a complete revolution in the making of paper and building of printing presses, because neither the paper nor the machines used for the wood-engravings are suitable for the half-tone. Soft paper, such as all bookmen love, cannot be printed with the shallow half-tone; and the relatively heavy masses of ink that are needed to give good blacks on such absorbent paper, cannot be used on the half-tone without filling its shallow hollows and giving one even smudge. To meet the requirements of the shallow block, modern papers, known as "art," "imitation art," and "super-calendered," have been introduced, all with a considerable amount of "loading"—usually of kaolin or China clay—in, or on their surfaces. These papers are truly "lath and plaster," for their interior is woody fibre, disintegrated as finely as possible to prevent the slightest lumpiness, and their faces are simply so much cement. They are very liable to scratch, when feeding into, or passing through, the printing machines, and when folding for binding; they are so brittle that they cannot be folded tightly, to make a hard back which is needed for durable binding; when bound, the leaves are liable to break and fall apart; and they are so sensitive to moisture that it is almost impossible to gild or colour the edges of books, and that if leaves become wet, or even thoroughly damp, they will stick together and their surfaces can never be separated. Moreover, these modern papers are very heavy for a given thickness, so that books of any considerable size are uncomfortable, and even painful, to handle.

### Photogravure and Litho.

Printing from very shallow blocks necessitates the use of very stiff



inks, with a maximum of finely ground pigment in a minimum of vehicle. This, in turn, necessitates printing machinery having very great rolling and distributing power.

Even with its specialised paper and machinery, half-tone fails to give us the clean, brilliant whites and blacks of the wood-engraving; and for a photo-mechanical process that can rival the older methods and give us really fine individual prints, we must look to photogravure. In this process the printing plate is etched in intaglio—and the ink is transferred to the print from the hollows of the plate, while the prominent parts represent the whites. In this case light and shade largely depend upon the varying depths of the hollows, and, consequently, the varying thicknesses of the ink. Photogravure prints may be made upon the old and durable papers, and the results are most satisfactory, but it is necessary to ink by hand, and to remove by hand the ink from the raised surface of the plate that represents the whites. Obviously this means slow and expensive printing. Many efforts have been made to print photogravure by machinery, but the difficulty has always been with the "wiper," to remove the ink from the whites. In practice it is found that any wiper which successfully removes the ink very quickly wears the plate, even if steel faced.

In addition to the surface printing and intaglio printing methods, we have the lithographic principle, in which the "whites" of the printing surface are water-absorbing, and repel greasy ink, while the shadows are dry parts, which freely take the ink from the rollers and transfer it to the paper. In this case much of the difficulty arising from the shallowness of the half-tone block is avoided, for even the smallest of spaces can be kept free from ink; and half-tones can be transferred to and printed from lithographic stones or plates.

Moreover, durable papers without ultra-glazed surfaces may be used in the lithographic machine; but there is still the difficulty of the fine dots, the impossibility of giving a heavy inking, and the absence of strong, vigorous black and whites.

#### Photogravure with a Screen.

By Sir Joseph Wilson-Swan's invention, an intaglio or photogravure plate is made in the ordinary way, but with the introduction of a half-tone screen grain. Unlike other photogravure plates, however, the surface is made water-absorbent, and, therefore, ink-repellent, while the hollows (which may be as broad and deep as necessary) take and transfer the ink. Thus all "wiping" and consequent wear of the surface is avoided, and the plates can be, and have been, printed in ordinary lithographic machines running at the speed of several hundred sheets an hour. It is possible to print text (transferred to litho plates) at the same time as the illustration. For some time the method will be more expensive than half-tone printing, but before very long it ought to be possible to produce the average illustrated book or magazine at about the present cost, saving on the cost of paper what is lost by the somewhat slower speed and therefore higher cost of printing. And the book or magazine will be more enduring, pleasanter to the touch, more comforting to the eyes, and will have more vigour, variety, and beauty in its illustrations.

The development of such a method may enable lithography to retake its old high position, as fully the equal, if not the superior, of letterpress printing, a position which it lost largely through the development of half-tone illustration. In any case it will mean enormous modifications in the printing, the papermaking, and the bookbinding industries, and will prove a great gratification to all lovers of books and of illustration.

## POSING STOUT PEOPLE.

The illustrations here shown deserve consideration, writes a correspondent of the "Photo-Beacon," as they tell very clearly the right and the wrong way, from the sitter's standpoint, of posing a stout person. The left-hand print shows the effect when the subject is

recommends that on the posing-chair there be placed an upper storey, which consists of a cushioned seat, about a foot high at the back, and nothing in front. The upper surface is not straight, but part of a circle with the convex side of the curve uppermost. This seat is



permitted to sit in a chair, the right-hand print when she is asked to stand behind the same chair and lean a little forward over it, while at the same time the camera is kept fairly low. The bust has more of a downward tendency, while the upward look of the camera renders less conspicuous the double chin. Another photographer

very effective. The photographer who sends in the two prints reproduced says he finds leaning over the back of the chair a very successful method of handling children who are dressed in the loose blouses that are now so popular, as it prevents the clothing from bunching up.

## THREE-COLOUR AND FOUR-COLOUR PHOTOGRAPHY.

THE following article continues the series of papers by Baron von Hübl, translations of which we have given in recent issues.\* The first portion expresses the author's views of the three-colour filters and the methods of adjusting them, and the remaining part of the article deals with the theory and the limitations of the four-colour system of photographic reproduction. The former is from "Das Atelier," the latter from the "Wiener Mittheilungen."

The filters used for three-colour work must, as already mentioned, have a definite spectroscopic quality, which must correspond to the fundamental colours laid down in the preceding article, but the colour sensitiveness of the plate must also be taken into consideration. Each sort of plate requires therefore another filter, and a simple method of finding out and controlling the filters is of considerable practical value.

All experiments to determine the filters by means of a spectro-scope lead to no results, as in this method the peculiarities of the plate can hardly be taken into consideration, and when one speaks of "spectroscopically tested filters" it is a phrase which does not mean much.

Something more may be attained by means of a spectrograph, for by this method the spectroscopic sensitiveness of the plate receives full recognition, and from the photographed spectrum conclusions can be drawn as to the correct quality of the filter.

But even this method is not to be much recommended, for quite independent of the fact that it involves a good deal of labour, it is also uncertain. In the first place, we do not know exactly what the spectrogram of a correct filter should be, for the connection between spectrum and pigmentary colours is extremely complicated (in the spectrograph and the camera quite different light ratios exist), and

finally the extension and form of photographed spectrum band depends to a considerable extent upon the time of exposure.

The simplest and safest method of determining and controlling the filters is by photographing pigmentary colours by the aid of a three-colour sensitometer or a colour chart. The colours for this chart should be vermilion red, ultramarine, and yellowish green, and they should be so chosen that when mixed by means of 120 deg. sectors on a colour top they should give a neutral grey, and should thus possess equal colouring powers. The yellow mixed with an equal quantity of ultramarine should give a neutral green. (The position of the four colours used by von Hübl is shown in Fig. 8, with the fundamental triangle of yellow, crimson, and blue-green.) In the negative for the crimson constituent image, plate and filter must be so adjusted that crimson pigments are as inactive as black, those between blue-green and yellow be as active as white, and the vermilion lying midway between crimson and yellow and the ultramarine lying midway between crimson and blue-green must be half-tone in the negative. There can be no doubt that these mean colours, vermilion and ultramarine, can be formed by the combination of the constituent pictures, whether this is effected by additive or subtractive mixture, for they can only be formed by  $\frac{1}{2}$  crimson +  $\frac{1}{2}$  yellow or  $\frac{1}{2}$  crimson +  $\frac{1}{2}$  blue-green.

### FOUR-COLOUR PHOTOGRAPHY.

All three-coloured prints show the defect of impure compound colours, which give the print a dirty unpleasant appearance. This phenomenon—as is generally known—is specially noticeable in the mixture of the blue and yellow, giving a defective green, which is characteristic of trichromatic prints. The defect cannot be obviated by retouching the red printing plate, but it may be reduced to a tolerable extent; for three-colour pigment or gum printing the negatives must be retouched, which is only possible to a limited extent.

The possibility of this four-colour photography was pointed out by Dr. Eder in 1836,<sup>1</sup> in the following words: "According to Hering there are four fundamental colours, red, yellow, green, and blue. Working according to this theory, all the manipulations necessary for three-colour printing may be adapted without difficulty to a four-colour system, and a four-colour print would be the result, in the production of which there is nothing actually to overcome, and the system ought to give very satisfactory results."

The theoretical basis of the process was explained by me in the first edition of "Die Dreifarben Photographie," 1897, p. 77, as follows: "For a four-colour print, against which there are no theoretical objections, the fundamental colours must be so chosen that they are at equal distances on the periphery of a colour circle. As all compound colours can then be enclosed in a square, which covers almost the whole of the colour circle, it is not necessary to lay such stress on the purity of the colours. Thus, for instance, the stable colours, chrome yellow, alizarine lake, then a blue and a green lake, will be quite suitable to reproduce practically all colours."

The above four colours correspond to Hering's fundamental colours, which are also the foundation for the colour circle. Fig. 1 shows the colour circle, and the inscribed square, in the corners of which lie the four colours, includes all shades and tones of colours formed by admixture of the same. As pure yellow cannot be formed out of two other pigmentary colours, this system is the only fundamental one that is practically useful.

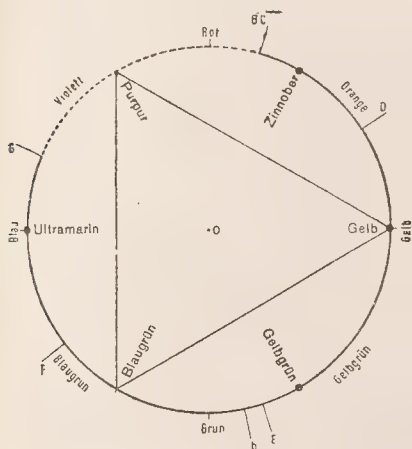
Hering's fundamental colours only excite one colour-sensation. The blue is neither green nor reddish, and corresponds to ultramarine; red excites neither yellow nor blue, and corresponds to carmine; the yellow, neither greenish nor red, is represented by a medium chrome yellow, and the fourth colour is a pure green, which does not excite either blue or yellow. Each pair of these colours is complementary, and if the colours are compared to spectrum lights, as may be taken from Fig. 1, they will have about the following wave lengths: Blue  $\lambda$  468, yellow  $\lambda$  573, green  $\lambda$  510. The red is wanting in the spectrum, as it is bluer than the spectrum red, and can be defined as that red which is complementary to the green at  $\lambda$  510.

Thus the colours of four constituent images are determined, and

<sup>1</sup> Schriften des Vereines zur Verbreitung naturwissenschaftlicher Kenntnisse 1836, p. 255.

Attempts have been made to obviate this defect by adding to the red, yellow, and blue impressions a green one, thus striving to split up the original into four constituent prints, and using four printings. This process, which is suitably called four-colour photography, differs from existing four-colour printing, in that four bright colours are used, whilst in the latter a black-key plate is added to three colours.

\* B.J.P., June 2 and August 10, 1906.





the photographic splitting up of the original must correspond to them. The necessary colour sensitiveness of the plates and the behaviour of the filters can be easily determined by "splitting up the absorption spectra,"<sup>2</sup> and this process was specially mentioned for

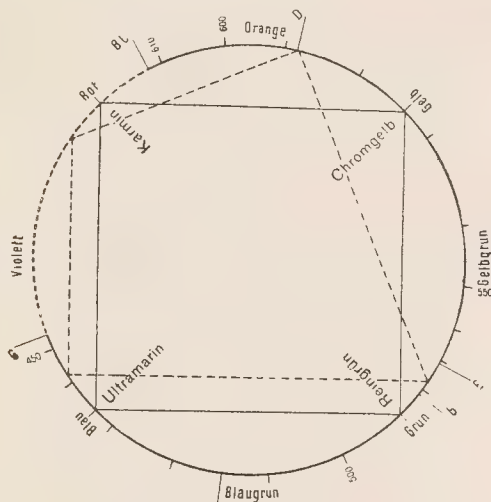


Fig. 1.

Chart corresponding with the Hering primary colours . . . colour scheme according to C. G. Zander.

four-colour printing in the first edition of "Die Dreifarben Photographie," p. 86. Fig. 2 is the result thus obtained."

The four curves show the necessary sensitising of the plates, and if panchromatic plates are used the filters must be so arranged that they only transmit light corresponding to the curves of sensitiveness.

From this diagram it is easily seen that the four filters must be

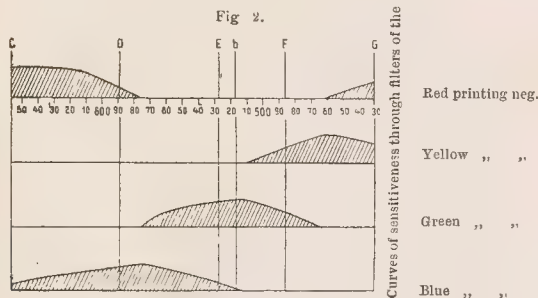


Fig. 2.

carmine red, blue, green, and yellow, a result which is also easily reached by simple consideration. Assuming that panchromatic plates are used, the colour of the filter must always be complementary to the printing colour, and, as every pair of printing colours is complementary, the filters and printing inks are of the same colours. The negative for the carmine printing is made through a green filter, that for the green printing through a carmine filter, and so on.

The preparation of plates with the necessary colour sensitiveness and of the filters presents no difficulties. When, however, a four-colour photograph is attempted by this method, it will soon be seen that the expected result cannot be attained, for dirty colours will always be obtained.

If, for instance, in the composite print pure colours are to be formed the fundamental colours as, for instance, green and crim-

son) present in the original must be obviously printed with the corresponding inks; further, yellow-green, and blue-green must be formed by mixtures of green + blue or green + yellow, violet only from blue + carmine.

That these requirements are not to be fulfilled, however, the following considerations show: If we imagine the four fundamental colours spread saturated on paper, in the negative, to comply with these requirements for the green print, the green field must be clear glass; the yellow, red, and blue, however, will be dense. Generally speaking therefore in each of the three negatives three colours must always act like white, the fourth, however, like black. But we consider the rays reflected from the four fundamental colours. Fig. 3, the impossibility of obtaining this will be easily seen.

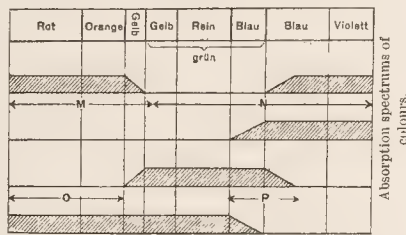


Fig. 3.

We can photograph yellow brighter than green if the plate sensitised for the zone M; it is, however, impossible to photograph green like white, and yellow like black, for the portion P of the absorption spectrum is common to the two colours, and thus, with a plate sensitive for O, carmine can be photographed like white, as blue like black, but not the reverse, for the difference in the zone is too little. If we examine the sensitiveness of the plates in Fig. 2, it will be easily seen that the green field in the reproduction will be reproduced, not alone by green, but by green + blue + yellow. As here blue and green are complementary, and thus combine to form black, a blackish and not a pure green is formed. We therefore obtain at least no better result than with three-colour printing, which the green is degraded by the red printing.

Exactly the same thing occurs in the reproduction of all other colours. They will always be degraded by a complementary pair of colours, and will therefore appear more impure than in three-colour printing. The theory is in both cases equally correct, on it assumes ideal printing inks, and only because these do not correspond to the required conditions, especially as regards their purity perfect results are not obtainable with either process.

For these reasons four-colour printing cannot be preferred to the present three-colour method. If, besides this, one takes into consideration the much greater trouble of four-colour photography, and that the chances of errors are increased, and considering also the want of accurate register is extremely irritating, and that in the mixture of green pigments certain irregularities appear,<sup>3</sup> etc., the view that this process not only does not offer the expected advantages, but must give worse results than three-colour printing, is correct.

For these reasons the four-colour process was not mentioned in the second edition of my book.

Quite recently C. G. Zander has endeavoured to again introduce four-colour printing into practice. Zander proceeds from exact analogous considerations, and also uses a colour circle for the choice of the colours, in which, however, the colours do not include equal regions, but correspond to their extension in the normal solar spectrum. He thus obtains the following fundamental colours: Orange  $\lambda$  589, blue  $\lambda$  458, and green 522, and a crimson complementary to this green.

Against this system of colours must be advanced that it contains no yellow, but an orange of about the same colour as a chromatic orange. No pure yellow therefore can be formed with this colour

<sup>2</sup> Die Dreifarben photographie, 2nd Edit., p. 92.

<sup>3</sup> Archiv für Wissenschaftliche Photographie, 1899, p. 304.

Further, these four colours do not correspond to the requirement that, mixed in equal proportions, they should give a grey, for this is only possible when each pair is complementary. Green and crimson are thus chosen, but not orange and blue, for the former of  $\lambda 58$  is not complementary to the reddish blue at  $\lambda 458$ , but to the greenish blue at  $\lambda 484$ , near the F line.

These properties are seen at once if the colours are inserted in the approximately correct colour circle in Fig. 1. They then form the four-sided figure shown by the dotted line, and this is not symmetrical.

It is scarcely to be assumed that these colours will answer better in practice than Hering's fundamental colours, all the more so as the difficulties of splitting them up by photography increases the nearer the colours approach one another; the colours, orange, crimson, and blue-violet, lying so close to one another, behave in this respect worse than Hering's fundamental colours.

In practice, moreover, this choice of colours does not seem to correspond, for in another place<sup>4</sup>, magenta-red, citron-yellow, emerald green, and ultramarine are introduced, which are very near Hering's fundamental colours.

In spite of the above described failings of the four-colour process, it does not preclude the fact that it can sometimes give better results than three-colour printing, only there must be considerable fine-etching of the printing plates. This must be done on all four plates, and is considerably more than is necessary with three-colour work.

Without this manual help the process cannot be employed, and for this reason also four-colour photography is valueless for carbon and gum printing.

ARTHUR VON HUBL.

## Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents were made between August 13 to 18:—

ETCHING PROCESS.—No. 18,217. A photographic etching process. Anton Dillmann, 61, Chancery Lane, London, E.C.

CAMERAS.—No. 18,260. Improvements relating to mounting swinging lenses on photographic cameras. Arthur Lewis Adams, Birkbeck Bank Chambers, Southampton Buildings, London, E.C.

PORTABLE APPARATUS.—No. 18,345. Improvements in apparatus for travelling photographers. Jean Schmidt, 31, Bedford Street, Strand, London, W.C.

CAMERAS.—No. 18,393. Improvements in photographic cameras. Cecil Alexander Elliott, 37, Essex Street, Strand, London, W.C.

DOUBLE OBJECTIVES.—No. 18,525. Improvements in double objectives. Moritz von Rohr, Jena, Germany.

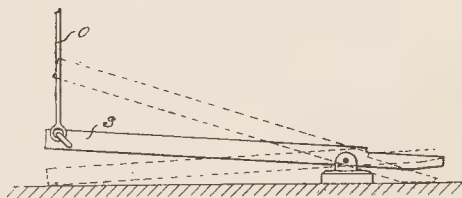
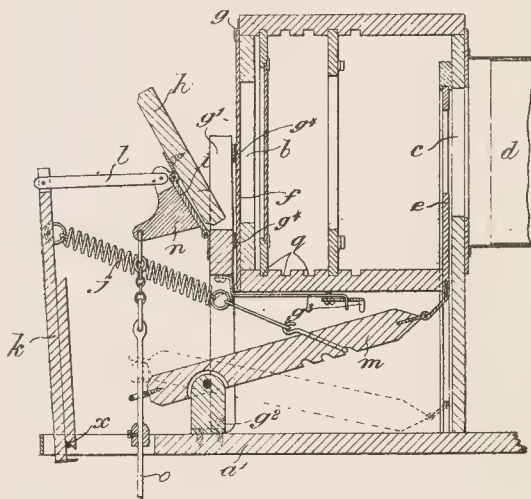
### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

PHOTOGRAPHIC PAPERS.—No. 2,057, 1906. The invention has reference to the patent of Hoffsummer, No. 17,303, 1905 (B.J., November 3, 1905), consisting in the use of a porous fibrous coating on paper to bear an emulsion. It is now suggested that the protective layer should be of pure photographic paper, such that the emulsion may penetrate to a partial extent. This upper layer of paper may be assisted in its action by further protective layers of any suitable kind, which are applied in the ordinary manner on the upper surface of the paper before or after its combination with the under paper, or which are embedded between the two layers of paper. For obtaining matt pictures which extend into the substance of the paper, the photographically pure protective paper may be employed only slightly sized or even unsized. The coating of the protective paper itself alone, must then take place

before its combination with the under foundation paper, otherwise the adhesive substance, such, for instance, as starch, which combines the two papers, may penetrate so far into the protective paper that the intended effect of producing a matt sunken-in picture would not be attained, as the pores (which are purposely left partially or entirely open) of the slightly sized or unsized protective paper, would then be filled with the adhesive substance. This can, however, not take place if the pores of the protective paper be already filled with the constituents of the coating before the protective paper is combined with the under raw paper. It is thus possible to obtain a matt picture. Ignaz Hoffsummer, 11, Schenkel Strasse, Düren, Germany.

PRINTING MACHINES.—No. 17,895, 1905. The invention consists of a hand-fed machine for printing bromide and other paper by artificial light. The object of the machine is to effect the rapid changing of one sheet of bromide paper, after exposure with a minimum expenditure of time, to effect the accurate register of each sheet in the same position for exposure on the negative, and to effect the close contact of the surface of the bromide paper with the negative which is being reproduced. Means are provided for lifting the pressure board away from the negative for the introduction of the bromide paper into position, for replacing the pressure board against the negative and immediately



thereupon lowering a shutter by means of which bromide paper may be exposed to actinic light. These operations are effected by the employment of a treadle or hand levers, whose movement in one direction effects the withdrawal of the pressure board *A* from the negative and whose movement in the opposition direction effects or permits its return, and whose further movement lowers the shutter *e* for the exposure. The treadle or hand lever is connected by a rod to a bracket *o*, upon which the pressure board is carried and an adjustable collar on this rod engages a lever *m*, which operates the shutter. This lever is held normally in the position in which the shutter is closed under the

<sup>4</sup> Zeitschrift für Reproduktionstechnik, 1906, p. 30.



action of a spiral or other spring *j*, the other end of the spring being attached to a vertical arm *k*, pivoted on the base of the machine, and connected by a link *l*, to the pressure board, or the bracket on which the pressure board is carried, and conveying the action of the spring to the pressure board, and thus normally maintaining it with pressure against the negative. Means are also provided for firmly securing the negative in the machine, and for so disposing the negative, that any part of it may be printed from. By depressing one end of the treadle *s*, say, with the toe, the pressure board *h* is pulled away from the negative, by the pressure transmitted to it through the rod *o* and the bracket *n*, thus permitting the changing of the bromide paper. On releasing the pressure of the toe on the treadle the pressure board *h* is brought back into position against the negative by the influence of the spring *j* thus pressing the bromide paper against the negative; while on depressing the other end of the treadle, say, with the heel, the pressure on the pressure board *h* is increased and the shutter *e* is opened, thus exposing the bromide paper to the actinic light transmitted through the negative. This operation, it will be understood, takes place while the rod *o* is being compressed. On releasing the pressure of the heel in the treadle *s* the pressure on the pressure board *h* lessens, and the shutter *e* closes under the action of the spring *j*, which normally maintains the shutter operating lever *m* in the position in which the shutter *e* is closed. George Hana, 22, Bedford Street, Strand, London, W.C.

**EXPOSING DEVICES.**—No. 5,926, 1906. The apparatus, which requires the figures for its explanation, consists of an adapter and light tight envelopes. The adapter is a frame with no sliding door, and of any size to suit the plate, or film, recessed and velveted at the right-hand end, and with a daylight opening in it. It has a hinged door at the back, flanged at the right-hand end, and recessed at both ends for the projection of the two tabs of the light tight envelopes, which, when drawn out at the right-hand end, uncovers the sensitive plate or film for exposure, and when drawn out at the left-hand end return the light-tight cover of the dark envelope, and thereby secure against light, the plate or film just exposed. Two long springs of steel or other material are fitted, one at each end of the hinged door, or they may be fitted to any part of the door, to keep the plate or film in register, and, preferably, a shaped triple slotted catch is fitted engaging with screw nails to secure the hinged door when closed. Robert Ballantine, Arthur Ballantine, H. W. Ballantine, 101 and 107, Buchanan Street, Glasgow, and John Linstrum, 206, Abercomby Street, Calton, Glasgow.

## Commercial & Legal Intelligence.

**UNPREMEDITATED ART.**—On an understanding that James Crawley (otherwise John Clifford) and Albert Vale would take a dozen photographs of points of interest in Worthing for him, being supplied with apparatus and materials, and paid for their time, Mr. Percy F. White, chemist, of Park Road, provided them with a camera and stand, a dozen "half-plates," and a focussing cloth. Mr. White had had previous transactions with Crawley, and found him straightforward. This time the things were not returned. The two men were arrested at Bognor. They told P.C. Slade they sold the camera at Chichester for 12s.; they also told him where to find the plates. "It's a disgrace, but I will bear it alone," said Vale. "I don't wish to screen myself, but it was not premeditated," explained Crawley. A Chichester photographer, Frederick Henry Robinson, of 5, St. Pancras, told the Bench that he bought the camera, stand, and cloth from Crawley on the 15th inst., for 12s., to "help him to get to London." The following day P.C. White saw the two men trying to sell a hand camera at Bognor, and took them to Sergeant Thomas, who detained them, and telephoned to the Worthing police. On being formally charged, both prisoners pleaded guilty, and the Bench passed sentence of one month's hard labour.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society	Subject.
1.....	Worthing Camera Club.....	Outing to Storrington, to Thake Woods or West Chillington.
1.....	Leeds Camera Club.....	Outing to Clapham.
3.....	South London Photo. Society..	Conversazione and Opening of Winter Session.
3.....	Bowes Pk. and Dia. Ph. Soc. ...	"The Kallotype Process." Demonstrated. Messrs. W. T. P. Cunneham and A. J. Craeton.
4.....	Hackney Photographic Society	Members' Lantern Slides.
5.....	North Middlesex Photo. Soc. ...	Lantern Slide and Print Competition.
6.....	Hull Photographic Society .....	General Meeting.

**WALSALL PHOTOGRAPHIC SOCIETY.**—This society had its annual outing on Thursday, when some thirty members and friends visited Tewkesbury. Leaving Walsall about 6.30 a.m. the party arrived at its destination about nine o'clock. The weather was fine. As well known, Tewkesbury affords many attractions to photographers and during the morning the members improved the shining hour by capturing some of the best bits of the ancient town, some of the quaint old buildings, and the famous abbey being laid under contribution. Many of the buildings have been "modernised," but there is still plenty of scope for the photographer to come across subjects which are pleasing from a picturesque point of view at the same time possess historic interest. As a result of the morning's efforts, many capital pictures were secured, and these will no doubt be seen at some of the future meetings of the society during the coming session, as the society offers prizes for the best series of lantern slides in connection with these outings. In the afternoon the party proceeded to Nafford by steamer, where, on arrival, some of the party went on to Eckington village, a picturesque spot affording pretty little subjects. In due course the excursionists entrained and arrived back at Walsall, after having taken part in one of the most enjoyable outings ever held in connection with the society.

**SOUTHAMPTON CAMERA CLUB.**—Mr. C. D. Kay lectured, on Monday evening, on "Enlarged Negatives." Preceding a demonstration of the making of an enlarged negative upon a 12 x 10 plate, the lecturer gave a lucid explanation of the process, dealing first with the apparatus required for both daylight and artificial light work. Having dealt with the relative necessities of the original negative and the positive, it was pointed out that two methods were open for procedure, either for an enlarged positive and a contact negative therefrom, or an enlarged negative from a contact positive, but the latter was the method advised. It was urged that while enlargements had not in themselves any merit of the score of size simply, yet opportunity was given on the enlarged negative of dealing with any undesirable features from a pictorial point of view, and it was pointed out that while in paper negative this was perhaps more readily done, yet the disadvantage of grain in the paper had to be reckoned with. The lecturer advocated the use of artificial light, chiefly from the point of advantage of its more regular character.

**PRESS PHOTOGRAPHY.**—We are in receipt of the prospectus of the Practical Correspondence College, Thanet House, Strand, London, W.C., containing particulars of the postal courses of tuition in several special branches of modern illustrative methods. Mr. W. Muir directs a course in Press photography, by which to put the amateur, or the professional photographer, for that matter, in the way of cultivating the ninety-six journals in London which pay for illustrated matter. Mr. Muir has been through the mill of Press photography himself, and we can hardly imagine any one failing to benefit from the fruits, delivered by post, of his diverse experiences. The second course, "Commercial and Advertising Photography," is in the hands of Mr. Percie T. Edwards, who also places the experience of a long career as a designer and photographer at the disposal of his students. The booklet, "Cash and the Camera," in which particulars of the courses are given, is certainly as good an example as could be wanted of the qualifications of the school to advise those commencing such a branch of commercial photography.

## New Apparatus, &c.

**Photo-Title Outfit.** Sold by W. Butcher and Sons, Camera House, St. Bride Street, London, E.C.

This useful outfit for printing titles on negatives is an improvement on the sets of the same description issued by Messrs. Butcher last year, inasmuch as there is a larger assortment of letters, and the whole outfit of type-holder, ink-pad, pliers, and gauge is contained in the type case. The three shilling set includes 70 capitals, 12 small letters, 23 figures, and 40 stops, whilst for 4s. an outfit



may be obtained containing a still larger equipment of type. As with the previous sets, the inked type is pressed gently on to the negative and the impression lightly dusted over with the opaque powder supplied, a dense lettering resulting, which gives a clear white title when prints are taken from the negative. The outfit should be found very convenient to those who prepare postcards for publication, and on many occasions when it is desirable to attach the title to a negative.

## News and Notes.

A PHOTOGRAPHER named Dilke was charged at the Bedford Police Court last week with attempted suicide. The defendant came home on August 17 and drank a quantity of ammonia from a bottle which he used in his business. He stated that he knew it was weak stuff and would not hurt him, and his wife declared he had done it to frighten her. Discharged with a caution.

THE Gem Dry Plate Company notify us that in order to conform with post-office regulations, their correct postal address is now 92a, Villiers Road, Cricklewood, London, N.W. The telegraphic address and telephone number of the company are Chemitype, London, and 2757 P.O., Hampstead.

PRINTING Stereo Negatives.—Mr. Theodore Brown writes in reference to our paragraph last week:—"You mention a system of printing stereoscopic negatives without involving the need for transportation, described by M. Fabre, in his 'Traité Pratique.' You say this would seem to be a novel means of printing at one operation, etc. May I venture to point out that there is nothing novel about this printing dodge, F. Drouin, another French writer, having fully described the method in his work, 'The Stereoscope and Stereoscopic Photography,' pages 169 and 170."

PHOTOGRAPHS by C. F. Inston.—The succession of house exhibitions, which have been arranged by the Liverpool Amateur Photographic Association, have at length arrived at that of Mr. C. F. Inston, or will do so to-morrow, September 1. The photographs, just over the hundred, are hand camera work in the majority of cases, and, it is to be hoped, will be visited by photographers within

reach of Liverpool. The rooms of the L.A.P.A., at 9, Eberle Street, Dale Street, where they are arranged, are open, from 10 to 6 (Saturdays 10 to 4), until September 15.

HOVE Camera Club.—We regret to record the death of Mr. W. H. Bone, the Hon. Secretary, who was accidentally drowned while bathing. Pending the appointment of his successor, Mr. Geo. W. King is acting as secretary, and all communications intended for the Society should be sent to him at 55, Western Road, Hove.

THE Henderson Award at the L. and P.—The last day for the receipt of papers in competition for the "Henderson Award" of £5, offered under the auspices of the London and Provincial Photographic Association, has been fixed for Friday next. The papers, which should be on a chemical or photo-chemical subject, should be sent to the secretary, Mr. H. C. Rapson, 13, Shaftesbury Road, Hornsey Rise, N.

DEATH of a Lady Tourist Photographer.—One of the most tragic of the holiday fatalities of the season occurred at Boscastle (Cornwall) last week. The victim, Miss E. M. Elcock, of Birmingham, was staying at Boscastle. Accompanied by a friend, Miss Elcock went in the morning on the cliff to Penally Point, a huge rock 200 feet in height. She had a camera with her, and when on the top of the cliff stood on a ledge of rock for the purpose of taking a photograph of her friend. With her back to the sea Miss Elcock made a false step and fell over the cliff, pitching on the rock, and falling into the old bathing pool. An alarm was raised and boats were quickly manned. On reaching the spot her dead body was found terribly cut. The camera was still in her hand.

PHOTOGRAPHING Fortifications.—A sergeant of the Royal Garrison Artillery, who are dismantling the fortifications of the Scilly Isles, noticed a foreigner photographing the Artillery appliances near the camp on Saturday last. The sergeant at once deprived the man of his camera and exposed the films to the light. The stranger could give no intelligible explanation of his presence, and spoke very little English, but after being searched was allowed to go free.

INCANDESCENT Mantles and the Gas Bill.—One of the most noticeable points in connection with the gas industry is the rapid increase in the use of the Welsbach mantle, which is having an effect upon the sales of gas hardly contemplated by gas companies when the great improvement in the mantle recently brought it into favour with the public. The "Society of Arts Journal" quotes from the report of the South Metropolitan Gas Company for the six months ended December last, in which it is stated that there was an increase in consumption of only 1.5 per cent., and the main cause of the smallness of the increase was attributed to the great saving to the consumer by the constantly increasing use of the Welsbach mantle. For the half year ended June 30, similar comparative shrinkage is shown. About 80 per cent. of the South Metropolitan Gas Company's consumers are using mantles, and it has been found that the consumption of gas is reduced, on the average, by about 21 per cent. The dividends of the gas companies will suffer, but they remain generous, and the saving in gas bills is appreciable. Moreover, the light given by the mantle is a great improvement. It may be noted that the convention controlling the price of thorium has this year reduced the price by about one half, with the result that for the time mantles will be plentiful and cheap. It is monazite sand from which the constituents of incandescent mantles (thorium 99 per cent. and cerium 1 per cent.) are obtained, and this sand has been mostly in the hands of a group of Continental firms known as the Thorium Convention. The South Metropolitan Gas Company, has, however, succeeded in purchasing a monazite property in North Carolina, which assures its supply of mantles at a reasonable price.

As regards the wear and tear of the incandescent mantles, "Iron Age" writes that it is usually found that illumination increases for a short period, after which a slow but steady fall sets in. The initial rise is credited to a gradual shaping of the mantle to the flame. The subsequent fall is attributed to two causes. One is that dust particles of silica are carried by the draft against the mantle, where they form, with the oxides, infusible silicates of low emissive power. The other, and more potent cause, is the gradual volatilization of the ceria, to which the incandescence is due. It is also found that the hygroscopic state of the atmosphere has a small but measurable influence on the luminosity of the mantle.



## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### TANQUERY IN THE ARGENTINE.

To the Editors.

Dear Sirs,—I have followed with some interest the developments of the free enlargement swindle as exposed in the columns of your paper, and I thought you might like to know that it has commenced operating in the Argentine Republic. I received among my letters this morning a communication and some printed matter from The Société Artistique de Portraits (A. Tanquery, Directeur), of 23, Rue de Hambourg, Paris, making similar offers to those which you have so often exposed. Apparently, however, they are trying something new, as one of the paragraphs reads (translated) more or less as follows:—

"Perhaps you have previously received from other firms similar offers to the one we make you, but have been unable to get the enlargement free, it having been necessary to buy a frame. This is not the case with our firm; the client is free to BUY THE FRAME WHERE HE LIKES." (The capitals are M. Tanquery's).

As I am rather curious to see where the swindle comes in, I have written to M. Tanquery, sending a photograph for which I have no use. If it results in anything new I will let you know.—Yours very truly,  
G. R. CLUTTERBUCK.

Moreno, 452.

Buenos Aires, Argentine Republic.

August 2, 1906.

We have no doubt of M. Tanquery's intention to collect money at a later stage of his relations with anybody foolish enough to do business with him. We shall be interested to hear of any new departure of his, but probably the old story of costly transport charges has lost none of its efficacy in his hands.—Eds. "B.J.P."

### A FLASH LAMP PATENT.

To the Editors.

Gentlemen,—In your issue of August 17, under the heading of "Patent News," particulars are published of a flashlight lamp, the charge being fired by means of a fulminating cap, this method of firing being claimed as a novelty by the applicant, a Japanese. Permit me to point out that although such a lamp is unknown on the British market, I have used for some time an American lamp of this pattern, and as it may interest you, I am forwarding it for your inspection, so that you can try how remarkably efficient it is, and also see that it was patented in the United States in 1901.

The lamp is so safe and superior to anything of the kind that I have seen before, that I had every confidence in acceding to the request of the American manufacturers to introduce it to the notice of a British firm, so that before publication of the Japanese patent above mentioned, I had communicated with Messrs. Houghtons, and as they doubtless will place it on the market here, in their interests I think it advisable to prove to you by a personal inspection of the lamp and the patent date on same, that the new application is not patentable, and, therefore, if Messrs. Houghton place it on the market they will not be infringing any rights in so doing.

I may add I am not interested in any way in the lamp.—Yours truly,  
H. J. MALLABAR.

59, Deane Road, Liverpool.

August 24, 1906.

[The lamp mentioned in our issue of the 17th inst. differed somewhat from that sent to us by our correspondent, but its construction embodied so little of novelty that we did not consider a lengthy reference to it necessary. As for the American lamp before us, it is a remarkably simple instrument, and one, as we have convinced ourselves, which is efficient in practice. We can quite confirm our correspondent's good opinion of it.—Eds., B.J.P.]

### TITLES ON NEGATIVES.

To the Editors.

Gentlemen,—Having noted the somewhat frequent queries in "Correspondence" column for a simple method of titling negatives postcard printing, I thought the following method might be service:—First obtain a piece of transparent tissue or tracing paper—that generally used in the manufacture of tissue print protective envelopes is as good as anything—place same over a piece of clean white paper, on which lines have been ruled, so that lines show through sufficiently to act as a guide to the lettering, then pen write or print the desired title with a No. 1 brush and any opaque colour—Indian red is very suitable—and allow to dry. A light retouching medium is then applied to the part of negative where title is to go, title placed carefully on prepared space, painted printed side down, and after being pressed into contact, another fair liberal coating of medium applied, which will make the paper quite transparent and protect the whole thing. With a little practice lettering can be done very neatly and effectively, and if the superfluous paper is trimmed off before applying to negative nothing shows finished print but the lettering. I may add that the medium may be applied with a brush, both before and after placing title, by rubbing on in usual way, there would be insufficient to make paper properly transparent.—Yours faithfully,  
W. SHENTON

Grove House, 282, Bury New Road, Higher Broughton, Manchester  
August 26, 1906.

### SALONICAL PROBLEMS FOR THE SILLY SEASON.

To the Editors.

Gentlemen,—While the great dailies are hearing both sides of such great questions as "Are We Too Squeamish?" or "Is Existence Wrong?" I notice a paragraph in the "Amateur Photographer" which appears to contain all the proper elements of a newspaper discussion. True, its theme is the well-worn one of Salon at Royal, but there are added touches of imagination or fantasy, which give the colour of romance to the prosaic business of receiving pictures for, and for opening the two exhibitions. These dates are

	Receiving Day.		Opening Day.
Salon .....	September 3*	.....	September 14
Royal .....	September 6	.....	September 20

\* Photographs are usually judged the next day—i.e., September 4.

This arrangement of dates allows an exhibitor whose work is checked at the Salon to offer it to the Royal, a course to which the Salon presumably has not the smallest objection. In fact, there is a note of jubilation in your contemporary's picture of a procession of cabs (hansom, it is to be hoped) making its way from Pall Mall to Regent Street a year or two ago. But what the Salon evidently does object to is that the same photographs should be offered and accepted at each exhibition, to "check" which it ruled that "Pictures sent for exhibition to any other exhibition open in London at the same period are liable also to be disqualified." Your contemporary remarks: "There is ample time between the opening of the two exhibitions to ascertain whether the author of a picture accepted at the Salon has sent a duplicate to the Royal, thus causing its rejection, even though its actual merits would have secured its being hung." I ask:—

1. How will the Salon committee disqualify on this account, sixteen days before the Royal opens?
2. Or is the Royal acting as information bureau to the Salon?
3. Or is it second sight?
4. Or bluff?

—Yours very truly,

NEMO.

[We can only say that we are informed by Mr. J. McIntosh, the secretary of the Royal Photographic Society, that under no circumstances are particulars of the entries to the exhibition accessible. From what other source, knowledge of an exhibitor's submission of a picture to the R.P.S. can be obtained, we are unable to say.—Eds. "B.J.P."]

## Answers to Correspondents.

\* *All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

\* *Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\* *Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*

\* *For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

G. W. Gibson, High Street, Coldstream. Photograph of C. F. Blyth, King of the Yetholm Gypsies, Riding on a Donkey.

C. Lee, Market Oyster Stores, Warrington. Photograph of a Freak Crab.

A. Lafosse, 12, Oxford Street, Manchester. Two Photographs of Mr. Louis De Rougemont.

A. Shrapnell, Bell Green, Coventry. Nine Photographs of Views of the Daimler Motor Company's Works. Photograph (Combination) of a Shamrock Leaf Containing a Motor Car in each of the Three Portions of the Leaf together with Royalty.

J. E. Reeves, 48, Hermit Road, Canning Town, London. Photograph of the West Ham United Football Club.

**FACING PHOTOGRAPHS WITH CELLULOID.**—As I am not aware of having seen it noted anywhere the method of facing any kind of photograph with thin celluloid, will you please say how it is done or mention any book or paper from which such information can be had?—CELLULOID.

The prints are soaked in spirit and subjected with the sheet of celluloid to a hot pressure. If you write to Jonathan Fallowfield, 146, Charing Cross Road, London, W., for his catalogue of photo button apparatus you will obtain particulars of a suitable press, or one of the presses of the Adhesive Dry Mounting Company, Fetter Lane, E.C., would answer admirably for the purpose.

**GLOSSY BROMIDES.**—Will you kindly help me in the following? I am printing in bromide paper (glossy), and wish to know how I can get a good burnish on the prints without using a burnisher.—S. H. DAWSON.

The gloss of bromide prints may be increased by squeegeeing them, after washing and aluming, on to a ferrotype or glass plate, that has been previously rubbed over with French chalk. If the prints are not alumed it is best to let them dry, and then re-wet them thoroughly before squeegeeing on to the plate, otherwise there may be a danger of their sticking.

**STUDIO QUERY.**—I have a studio, or a glass house, which I intend to use as such. Unfortunately it is only 5ft. 6in. wide, the length is 21ft.; 13ft. of that has a roof 10ft. high, sloping down (to side light) to 8ft.; the remaining 8ft. in length has roof 7ft. high, sloping down (to side light) to 6ft. The low end I was thinking of darkening with blinds and standing camera in the tall end for sitter. I shall be greatly obliged if you will tell me the best way to arrange my lighting. I was thinking of having blinds on rollers, or would you have curtains run on wires? How many should I require, and which way should they run? Also what colour should they be? There is 13ft. of side light,

4ft. 6in. high, starting 3ft. 6in. from ground, 13ft. length of top light, 6ft. wide. The glass is Hartley's rolled plate. I get practically a north light. The shadow side of sitter is a brick wall. What colour would be the best to paint it with?—GRATEFUL.

The studio will certainly be very narrow for portraiture, but the way you propose to use it will be the best. You might stop off all the light from the 8ft. length, as with such a narrow studio that will not be required. Three feet at the sitter's end, top and sides, may also be stopped off. The top blinds may be on rollers, and curtains may be used for the sides. As you have a north light, pale green or medium blue will be a suitable colour for them. The wall had best be coloured of a rather pale green or a blue.

**PHOTOGRAPHING MOTOR CARS.**—I would be greatly obliged by the assistance of your advice in the following matters:—I contemplate building a studio, in which to photograph motor cars and parts, from whole-plate size upwards. The over-all measurement of the largest car would be approximately 17ft. Will you therefore kindly suggest a suitable size for this studio, position, form of lighting (artificial and daylight), blinds, reflectors, colour, etc.? At the present time I am photographing the cars out doors, but am troubled with reflection on the highly polished surface of the coach work and heavy shadows underneath the cars, and wish to arrange my studio lighting so as to avoid this as far as possible.—STUDIO.

It seems to us that you will require a studio from 25ft. to 30ft. wide to evenly light the cars when photographed broadside on. Its length must very much depend upon the focus of the lenses you employ, but about the same length as the width will suffice, or a little less. As to the form, either the ridge roof or lean-to may be adopted; perhaps, on the whole, the latter will be the better, as then you will be able to light from either side without having to shift the cars. For blinds, we should suggest a medium green or dark blue. For artificial light two enclosed arc electric lights should be suitable. We should have surmised that you would be quite successful in photographing the cars out of doors if you had a light awning over them to subdue the light. If you could arrange to have the cars before the wood is polished you would not be troubled by the reflections from the polish.

**PORTABLE ARTIFICIAL LIGHT.**—1. We are a firm of travelling photographers, with a studio on wheels, and wish to run the stamp and midget business during the winter. Our difficulty is to find a suitable illuminant. Flashlight is too smoky, or expensive. We could, perhaps, get the gas laid on from the main (we understand that a special lighting arrangement with many burners has to be used), or we could carry cylinders. Do you think acetylene gas would be practicable? We require a light strong enough to correctly expose a special rapid plate in about three seconds. 2. Can you give us address of firm supplying comic cartoons? The sitter places his head through a hole, and when photograph is finished he is shown riding a miniature donkey, or something of that description.—STAMPS.

1. For the midget outfit apply to Sharp and Hitchmough, Dale Street, Liverpool, or to Jonathan Fallowfield, 146, Charing Cross Road, London, W. Acetylene would be certainly the most suitable light. If you address R. J. Moss and Sons, 98, Snowhill, Birmingham, or Thorne and Hoddle, Victoria Street, London, S.W., they will be able to supply you with a generator, purifier, and lamp for the purpose. 2. Sharp and Hitchmough, Liverpool.

**PHOTOGRAPHY IN CANADA.**—1. Would be glad to know if there is any prospects in Canada for an operator and retoucher. 2. What pay do they give? and is there any paper published?—ANXIOUS.

We can only say that the general prospects are very good indeed in Canada, and that for those who can rough it for a few years, and can start over there with, say, £100, there is every likelihood of their doing well. Probably a good deal of business might be done by a couple of men prepared to travel through the North-West with their own outfit. 2. "The St. Louis and



Canadian Photographer," edited by Tony O. Babb, 3210, Locust Street, St. Louis, U.S.A.

**SOLAR PROCESS.**—I shall be extremely obliged if you would be so kind as to let me know by inserting in the next issue of your paper, as a question, the process of coating solar paper.—**ENLARGER.**

The following process given in our pages some time ago has been recommended for the process:—Milk, 2 oz.; glacial acetic acid,  $\frac{3}{4}$  oz.; mix, stir well, and filter, and add to the filtrate:—Potass iodide, 140 grs.; potass bromide, 34 grs. Paint the solution over the paper, and dry as quickly as possible. The prepared can either be floated on the following bath, or it may be painted on:—Silver nitrate, 40 grs.; distilled water, 10z.; glacial acetic acid, 1 drachm. The paper must be exposed wet. It is 1-3rd to 1-4th the speed of bromide paper. The developer is:—Pyro, 3 grs.; water, 1 oz.; glacial acetic acid, 40 minims; 10 per cent. citric acid solution, 4 drops.

**BACKGROUND PAINTER.**—Can you give me the address or addresses of any background painters in London? Not an agent.—**PHOTOGRAPHER.**

J. F. Bull, of 54, Great Queen Street, London, W.C.

**ISLAND.**—Better get "Press Photography" (Dawbarn and Ward, 1s.), wherein you will find advice on the points you raise. We should advise you also to have a course of postal lessons in Press photography from the Practical Correspondence College, Thanet House, 231, Strand, W.C.

**TITLES ON POSTCARDS.**—You gave some useful information a short time ago for naming postcards by copying printed type on stripping films. Are these stripping films commercially obtainable, and can they be procured giving strong contrasting negatives so that the lettering can be firm on a white ground? I presume they are cut up and fixed to the bottom of the negative.—**T. V. B.**

The titles are photographed on to an ordinary gelatine plate—a "process" or photo-mechanical" plate for preference—and the film stripped off with hydrofluoric acid, as commonly used for this purpose. You will find the stripping formulæ in the "Almanac."

**REPAIRING DISHES.**—Will you kindly inform me what is the best substance to use in repairing papier-mâché dishes of large size? They now seem to be made with corner pieces, which speedily fall off, and then the whole thing rapidly comes to pieces. Also what is the black coating material for the trays?—**T. V. B.**

The best thing for the purpose is marine glue, or Prout's elastic glue, which is to be had at most shops where shoemakers' material is sold. Directions for use are enclosed with the cement. After the parts of the trays have been repaired, they should be given one or two coatings of Brunswick black, which may be had at the oil shops.

**PHOTOGRAPHING PLATE.**—I have been asked to photograph a challenge shield. It is of silver (polished), with a lot of embossed work and engraving, mounted upon walnut, and surrounded by medallions for names of winners, etc. I would be glad if you would let me know in B.J. what would be the best way of dulling the silver surface without injuring same, so that I could get a good photograph of it. Is there anything I could work into the engraving (the winners' names, etc.) so as to bring it out distinctly, something that would brush out clean afterwards?—**SHIELD.**

The best way will be to get a copper-plate printer to ink up the lettering in the same way as he inks up a copper or steel plate for printing, using what is known as cold ink for the purpose. Then the bright surfaces of the metal should be dulled by dabbing it over with a ball of glazier's putty. Then, if care be taken in the lighting that there are no reflections from the metal in the direction of the lens, there will be no difficulty in getting a good copy. After the copy has been obtained the ink can be removed with benzol, and the putty cleaned off with the rectified turpentine.

**VARIOUS.**—(1) What is a good formula for the toning of bromide to sepia colour, now getting so popular? (2) Where can M. H. P. Robinson's book be obtained, "The Studio, and What to Do With It," and what is the price of it? (3) What color blinds are most suitable for studio with direct sunlight on glass until 12 o'clock? After this time the side glass is in shadow the remainder of the day. Are the blinds best rollers or on wire, to knock along? What would be the name of the material to purchase it? Can you say how the enclosed print is lighted? It appears to be strong side light, with soft shadows.—**BROMIDES.**

The following, from the current ALMANAC, is an excellent formula:—

A. Ammonium bromide .....	300 grs.	35 gms.
Potassium ferricyanide .....	300 grs.	35 gms.
Water .....	20 ozs.	1000 c.c.s.
B. Sodium sulphide (pure) .....	100 grs.	12 gms.
Water .....	20 ozs.	1000 c.c.s.

Bleach the fixed and washed print in A solution. Wash for few minutes in water and then immerse in B solution until toned. The print is then well washed and dried. (2) We have an idea that it is out of print. If you write Messrs. Dawbarn and Ward, 6, Farringdon Avenue, London, E.C., they will tell you if it can be obtained. (3) As the sun is only on the side of the studio we should say that curtains, running on a rod or a wire, would be the most convenient, and, at the same time, the best. For the material we should suggest a blue serge. The portrait enclosed is lighted by a side light, the shadows being softened by a subdued front light or by reflectors.

**FLASHLIGHT.**—I have to take a flashlight photograph of a party (between fifty and sixty people) at dinner in a room about 70ft. long and 30ft. wide, so should be glad of your advice. (1) What kind of apparatus to use to flash the powder, and would a lamp be necessary? (2) What kind of powder to use, and how much would be required for the exposure? (3) Where would you advise placing the flashlight apparatus?—**WALES.**

(1) A lamp of the long tray pattern, such as the Weiss, is certainly the best, but we should say you will find a train of powder laid in a shallow trough (a piece of sheet iron bent to the shape), to meet your requirements. (2) One of the newer flash powders, such as the "Agfa" (Charles Zimmermann and Co.). For a room of the size you name a quarter to half an ounce should suffice. (3) The lamp should be placed about 10ft. or 12ft. up, a little to the right or left, and at the bottom of the tables—i.e., the end farthest from the chairman.

**G. G.**—The usual plan is to squeegee the glass or ferrotype plate, and to use a burnisher. If you will say why you have failed with the former method, and tell us what is your trouble we will try to assist you.

**D. B.**—We believe that, except in the case of dyes, which are used with ammonia, no difference will be found between the wet and dry plates, but we cannot say that we have made comparisons.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography.

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## SUMMARY.

Some of the difficulties in the way of a certification scheme for photographic assistants is the subject of an article. (P. 702.)

The clever skit of "Judy" upon the free portrait swindles has been reprinted by the Professional Photographers' Association, and reproduced on p. 707.

Mr. F. C. Tilney, in a criticism of the photographs of Mrs. Julia Cameron now being exhibited at these offices, reviews Mrs. Cameron's pioneer work in photographic portraiture. (P. 704.)

The precautions needed in the photography of articles of ornament, furniture, legal documents, etc., are related by an American photographer whose own business has been in these branches. (P. 705.)

Interesting sidelights on the recently proposed international exhibition of photography in Paris are cast by some correspondence addressed to Dr. Hutchinson. (P. 700.)

A continuation of the experiments of Mr. N. S. Amstutz on the properties of half-tone blocks is given on p. 708.

Captain Lascelles Davidson has patented a system of colour-photography from one negative. The patents of the week also include a reflecting stereoscope. (P. 711.)

Herr Worel has recorded his good opinion of the bleach-out colour P.O.P. of Dr. Smith. (P. 705.)

The exhibition season opens with the Royal Cornwall Polytechnic Society at Falmouth. At Liverpool Mr. C. F. Inston is at present showing a collection of his photographs. (P. 713.)

The programme of lectures to be delivered during the Royal Photographic Society's Exhibition at the New Gallery is given on page 717.

The members' dinner of the R.P.S. is to be held at the Holborn Restaurant on September 18. (P. 717.)

Mr. E. L. White has resigned from the managing-directorship of the Photochrom Company. (P. 718.)

## EX CATHEDRA

### The Proposed Paris Exhibition.

An ominous silence has reigned for some months as regards the great international photographic exhibition to have been held in Paris during the present autumn. When we assumed an agnostic attitude respecting its claims to secure support from photographers and the photographic trade in this country, we were accused of hostility by M. Gastine, the promoter, but later events seem to suggest that we were right in discountenancing a scheme of which we were able to hear nothing satisfactory in quarters in Paris which we had reason to believe were well informed, and honestly acting for the public interest in their attitude towards the proposed exhibition. From the note which we publish in another column it would certainly seem that the promoters of the exhibition were not merely ill-advised and foolishly sanguine, but also unbusinesslike to a degree which suggests imposture. The letter addressed to Dr. Hutchinson relating to the exhibition of some three-colour lantern slides, has a very nasty look of getting money by false pretences about it, and we have also before us some letters which give an account of attempts made to find M. Gastine at either of the two addresses from which he wrote. A Monsieur Charpentier, who was alleged to be associated with M. Gastine in the promotion of the exhibition, wrote from a block in Avenue de la Motte Picquet, but had left his flat there without leaving his address. Enquiry at the Grand Palais des Champs Elysées, which was represented as the headquarters of the exhibition, elicited the fact that letters and parcels had been addressed there to M. Gastine on the understanding that an office was shortly to be opened there for them. Yet it could not be ascertained that an office had been opened. The concierge at the Grand Palais had been told by M. Gastine to send letters to his office in the Avenue de la Motte Picquet, the premises which were afterwards found empty. With these facts before us, we cannot but feel that a good deal of explanation on the part of M. Gastine will be needed to show that the exhibition was honestly promoted.

### The Measurement of Focal Length.

Methods of measuring focal length are plentiful, and fresh ones are continually being suggested, while forgotten ones are always being revived. We are doubtful whether the method recently put forward by M. Masson should be classed as a novelty or a revival; but it is so simple as to be well worth notice, even though its application is limited to symmetrical doublets. If we take such a doublet and focus with it upon a distant object, then remove the front lens and rack out to re-focus, the difference between the two extensions of the camera is the true focal length of the complete doublet. No apparatus is required beyond a camera with sufficient ex-



tension and a suitable measure, and the test is easily made in a couple of minutes. The drawback is that the two components of the doublet must be of exactly the same focal length, but in many doublets in common use this condition is fulfilled with sufficient accuracy. If there is any doubt on this point the lenses can be reversed, front for back, and the test repeated. If there is no appreciable difference in the results obtained we can rest assured that the doublet is as nearly as possible symmetrical, and that we have determined its focal length with a very considerable degree of accuracy. If the results differ, the true focal length must be a dimension between the two arrived at, and if the difference is only a small fraction of an inch, the mean between the two determinations will be accurate enough for all practical purposes. It may be as well to add that a back focussing camera is not essential. Any kind of camera will serve, provided it will extend far enough. We are inclined to think that this method is not only simpler, but far more accurate than many of those so frequently advocated.

\* \* \*

#### A Factor Affecting Intensification.

During some recent experiments on intensification we noted a fact that seems to be very little considered in connection with the subject of intensification in general. All the more important intensification processes depend on the reinforcement of the image by a metal or metallic compound; this additional material being reduced by the silver forming the original image from the solution employed. Thus in the mercury and ferrous oxalate method the image is reinforced by mercury; in the chromium process by a chromium compound, and in the uranium process by a uranium compound. The mechanism of these processes varies, and the effect we noted may not exist with all, but from its nature it may very reasonably be suspected. Our experiments were conducted with the chromium method, and this we found to be a powerful method in the case of a clean image, but a comparatively weak one with an image that included pyro stain. One application of the process is most effective on an image developed with hydroquinone, metol-hydroquinone, or non-staining pyro-soda, but often the process has to be repeated to gain sufficient density if the original image has been developed with the ordinary pyro-soda formulæ that mostly give more or less stain. It would seem evident that the organic deposit present in such instances clogs the image,

and so either obstructs the deposition of the chromium compound, or hinders the chemical action that causes deposition. If this takes place with the chromium process it would seem highly probable that a similar effect must be produced with the mercury and analogous processes, this point should be investigated and tested. It is obvious that factors expressing the amount of density gained by any process of intensification are of little value if the result differs with the cleanliness of the original image and the method by which that image is produced is not stated. Therefore we venture to advise the mention of the original developer used, wherever measured results of intensification are published.

#### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION AND ASSISTANTS' CERTIFICATES.

The discussion on the P.P.A. and Assistants' Certificates which has been going on for some weeks past in our correspondence columns, has been interesting, and, to an extent, has served a useful purpose in throwing some sidelight on the photographic business as carried on in some places. All sides having now had ample opportunity of expressing their views, the time has arrived, it seems to us, when a discussion should be brought to a close for the present.

There is no question that if an employer, when selecting an assistant from a number of applicants, could ask for the production of certificates of a certain degree of proficiency in the assistants' work, issued by some recognised authority, it would be a great saving of time to the employer, and should be, in the end, to the benefit of the employees. The question is, upon what conditions should the certificates be granted, and who is the authority to grant them? The P.P.A., through its committee, which is composed of thoroughly practical professional photographers, would unquestionably be a suitable body. Yet it is difficult to see how it could do so satisfactorily, unless it put the candidate through a practical examination in the different branches of the art in which they desire to have certificates. This seems to us the only way in which anything could be satisfactorily undertaken. When, for instance, a candidate for an operator's certificate is given

#### THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES, and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of

particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers all over the world as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, so as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

sitter to deal with in a strange studio, a committee of two or three experienced portraitists can quickly sum up his abilities as an operator in portraiture. Similar practical tests might also be applied in other branches of the profession, and certificates granted under these conditions should certainly be valuable to those who obtained them, and they would be some guarantee of capability to those desirous of engaging their services. Yet, laudable as these measures are, we must yet confess that we cannot discern a prospect, at present, of their being carried out. The P.P.A., commendable as are its objects, has, up to the present, received but scant support from the profession generally, though the annual subscription is quite a nominal one. The offices are all honorary, and it cannot be expected that the committee can devote, personally, the necessary time from their own business to the practical examination of candidates for certificates, even if a small fee were charged for the examination. If the Association received better support, its funds would be larger and, possibly, something in the direction indicated might be done. However, as things are at present it seems to be out of the question altogether.

Comments have been made, during the discussion, by some writers as to the status of many of the photographers who have become members of the P.P.A., and there are some grounds for them it may be admitted. But it must be remembered that the P.P.A. is a young body. When it was established all professionals were eligible and invited to join, and that is the case still. Such conditions of membership—inevitable in almost every new body which is at all broad in its aims and objects—will gradually be modified as time goes on, with the result that admission to the Association will become stricter than is at present the case. Yet such a change towards a higher status is necessarily a very slow one, and, in the meantime, perhaps the best comment which can be made on the remarks of those who complain of "backyard studio" men in the P.P.A., is that they should labour to keep this class in the minority. Yet the status of even a considerable section of members of the P.P.A. does not affect the question of certificates, for no one will question the ability of the Association to make up a competent examining committee should one be required.

Yet it seems to us that no scheme of certification by examination, any more than the present one of investigating references to past employers, can entirely suit the wide range of circumstances to be found in photography. A certificate may be of the greatest assistance in labelling an operator or printer, but it cannot entirely supersede the investigation of the individual's record. It is no doubt true, as some have said, that advertisements have been inserted for a first-class operator, and after an en-

gagement made by correspondence the successful applicant finds, when he gets to the place, that the business, instead of being first class is only a third or fourth rate one where only very mediocre work is done. This is, naturally, very disappointing to him, since the value of a reference from such a place in the event of his applying for an engagement elsewhere is very small, and also an employer in giving a reference is apt to gauge the quality of an assistant's work by his own, and that, if one may judge from the specimens to be seen in show cases and shop windows in many small country towns, is very poor indeed.

Employers often complain that very incompetent men apply for situations; that is not at all surprising, seeing that with dry plates and ready prepared papers there is very little to learn so far as the production of fairly good negatives and making prints from them are concerned, yet that is quite a different thing from being a good operator. In the studio all this is really of minor importance. There, artistic ability in posing and lighting, together with tact in dealing with sitters, is the chief consideration, and it is these qualifications which so many who style themselves first-rate operators so sadly lack. In the wet collodion days there was so much more to be learnt than there is at present, but there were men then who could not produce an artistic picture, and some of these men are still unable to do so even with dry plates.

Complaints are sometimes made by employers, when an assistant has been engaged, that he is incapable of producing work equal to the specimens he submitted when applying for the post, and suspicion is expressed that they were not his own work at all. In some instances that may possibly be the case, but it must not be forgotten that when a man is taking, say, a dozen to twenty negatives a week, it would be strange indeed if he did not get one or two presentable ones now and then, if only by a "fluke," and from these he would undoubtedly select specimens of his work.

There is no question, as our advertisement columns each week show, that, at the present time, there is a large number of assistants out of employ. Yet we learn from high-class houses that, when they have to make a change, they have great difficulty in obtaining a first-class artistic operator of gentlemanly manners, with the necessary tact and skill to deal with their high-class clientèle, although they pay more than double the salaries asked by so many, who style themselves first-class operators.

With regard to the recent discussion, as a matter of fact, things remain very much as they were at the beginning of it. The suggestions that have been thrown out are, many of them, good, though the carrying of them out, under the existing condition of things, is, unfortunately, impracticable.

**SHEFFIELD Photographic Society.**—An agreement has been made between this society, the Nottingham Camera Club, and the Leicester and Leicestershire Photographic Society, whereby the forthcoming exhibitions of the respective societies will follow each other, pictures being conveyed from one exhibition to the other free of cost to the several exhibitors. A collection of photographic portraiture, by Herr R. Dührkoop, of Hamburg, brought together by the **BRITISH JOURNAL OF PHOTOGRAPHY**, will be shown at the Sheffield and Leicester exhibitions.

**Messrs. Methuen** are publishing photographic copies of each of the great Folios of Shakespeare. Though facsimile reprints from the First Folio have been printed from time to time, there have been none, before the present edition, of the Second, Third, and Fourth. To scholars and lovers of Shakespeare the next best thing to possessing an original set of the Four Folios, at a cost of some £7,000, is to have the facsimile for something less than £4 4s. Messrs. Methuen have already issued the Third and Fourth Folios, and these will soon be followed by the Second.



## THE EXHIBITION OF PHOTOGRAPHS BY THE LATE MRS. JULIA CAMERON AND H. H. HAY CAMERON.

THE present exhibition at the gallery of the BRITISH JOURNAL OF PHOTOGRAPHY is of particular and absorbing interest. The visitor will probably leave it with mixed feelings, nevertheless. After the lapse of more than a third of a century, during which time the development of photography has entirely altered all but its bare principles, the portraits of this remarkably clever photographer win from us the same plaudits that we should pay to a fine work in an exhibition to-day—a work produced with apparatus and materials of adaptability and convenience undreamt of in Mrs. Cameron's day. Forty years ago Sir John Herschel wrote:—"This last batch of your photographs is indeed wonderful, and wonderful in two distinct lines of perfection." In many respects the critic who is faced again by these monumental portraits, might repeat the dictum of the great Sir John, and not feel himself to be stretching a point.

Mrs. Cameron appears to have received encouragement in liberal measure from the great lights of her day, and that fact alone would afford her efforts an impetus denied to modern workers, who feel already the pinch of competition, and whose results are no longer regarded as a kind of magical juggling with the forces of nature. Mrs. Cameron was practically alone. She certainly was a pioneer, and the eyes of scientific enthusiasts were turned towards her. It is not to be wondered at that she "felt her position," as the saying goes. To run to her marital partner with each new negative all adrip with nitrate of silver and await his "enthusiastic applause" is a thing that many a beginner has done since that day when photographers were few and far between. Still Mrs. Cameron admits to a weak spot in the matter of fame:—"I must confess that when those whose judgment I revered have valued and praised my works, my heart has leapt up like a rainbow in the sky," which is rather a bad hash of the immortal lines, since Wordsworth never accused a rainbow of leaping up; but we know full well what the lady wished to express.

The fact of her being a pioneer, however, may be regarded in one respect as having unfortunate results. Lured as she was into the unexplored tracts of picture-making by photography, it was not possible for her to make that artistic selection of subject matter which comes by inherited experience to workers in these times. Everything must be tried by her wonderful camera, and as a consequence much was tried that to-day, tried again, is found wanting. In view of such a work as "The Three Fishers" we can do no more than admire the ingenuity with which the *mise en scène* is prepared. The elaboration of the property fireplace is appalling, and the sweeping together of pots, pans and other utensils is harmfully obvious. What, exactly, the feebly-grouped quartette are doing, and which of them are the three fishers, if any, is not at all clear, and therefore the work must be said to fail in story-telling—presumably its chief mission. It represents a fisherman leaning against a wall and sheltering a boy dressed in a very commonplace "sailor's suit." These are to the right of the composition. To the left a little girl kneels up in prayer to a woman whose head is bowed. It all must have meant exemplary painstaking and patience in those days of long exposures; but its result leaves one quite cold. Possibly what it should convey is the sentiment that men must work and women must weep—only, as it happens, the man is not working—at least, not at his trade—and the woman not obviously weeping.

Again, in "The Five Foolish Virgins," the passion for narrative that has been the downfall of all pictorial photo-

graphers, has led this talented one into misfortune. On the face of it, these five young ladies could not by any chance be thought to resemble what five Oriental wenches at a wedding ceremony must have looked like two thousand years ago. So far realism is hopelessly out of the question, and whatever may remain in a sort of symbolic idea of the parable is much too grossly presented by these five posing ladies with their hair down for the occasion. It is a dismal group, with a tit strangely but unintentionally fit.

So also in the "Nestling Angel." If there are such things as cameras are not for them in this world, and there will probably be but few amongst the angels hereafter. This figure is even less an earthly child. Pencil and paint may portray monsters and other things not indigenous to this planet; but a monster that is photographed necessarily proclaims itself a bogus affair. This is one of a sentimental kind, draped below the breast so as to eliminate all that anatomy missing in the genus *cherubim* common to ecclesiastical embellishments. Two fowl's wings rescued from the kitchen, are arranged to droop over the shoulders from behind the head of the child; result, a nestling angel. In a lesser degree "St. John the Baptist," "The Kiss of Peace," and others, court also that wholesome flippancy which is the only criticism of things that miss their mark. If such things have great intrinsic beauty their misjudged motive cannot hurt them. Thus, for all the costumery of Lancelot and Guinevere, and the expressions that seem to miss altogether the strenuousness of the Arthurian legend, it must be admitted that, simply as two figures, these are beautifully posed. So with "The Angel in the House," where the lighting and modelling are extremely good. This lovely subject would certainly meet with honours in an exhibition of modern work. "The May Queen" is a rustic in deportment; but as a rustic, and not as an embodiment of a Tennysonian idea, she is charming. But of King Arthur there must be few who could wax enthusiastic. He is entirely lacking in the nobility his character demands. His awful hand drawing a sword; his nineteenth century guard's helmet, and all the rest of it, prove at once the height of Mrs. Cameron's sanguineness and the shallowness of her experience in the matter of those artistic possibilities of photography which she thought so great; but which have since proved to be none.

Where she was great was in her heads from life, taken simply for their own sakes and without pictorial trivialities, such as entailed upon her long-suffering friend the holding of "my poker as his sceptre." In her portraits of Carlyle she has done everlasting work. The strength and subtlety of these mainly achievements, and particularly of the full-face version, are beyond praise. Lighting so forceful has seldom, if ever, been so eloquent of the character of the subject, nor sacrificed so infinitesimally the tender half-tones by which modelling, likeness, and completeness of effect are secured.

Her Tennyson is softer in treatment; but no less strong. It is the philosopher of "In Memoriam" rather than the poet of "The Idylls." Introspective and remote in his bearing, he seems to have paused in one of his lonely walks, bending his head as he pursues his train of thought. Joachim appears as a young man without a beard. The Joachim head is the only one of the series where the definition is quite sharp. In this particular Mrs. Cameron was more remarkably a pioneer than in any other respect. Her son gives it that this diffusion was "a fluke"; but it is surely no fluke to recognise a pleasing

circumstance when it comes in the way. She herself says that when focussing and coming to something which to my eye was very beautiful, I stopped there instead of screwing on the lens." What more deliberate and artistic selection could possibly be? Once seen always secured! That is scarcely fluking it shows more than anything else the amount of original taste and independent methods which together made up her talent. She earned, for this little trick, only the opprobrium of the photographic critic of that day. But what mountains of credit are due to her for bringing about by extemporisation, the very quantity that fashion followers now attain at the cost of a Dalmeyer-Bergheim lens, and with a molehill of credit!

Interesting as one of the finest likenesses of the sitter is her Darwin, though pictorially it is unpretentious, as Le himself was. Compare this with the Joachim, which has the air of an appearance in public about it. The wild and unkempt Herschel has a timorousness of eye and mouth bespeaking that humility which often is found in such scientific giants as Darwin and he himself were. As a head "Longfellow" is fine; but the attitude is posey. His hand, which looks small, is too near his face, and is weakly held in the folds of what seem to be quasi-classic draperies. These, and the clothes in most of the portraits, are so scantily illuminated, that the heads, collars, and shirt-fronts are somewhat harshly cut out in tone. Even Joachim's fiddle is suppressed in all but its high-lights.

Browning wears the same sham toga as does Longfellow. It was Mrs. Cameron's handiest way of investing a poet in romance. His ordinary clothes weren't good enough for him. The wonder is that such a man as Browning could submit. Three of his fingers make an odd appearance over the lower margin of the

picture, and would have been much better trimmed off. G. F. Watts is robed in a loosely-fitting wrapper, the heavy folds of which are fussy and disturbing.

In these heads, notwithstanding such minor drawbacks, Mrs. Cameron reached her highest point of merit, and became great. A few beautiful ladies' heads, too, will maintain her reputation. Perhaps "Zoe" is the finest in posing and general style of presentation. It is said she was somebody's cook whom the photographer stopped in the street and asked for a sitting. She looks more sadly and wistfully beautiful than the generality of cooks, to be sure. "Christabel" is also a lovely head, full of charms of the simple and unaffected kind. In "Mary Mother" the photographer has evidently been thinking of the Madonnas of the Carlo Dolci type; but the classic beauty of this head, and the hard and stony method of its treatment make it much more fit for a title from antiquity. Of a different style the portrait of Miss Ellen Terry makes a decorative display of dark and light tones that is a triumph. It is an irresistible portrait of an irresistible subject, and is one of the loveliest works in the gallery.

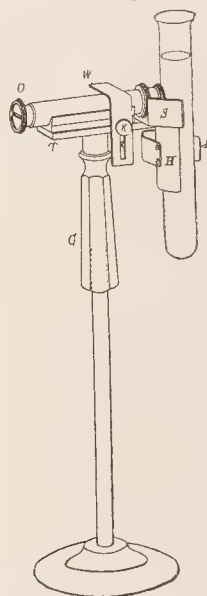
Mrs. Cameron's son is the Henry Herschel Hay Cameron, whose works are better known to us of this generation. A dozen or so excellent portraits by him show how good a thing it is for a photographer to have an artistic mother. He, also, has been fortunate in securing the portraits of many men and women of note. The Archbishop of Canterbury, G. F. Watts, Tennyson, and Browning, each of whom have signed their prints, Sir Henry Irving as "Beckett," Lord Roberts, and others of less note are included in his contribution, and supplement the value and interest of this exhibition.

F. C. TILNEY.

## FOREIGN NOTES AND NEWS.

### A Stand for the Pocket Spectroscope.

DR. F. LOWE, of the firm of Carl Zeiss, Jena, has designed a small piece of apparatus to permit of the easier and more convenient use of the pocket spectroscope in labora-



small glass vessels before the instrument, the stand shown in the figure has been designed. It consists of the wooden standard G, provided with a metal table piece, in which the spectroscope rests and against which the test tube is firmly pressed. It is held firmly in place by the piece, W, and the screw, K. The adjustments of the test tube holder permit of the tube being moved up and down and sideways, and the reflector, S, provides for the illumination of the comparison prism, in case the spectroscope is provided with this latter.

### A—Two-colour Printing Process.

The text of a German patent, that of Johann Karl Henberger, which is published in the current issue of "Photographische Industrie," forms another indication of the growing desire to produce simplified modes of obtaining colour prints. Though Herr Henberger uses only one paper support, his *modus operandi* leaves much to be desired, and the two-colour basis of the process excludes the reproduction of a wide range of colours. The process consists in coating an ordinary piece of silver chloride printing paper with a film of indiarubber, and to this applying a coat of gelatine. The negative to be printed yellow is made reversed, laid on the gelatine film of the paper, and exposure made as for silver paper. The print is washed in cold water for about half an hour, and is then given its yellow colour without drying by means of a 25 per cent. aqueous ammonia solution. The yellowing takes place through the uncoated paper (the back of the print), the print being fixed in frame and protected at the edges with strips of paper while the ammonia is applied. The action takes place in a few minutes; the print is then washed and dried. The gelatine surface is now sensitised with a ferro-prussiate mixture, and an image in Prussian blue obtained through the second negative. What novelty the process possesses lies in the use of the rubber coat for isolating the second film from the first, but that it is a device which has been used in three-colour printing regularly in past years.

### Herr Worel on Dr. Smith's Colour P.O.P.

Several of the German papers publish an article by Herr Karl Worel, of Gras, relating his experience of the bleach-out paper shown by Dr. Smith before the Royal Photographic Society a month or

tory work. As Dr. Lowe points out, the chief merit of the pocket spectroscope is not that it can be carried in the pocket, but that it can be applied to any surface or solution and the whole spectrum observed. With a view of holding test tubes and similar



two ago, and now manufactured by him under the name "Uto." Herr Worel, as one of the earlier experimenters in the bleach-out method of colour printing, has a right to be heard. He writes: "Uto" paper has a reddish-black colour, which arises from two superimposed films, a red next to the paper, and a bluish-green above it. The red film needs to be sensitised in an oxidising solution of hydrogen peroxide; the blue and yellow film is supplied in a sensitive state, the sensitiser, betrayed by its odour, being anæthol. This ethereal oil affects, though only to a slight degree, the red film, for when the paper is exposed to light under glass it bleaches out almost to white, whilst if unprotected during exposure the red persists, even after an hour. In the first case the escape of the

anæthol is delayed, in the second it is hastened by the heat.

"It would be advisable to sensitise the red film more strongly, or the dye will not permit of this, to use another which is highly sensitive to anæthol. It would then be possible to dispense with the hydrogen peroxide altogether.

"With fifteen minutes exposure at the most I obtained on 'Uto' paper in brilliant July sunshine copies of a transparency coloured oils, which were brilliant in all colours and gradations and true to the original. The prints are very simply fixed in immersion in benzene at 70 to 80 degrees."

Herr Worel's conclusion is that the new paper opens a new field in colour photography.

## COMMERCIAL PHOTOGRAPHY.

The work which a photographer is called upon to do in the photographing of articles of manufacture for catalogue and illustration often involves knowledge of methods which are only learnt by experience, and it may therefore be of advantage to those anxious to qualify themselves for this growing branch of business if we reprint an article from "Wilson's Magazine," in which Mr. Edward J. Davison writes of a few expedients found to be of value in practice.

### Photographing Bottles.

When photographing bottles and small articles, where it is desired to have a perfectly white ground, and where it is difficult to block out the background, an excellent way is to use a ground glass for the background and get the light through it from a window at the back. Where a window cannot be used, I arrange a mirror to reflect light upon the ground glass.

The uprights supporting the ground glass must be free and clear between and have nothing to obstruct the light coming through the ground glass. Sometimes a background of white cardboard can be lighted from above, but the other is such a simple plan that I would advise its use. Where the oval or round surfaces of the bottles act as mirrors and reflect the angle bars of the skylight, a screen of tracing cloth should be placed between the camera and the skylight to cut off these marks. This precaution is necessary in a great variety of work, in order to avoid harsh high lights and images reflected into the articles themselves if they are polished. Do not try to do away with every high light, however, for that would leave a flat-looking print.

### Chinaware Bric-a-Brac.

In making photographs of chinaware, bric-à-brac, and similar small articles for commercial purposes, it is necessary to preserve the design, form, and details of the originals. I know of nothing which will accomplish this so well as an arrangement of movable shelves lined and edged with black velvet, on which the articles are arranged so as to show their valuable points. The illumination should be secured by light coming through tracing cloth. This will kill reflections and soften or obliterate shadows.

Among the most difficult lines brought to the studio of the commercial worker, that requiring the largest amount of skill and patience is decorated china having a polished and oval surface. One must use an orthochromatic plate, of course, and sometimes a colour screen. About the only light that can be used is a side or top light, or both, coming through tracing cloth. This will diffuse the light and prevent a patch of high light often right in the decoration. A streak of high light on the edge and handle of a cup and saucer is an advantage. This style of lighting will show a roundness and softness not obtainable in any other manner. If one is not familiar with the correct position for such articles, it is best to consult some catalogue and find the standard method of presentation or display before attempting, and I would like to emphasise the necessity for sticking to standard positions with almost everything the commercial photographer gets in his shop. There is a right and wrong position for everything, and much time will be saved if the photographer finds out beforehand just what that is. For instance, a cup and saucer must show the back as well as front edge at the top, so that it must be tilted a little towards the camera, or the

camera look down on it and the swinging back used to keep the perpendicular lines rectilinear. A long-focus lens and long-bellow camera are necessary for this work.

### Silverware: Cut Glass.

Where much silver or glassware is to be handled a stand with movable shelves is a necessity, and the shelves should be held on pins so that they can be placed at different distances apart. For cut-glass the finest light is a strong top light. This will give brilliancy to the facets and liven up what would otherwise be dull. In some factories the pieces are dipped in whitening tinted a light grey before photographing. These shelves will do for silverware which should be photographed before receiving its polish; but this can seldom be done away from the factory. A good method for dulling bright spots is to rub the place with beeswax and then polish with the hand. This is a simple remedy, and can be done easily and quickly with a little practice.

When flat surfaces have inscriptions that do not show, it is a good plan to rub into the engraving a black powder which jewellers use in their work. It will usually stick sufficiently well not to need anything mixed with it. When prints are to be made from negatives of coloured subjects and the darker colours are too thin in the negative, those parts of the negative can be tinted with blue aniline, but it is very skilful work. The colour is, of course, applied on the glass side. This dodge is old to most portrait workers, and enters largely into the retouching of commercial negatives of solid articles, such as metal ornaments and the like.

### Legal Work.

This is a most unsatisfactory class of work, for several reasons. One never knows when he will be called upon to go into court to testify, nor how much time will be consumed, so it is difficult to fix on a price that will justify. I have made a great many negatives for this class of work. A correct record should be kept of each exposure, showing the position of the camera, the exact locality of the place, if outdoors, and the direction in which the lens was pointing. These details should be lettered in the negative, thus "Looking N.E. at S.W., corner Sixth and Locust Streets, K. C., Mo. Camera located fifty feet from lamp-post on S.W. corner (or, at S.W. corner). Taken on January 15, 1903, by ———." Do not make a print from any legal negative until such data is shown, so as not to burden your mind with remembering these circumstances; lawyers will usually accept such wording and waive a personal appearance in court. It is well not to remember anything except what the negatives show; it will save embarrassment in cross-questioning. Records of these exposures in legal work should be kept in a separate book for easy reference. Charge double the usual prices for this class of work as compared with ordinary negatives. If allowed witness fees, it usually takes more time to collect them than they are worth, so that it is unwise to figure on anything except the price of the negative and so many prints. One set of prints should have muslin back and top for insertion in the "pleadings."

### Copying Documents.

Another class of work requiring great skill is the photographing of indistinct and illegible documents. I recall a case of this sort

which took me several hundred miles from home, and the work consisted in photographing two pages of a letterpress copybook. The copies were in very faint blue typewriter ink, on a manilla-coloured paper. The work had to be done in the private chambers of the judge, before whom the case had come, and I had to make use of what could in the way of a copying rack. I bought a number of rubber bands and a sheet of white cardboard, and put the white card under the leaf, leaving the back of the impression outward, as the ink was fainter there than when it came through the paper. The rubber bands were used to hold the page flat and in contact with the cardboard. I set the book up by a window, used a colour screen and orthochromatic plates to hold the blue ink, and made my exposures. These gave me reversed negatives, of course. When I arrived home 18 x 22 bromide enlargements made from the glass side of the original negative, gave me a correct transcript in the print. With this bromide, the negative set in a window and a strong reading glass I deciphered each letter, and, as I was certain of it, traced it in its proper place on the enlargement. In two or three days' time I had the document correctly figured out, so that it could be plainly read. This is expert work, and should command a high price.

#### Furniture.

I have done so much work in this specialty and have become so accustomed to working in all kinds of light that wherever possible I prefer to work at the factory. If I have several windows to work by, I put tissue paper over them and work with the light directly behind me. The walls and ceiling should be white. Work well back into the room and the light will be more even. Use orthochromatic plates and give full exposures, even to the point of over-timing. The lens for this work should not be less than 14 inches

focus for plates 8 x 10. The camera should be fixed to look downward on the furniture, so as to give the back edge of seats and couches. Furniture is usually photographed in the "rough," or before it is polished. Generally the firm will have a catalogue to guide you in size and position.

If one is careful in placing the background and works well away from windows, properly prepared, he will seldom have to do any blocking out. Where this is necessary the opaque made by Alvord is extremely useful. It is fine-grained, very soluble, and can be used in a pen for writing on glass or paper and for lettering on the film side of a negative. Use a small butter plate, into which put some of the opaque from the pot, adding water enough to thin it as thin as it will cover. This opaque dries quickly, and will never "pull" when going over it a second time. Where fine angles and small parts have to be blocked out a fine-pointed soft steel pen can be used perfectly, putting the opaque on the pen with the brush. If you are working on films and wish to number them, you can do so on the celluloid side, and this is an advantage where one is not an adept at lettering backwards. One way is as easy to me as another. Never use India ink in blotting out, as it will crack when it is dry. It is not necessary to block out the entire negative, as yellow or red cover paper can be cut out and pasted on the negative to cover the parts left from the opaquing. Some photographers make an untuned print carefully cut round the object and fit this on the negative, but it does not equal the other method. To keep your negative from spreading on the negative and getting on the figure, use a lead pencil, going around the subject; this gives a surface which will repel the opaque. Straight lines can be done with pen and a ruler.

## FREE ENLARGEMENT FRAUDS.

ONE of the cleverest skits of the free portrait business as worked by Tanqueray and his imitators appeared some year or two ago in "Judy," in whose columns the foibles and follies of the day have constantly come in for good-natured ridicule. This lampoon The Professional Photographers' Association have reprinted from the pages of "Judy" as a separate sheet, and the reprint is one which we hope every one of their members will keep in his possession, for in the event of his town being invaded by the free portrait canvassing swindlers no better object for the shop window could be found. Photographers have reason to be grateful to "Judy" for its humorous skit, the text and illustration of which we are taking the liberty of reproducing.

### THE ROTTENOTINT PORTRAIT

Is the Most Marvellous Offer Ever Offered.

A SIX-SHILLING PORTRAIT FOR EIGHT AND THREE HALFPENCE.

SEND ALL AT ONCE.

To readers of "Judy."—The Editor is still completing arrangements whereby readers can obtain

A LARGE FULL-SIZE ROTTENOTINT PORTRAIT,

superbly packed in pale blue paper, and secured with pink twine, for the small sum of Eight Shillings and Three-halfpence Post Free on receipt of Six Shillings and Sixpence.

HOW TO OBTAIN THE WONDERFUL PORTRAIT.

All you have to do is to send all at once Nine Shillings and Ninepence, together with your Dog Licence and Birth Certificate. We do the rest. In sending, please state whether for hot or cold climate.

THE FRAME ALONE

is worth One and Fourpence (27ft. by 31ft.), with full directions how to use it. Testimonials from all the leading Physicians in Drury Lane. Write your name and address plainly in ink (red preferred) and send us Eleven Shillings and Three-Halfpence to cover postage. If, after reading this, you fail to understand the price, send us another Shilling and Sixpence. The portrait will not be sent unless desired.

The Rottenotint is a silent process known only to the Artist.

"Truth" has given me notices for years.  
Two portraits for Three Shillings and One Halfpenny.  
Specimens can be seen at the Offices on payment of Seven Shillings and Sevenpence.  
The "Morning Leader" says: 'Oh, rot!'  
Agents wanted Five Minutes after Portraits are received.

SAMPLE OF WORK.



Mr. Tanqueray, the well-known Inventor.

A FEW TESTIMONIALS.

Dear Judy,—Rottenotint to hand this morning. The frame still



works a little stiffly, but that, no doubt, is a fault which time alone will rectify. The portrait itself is marvellous. Who is it?—O. O.

Dear Judy,—The Rottenotint has not yet arrived, but I gather that it will be here now shortly. The engine has been repaired, and no further breaks-down on the line are anticipated. In order to avoid delay this end, I have arranged to have it conveyed from the railway in a closed van.—Yours hopefully, Smith.

Dear Judy,—I have your Rottenotint of the 21st inst., for which please accept my heartfelt thanks! Will you please say whether it

should be boiled in hot or cold water? I have looked it up Nuttall's, but can find no reference to it.—Yours truly, A. S. S.

Dear Judy,—My wife and I have now returned after the long voyage recommended by medical experts, and are, therefore, prepared to receive Rottenotint. Wire as soon as dispatched. I hope for the best.—Yours confidently, Thos. Jay.

Dear Judy,—Rottenotint almost arrived. We can hear it at the of the street. Many, many thanks! Thanks! Awfully obliged. Delighted, in fact! Thanks!—Flo.

## PHYSICAL CHARACTERISTICS OF RELIEF ENGRAVINGS, ESPECIALLY RELATING TO HALF-TONES.

From "The Inland Printer."

In the course of these researches\* it has been found that the work has been extended and made more laborious than ordinarily necessary, because there were no tables giving data as to screen pitches, unit areas, diagonal pitches, dot diameters, dot areas, white and black dots relation to unit area, etc., available.

Out of these disadvantages have grown Tables G and H. These will enable anyone to make various comparisons without having recourse to many detailed calculations, and in some instances without making any whatever. They are arranged to save the time of the busy worker who turns out large quantities of work per day and who is deserving of far more recognition than is usually accorded him.

When one considers the minutiae of the various dimensions that he almost unconsciously deals in, the degree of perfection attained is almost marvellous. It is thought, however, that the process-man

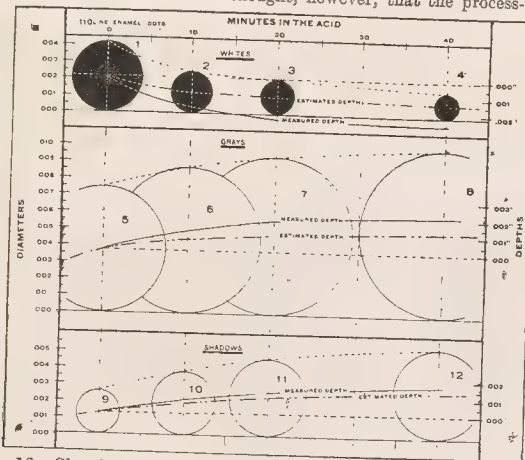
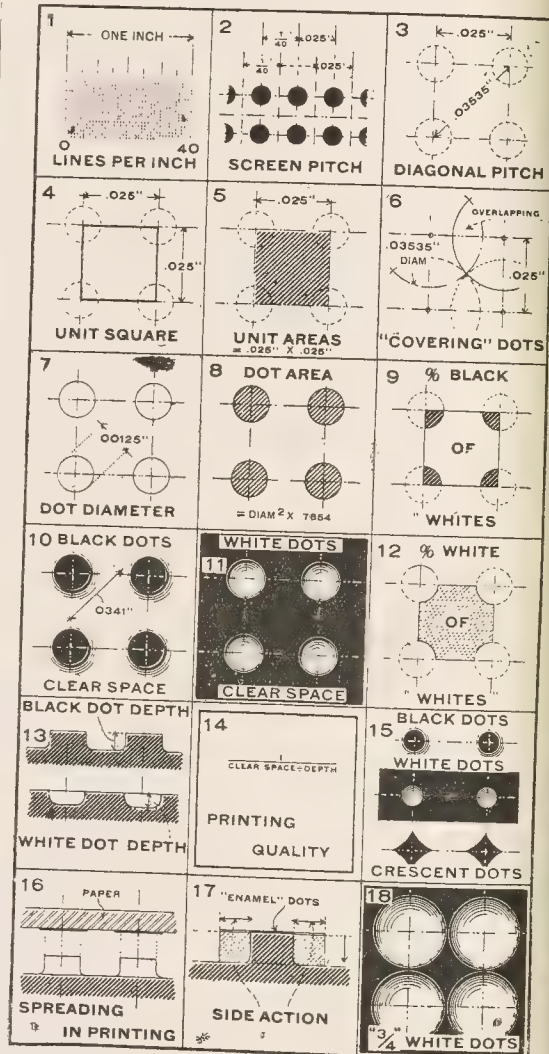


Fig. 16.—Showing change in size and depths of 110-line engravings, Figs 9, 10, and 11, tabulated in Table F and shown in Fig. 17.

will find the tables more serviceable if some explanation is given as to the origin of the various values, as well as a concise definition of what they mean. In Table G are given the following values for various lines per inch:—

**Lines per Lineal Unit** (No. 1 of Fig. 18).—This has to do wholly with the number of lines found on the screen or the engraving within any given standard dimension. Among English-speaking peoples, the number of separate lines in each inch is used. The other unit is the centimetre of the metric system of measures. (There are 2.54cm. in lin. and .3937in. in each centimetre.) The lines per lineal unit, as ordinarily used, are expressed as lines per inch, and they consist of the numbers given in Table G. The principal standard screen numbers are listed. Of course, special rulings are frequently made, and it should be stated that these researches and the tables, diagrams, and illustrations used are all

\* The previous articles from "The Inland Printer" have appeared in the B.J.P. for April 27, June 8, and June 29.



Note.—No. 11: White dot clear spaces are the same as the dot diameters.

Fig. 18.—Illustrated Glossary of Half-tone Engraving Terms.

based on screens in which the two sets of lines are displaced 45 deg.; other angled screens require special investigations. If there is any question as to the lines per inch of any half-tone print, they can be easily counted by simply placing a rule over it and, with the aid of an eye-glass, counting the lines in a quarter of an inch, which, multiplied by four, will give the number per inch. The basis of comparison be  $\frac{1}{16}$  in. or 1-10 in., the number should be multiplied by 8 or 10. A very convenient half-tone screen indicator is published by the Suffolk Engraving and Electrotyping Company, of Boston.

SCREEN PITCH (No. 2 of Fig. 18).—The distance from the centre of one line to the centre of an adjacent one is known as screen pitch. It is expressed as a fraction of the unit, either an inch or centimetre. It is the shortest distance between the centres of any contiguous dots. At sixty-five lines per inch the value would be .001538 in., approximately 1-256 cm. In the tables the value is expressed in decimal parts of an inch, as .01538, which is the equivalent of .001538 in. This value is found by dividing 1 by the lines per inch,

“whites,” as the white dots (o) of the shadows will ordinarily take care of themselves. The depth in the shadows cannot be accentuated beyond that interrelation which recognises the depths of the various portions of an engraving as being about proportional to the intensity of the light reflected from the corresponding portion of the subject.

UNIT AREA (No. 5 of Fig. 18).—One of the most important factors in determining the tonal relations of an engraving is that of the interrelated areas of dot faces. This decides largely how much “colour” is present in the different parts of a plate, and on it depends the quality of brilliancy, when the relation of dot area to unit area is considered. Without comparing the relation of dot areas to some unit, they are meaningless and of little value. Unit area is not the same for all lines, and it is found by squaring the screen pitch, or, in other words, by multiplying the screen pitch by itself. Unit area may also be defined as the area of a unit square (No. 4 of Fig. 18) whose sides are equal to the screen pitch, and when one side is multiplied by the other one will give

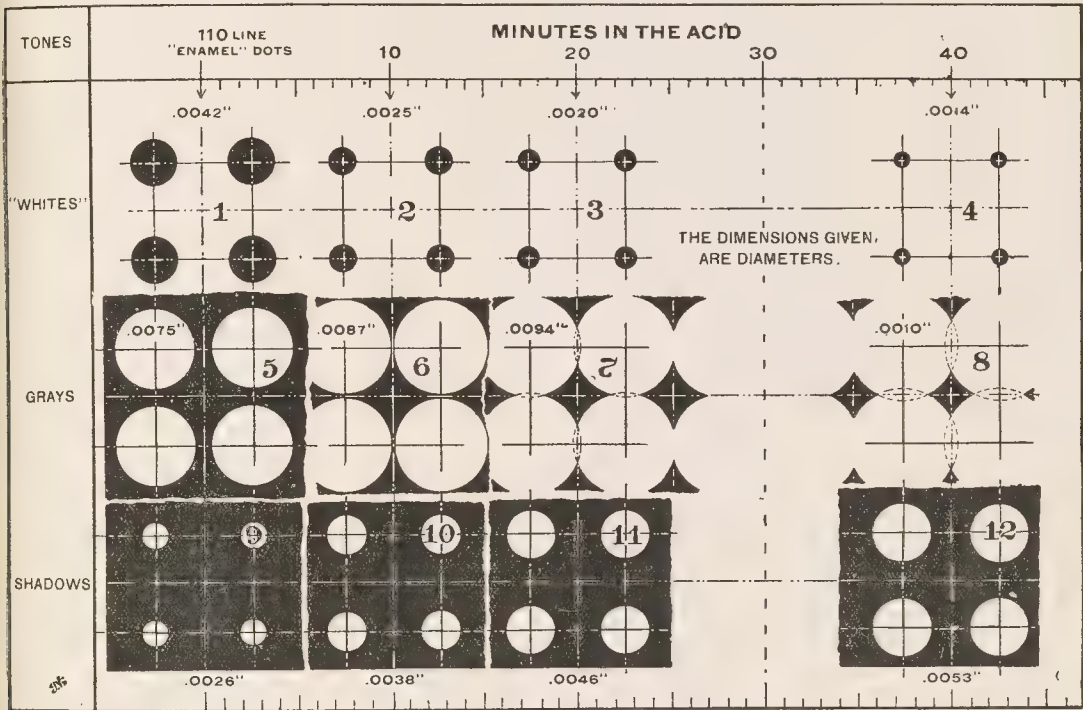


Fig. 17.—Showing change in size of 110-line dots of Figs. 9, 10, and 11, and Table F, and Fig. 16.

which, in technical language, means that the decimal equivalent of such a fraction is the reciprocal of the number of lines per inch. It is necessary to know this in order to calculate unit area, and therefrom to determine the percentage value of black or white of any given size of dot.

DIAGONAL PITCH (No. 3 of Fig. 18).—This dimension is the distance from the centre of one dot to the centre of another in a diagonal direction. It may also be said to be the greatest distance between the centres of any two contiguous dots. It is found by squaring the screen pitch and taking two times this amount and extracting its square root. In short, it is  $\sqrt{p^2+p^2}$ , wherein the letter p stands for screen pitch. It is useful when one desires to establish the printing quality of the black dots (●) in the “whites.” In the instance of a 65-line screen, the diagonal pitch becomes

$$\sqrt{\frac{1^2}{65^2} + \frac{1^2}{65^2}} \text{ or } \sqrt{.01538^2 + .01538^2} = \sqrt{.000473} = .02175.$$

The printing quality may be considered as applying only to the

the area. Assuming 65 lines per inch, one multiplies 1-65 in. by itself and finds the product (.01538 × .01538) to be .0002365 square inch. (In the metric system unit area would be  $\frac{1}{25.6}$  cm. ×  $\frac{1}{25.6}$ , or .039 × .039, which gives .00152 square centimetres.) The unit of measurement for the areas is taken as the 1-10,000,000th of a square inch. This is done because the carrying along of the ciphers becomes an unwieldy process, and instead of using .0002365, it is less complex to only use the integers and let 2,365 represent unit area at 65 lines per inch. Since the dot areas are also given in terms of the same unit, they may be compared at once.

“COVERING” DOT.—This term is an improvised one that indicates the theoretical diameter to which the white dot (o) of the shadows would have to be increased to an imaginary size so that four dots would meet at the centre of a unit square (shown at 6 of Fig. 18), and thereby entirely cover a unit square. The diameter of such a “covering” dot will be the same as the diagonal pitch.

The highest percentage values given in Table H indicate the

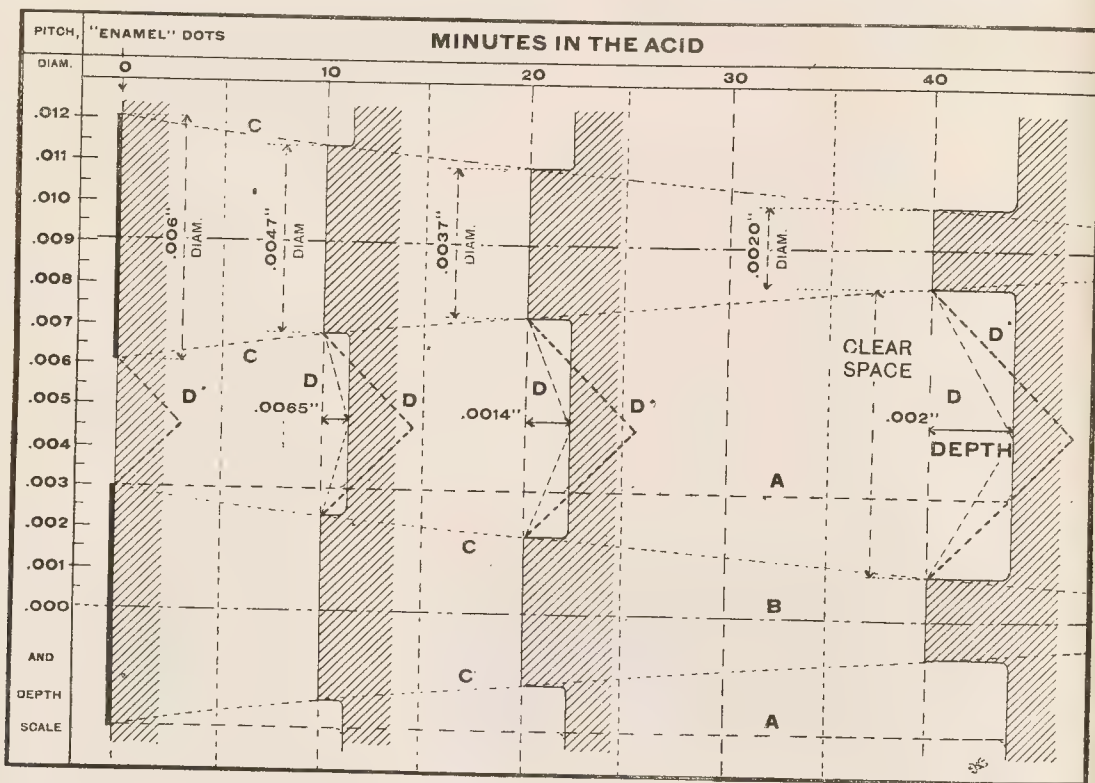


portion of the combined area of four covering dots that falls within the boundary lines of a unit square. Since a part of the area of each "covering" dot falls over a similar part of another dot, these portions are said to overlap, and the amount of the overlapping within a unit square is the excess beyond 100, of the highest percentage values given in Table H.

In Table H, which is combined with Table G, are given the following values for various diameters of dots and different screens, which are arbitrarily selected:—

**DOT DIAMETER** (7 of Fig. 18).—This refers to the diameters of dots, whether white or black, and it is approximately found from inspection of Fig. 7 for 65, 110, and 150 lines per inch at any assumed time in the acid, or by direct examination with a microscope that has a screen reading at least to .002in., from which it

**DOT AREA** (No. 8 of Fig. 18).—This represents the actual printing surface, and it is found by squaring the dot diameter and multiplying by .7854; briefly,  $d^2 \times .7854$ , in which  $d$  represents the diameter. Dot areas of from 5 to 15 are so small as to be practically indiscernible to the naked eye of even an expert. When they represent black dots in the "whites," their presence in a print well made, is only indicated by a slight overcasting shade, which to the uninitiated, would appear like "nothing at all." A diameter of .0025in. has an area of 49—what? It is a long way around to say 49 ten-millionths of a square inch. Why not 49 talbots, and honour the memory of Fox Talbot, the celebrated Englishman, who did such pioneer work in the production of printing plates from photographs? He was born in 1800 and died 1877. A talbot would represent the unit of area.



Calculated Characteristics.

Fig. 19.—Showing conventional form of dots, depth, diameter, and side action of 110-line engraving, Fig. 2. Tabulated in Tables A and B. The clear spaces are not diagonal, consequently the relation of depth to clear space is greater than if the diagonal distance was used.

is not difficult to estimate to .001in. and to half-thousandths of an inch.\* Direct examination guards against the modifying effect of a considerable variation in specific gravity and temperature of the acid. In Table H the dot diameters are given in thousandths and half-thousandths, which are sufficiently close for practical work, as inspection of the changes in percentages for half-thousandth variations in diameters will show. For the finest screens the variation should be in quarter-thousandths. If one has a certain area and wishes to know what dot diameter will be its equivalent, it is only required to divide the area by .7854 and extract the square root of the quotient. From the column of dot areas in Table H one can approximate the dot diameter for a given area by selecting the area that comes the nearest to the one in question and noting the corresponding diameter.

\* Screens of .001 inch are easily procured.

**PERCENTAGE RELATION** (Nos. 9 and 12 of Fig. 18).—This is the proportion that dot area bears to unit area. It is always a fractional part of the whole, and is found by taking the dot area as the numerator and the unit area as the denominator of a fraction. The decimal equivalent of such a fraction is the value given. If the dot in question is a white one (○), the percentage value will be in white; if a black dot (●), it will be in black. The difference between the given percentage and 100 will always give the converse. Suppose a .0025in. diameter black dot (●), at 60 lines; this shows a percentage of 2.07 of black, if a black dot is in question, and under this condition the white would be represented by 100, minus 2.07 or 97.93 per cent. Should a white dot (○) be under comparison, the names "black" and "white" would be transposed.

These percentages are given in Table H for 50, 65, 85, 100, 110, 150, and 200 lines per inch, and one can approximate therefrom the probable values for other lines per inch.

**CLEAR SPACE** (Nos. 10 and 11 of Fig. 18).—The space from which the material has been removed between the edges of any two adjacent printing surfaces is called a "clear space." It is used, in determining the printing quality of relief engravings, in conjunction with the depth to which the material has been removed. For the "whites" it is found by subtracting the dot diameter from the diagonal pitch. This is given in the table for the same screens as the percentages. In the case of a 65-line screen and a .002in. diameter dot, the clear space is .01975in. If this is divided by the depth, and the quotient is taken as the denominator, and 1 as the numerator of a fraction, and the fraction is then expressed decimally, a value indicative of the printing quality will be found. If one would care, as a matter of academic interest, to ascertain this for the white dots of the shadows, one would consider the clear space as identical to the dot diameter, and proceed as above. Table I. gives the printing quality for various depths and clear spaces.

**ETCHING DEPTH** (No. 13 of Fig. 18).—This is not given in the table, but the theoretical depth based on the side action in flat etching is approximately one-half of the reduction in diameter of a given dot that has taken place subsequent to a previous observation. Suppose at an examination a certain set of ● dots measured .006in. in diameter on the "enamel," and at another examination they were .004in. smaller, leaving them but .002in. diameter: theoretically the depth would be one-half of the whole reduction, or .002in. For the black dots this theoretical depth is so small, as shown in Fig. 16, but for the smallest ○ dots it is approximately accurate. These deductions are based on depth measurements of Figs. 9, 10, and 11, given in Table F. They are also shown in "Pictorial" graphic curves of Fig. 16, wherein different conditions of time of etching, dot diameters, dot areas, calculated and measured depths are illustrated; and in Fig. 17 the same data are presented in four-dot sets, numbered from 1 to 2 (inclusive), similar to Fig. 16, showing their relation to unit area.

Fig. 18 is an illustrated glossary of the various terms used in the course of these articles, showing eighteen small figures, which it is thought will materially assist the reader.

Fig. 19 shows the calculated relation of depth to "clear space" of the data of Table A. The clear space is not in a diagonal direction.

(To be continued.)

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between August 20 and 25.

**CAMERAS.**—No. 18,690. Improvements relating to photographic cameras. Reginald Herbert Payne, 111, Hatton Garden, London, E.C.

**COLOUR PHOTOGRAPHY.**—No. 18,741. Improvements in colour photography. Albert Davies, 24, Southampton Buildings, London, E.C.

**DARK SLIDES.**—No. 18,756. Improvements in the construction and manipulation of dark slides. John Martin Jones, 14, Mellor Road, Prenton, Birkenhead.

**CINEMATOPHGRAPHS.**—No. 18,962. Improvements in cinematograph projectors, cameras, and like machines. William Cecil Jeapes, and Percy Henry Bastie, Greenland Place, Camden Town, London, N. W.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**COLOUR PHOTOGRAPHY.**—No. 16,104, 1905. The invention has for its object to provide improved means for producing pictures in colours. All the colours are obtained from a single ordinary

or original negative. A colour screen or filter is interposed between the colour-sensitive plate or film in the camera and the object to be reproduced in colours. No special colour-sensitive plates or screens are required; any colour-sensitive plates procurable in the market at the present moment are suitable. In order to obtain first-class results the original negative must be fully exposed and developed to a good density, the densities (representing colour in monochrome) should preferably be as nearly as possible as follows:—White in the original scenes should be opaque in negative, blue in the original scenes should be semi-opaque in negative, green in the original scenes should be middle density in negative, yellow in the original scenes should be middle density in negative, red in the original scenes should be faint density in negative, black in the original scenes should be clear glass in negative. The scale of colour in the monochrome negative can be obtained in any desired ratio or intensity according to the requirements of the operator. For instance—supposing the commercial Lumière "B" plates are being used, and the scale of colour in the monochrome negative is required as above stated, the operator in this case would employ a deep yellow or light orange red screen interposed between the colour-sensitive plate or film in the camera and the object to be reproduced in colours, so that the image formed by the lens on the colour-sensitive plate is screened with the required colour during exposure, and if the exposure has been fairly correct, then in developing the plate (in the ordinary manner) it will be seen that the colour screen has cut down the blue rays of the spectrum, making the density representing the "blues" in the monochrome negative not so dense as the parts of the monochrome negative representing the whites. The same will be noticed in the greens and yellows, they being of density different from the blues. The reds will only have a faint action on the colour-sensitive film, and will be therefore of faint density, next to black which has no density. We shall now have a negative as required. On the other hand, supposing the scale of colour in monochrome negative is required to be reversed, i.e., white; opaque, blue, faintest density; green, middle density; yellow, middle density; red, strongest density next to white; black, clear glass. A fresh Lumière "B" colour-sensitive plate would be employed, but in this case a different colour screen must be used, namely, a strong red, but not sufficient to stop out all the blue rays of the spectrum. In developing this plate the whites will be opaque; blues, faintest density (through the red screen cutting off as much as desired off the blue rays of the spectrum); yellows and greens, middle density; reds, strongest density (next to whites), the red screen in this case accentuating the reds on the colour-sensitive plate. In this manner by using different colour screens for the result aimed at any desired scale of colour in monochrome in the negative can be accomplished. The results can be modified by using different brands of plates. The densities of the negative play an important part, but practically any clear good negative can be printed from. If the scale of gradation in the negative is altered (presuming that blue is the faintest density in this case) then the positive must be printed accordingly. Presuming the existence of such a negative or one as near as possible as first described above, a red positive is first made by any known colour process printed from the negative, taking care that only the clear portions of the negative (representing black) and the most faint density (representing the reds) only are printed. This red positive (from the second operation) is registered in close contact with the same negative and a fresh positive is printed again in yellow, or green (by any known colour process) on another surface until the middle density only is printed. A red positive is made first and then superimposed on the same negative before printing the next colour (yellow or green), because the red positive is required to act as a light shield, so that it will block out the red density in the negative and prevent it from printing again on the next colour, unless the colours happen to blend, when of course the gradation and density of the negative will step in and give the required impure or mixed colour or colours. We now have a red and yellow (or green) positive, each picking out its own colour and



mixture of colours. We have simply to superimpose the red and yellow (or green) positives on each other and place them in register with the same negative and print the next density (blue) by any known colour process in blue, the red and yellow (or green positive) serving as light shields to prevent other densities from printing in the wrong colour. We shall have now three positives in red, blue and yellow (or green) respectively, each positive picking out its own colour according to the density of the negative, and to make a picture from the negative as true as possible in colour to the original scene. We print (without any positive shield, or shields) a light monochrome positive in black from the same negative (to give black in clear portion of negative), and when we superimpose and register the red, yellow (or green) and blue positives (or in any suitable order or degree of colour) on the monochrome positive the picture will be a complete triad of colour, the monochrome print giving the black, and the red, blue and yellow (or green) positive, giving all the other colours and mixture of colours when registered and superimposed on each other. As an alternative method instead of printing the positive light shield or light shields in colour by any of the known colour processes they may be made in monochrome from the one negative on a thin transparent material, the same being superimposed and registered in contact with the negative when printing the colour positives as already described; or negatives can be printed from the light shield (or shields), and used as in two, three, or multi-colour work. For instance, the light shields may be printed on very thin celluloid films coated with a suitable bromide or chloro-bromide emulsion. These films are then printed as described, and are developed like a lantern slide positive in monochrome, and when fixed, washed, and dried, are employed in the same way as the coloured light shields to obtain the minus colours from the one negative. As a guide for printing the light shields to the correct opacity in the one negative, it is well to place a colour chart (or such like) if red, blue and yellow, so as to be included on the edge of the original negative when exposing the negative in the camera. By printing or washing out the colour, or developing the positive light shields to the visual opacity, more certain and perfect colour rendering can be obtained from the one negative. Or instead of a colour chart being placed by the side of the object to be photographed we can place a small colour chart of transparent colours, and suitably graded on transparent material within the edge of a dark slide in a suitable position so that they are exposed during the time of exposure, and act in a similar manner to a colour chart. When it is desired to produce several coloured pictures or images, as above, each of the positives above mentioned is used as a negative from which is printed a monochrome negative. These monochrome negatives having been developed and treated in the usual manner are used for printing any desired number of corresponding positives which are dyed or inked with the requisite colours by any known colour process, and are subsequently used for superposition to form coloured pictures or images as above set forth. In some cases the colour effect may be obtained by superposing one or more positives printed in colour, and one or more negatives also printed in different colours for animated pictures or otherwise. In some cases, having obtained two negatives in monochrome from the same negative, a positive of intermediate density may be obtained, or a negative of intermediate density may be printed through a positive, and a negative obtained from the original negative and superimposed. For producing animated pictures in colours a series of negatives (at equi-distance as near as possible) is made on a colour-sensitive surface and through a suitable colour screen. The films for use in cinematographic reproduction in colour are prepared by first producing the usual series of negatives on a sensitive surface (preferably on a colour-sensitive film, and through a suitable colour screen), and then by successive printing and masking in the manner described, producing from the single set of negatives one or more sets of positives or negatives either side by side on one film or on separate films, each corresponding to some particular gradation or range of gradation in the original set of negatives, the projection in colour on the screen from the sets of coloured positives taking place by any known colour process. Or a revolving

prism may be used to present two or more images on the exhibiting screen at the same time in different colours and superimposed, or we may transmit coloured rays from the back of the film plate to act as colour sources instead of the usual screens front, between or behind the lens or lenses. Films for animated pictures may also be printed from blocks or light shields, positive film containing the colour positive being exhibited the screen in the usual manner. For producing photo-mechanical blocks from one negative the process is as follows:—A colour image is made by superimposing colour positives on a black or white or a monochrome print in colour as above described, and the colour picture then photographed again in the usual manner through colour screens, and from the resulting negatives, blocks are made in the usual manner. Or light shields may be turned into and used as printing blocks, or a block or blocks from the original negative can be set up in the printing machinery in usual practice, and the light shields caused to come in contact with the block or blocks at certain parts, the colour inks alternating in different colours. The light shields when used as blocks are minus colours through being printed in the first instance to certain densities of the original negative, and as is well known to photographers, the minus colours in a block are depressed (do not absorb or take up much or any colour ink), whilst the major colours in the same block are raised (relief) and take up the ink only in these parts or vice versa; will therefore be very easily seen that through only printing certain densities from an original negative, we are creating the assistance of light shields, minus colours from the one original negative, and therefore each light shield in itself will be minus colour to its fellow, and can be used in the usual way for block making and printing in multi-colours. Instead of colour inks, the blocks may be printed from by electricity under Patent No. 27243 of 1897 granted to W. Friese Greene. For advertisements, posters, etc., the negative can be retouched if necessary by hand in certain parts to accentuate or leave out unrequired colours (density and gradation in the negative or light shields from which negative any number of negatives can be made in various colours for mechanical or other printing. W. N. Lascelles Davidson, 20, Middle Street, Brighton.

**STEREOSCOPES.**—No. 25,591, 1905. The invention consists of a reflecting stereoscope of the kind in which whilst one view is observed directly the other is seen by reflection in a mirror of which the plane is approximately equally inclined to each of the two picture plates, consisting of two panels forming a dihedral angle, and between which is arranged a frame or table placed in the plane of the bisector of the said angle and bearing on one side of its upper part a mirror or a totally reflecting prism, one of the panels of the angle, that which faces the back of the mirror, carrying the erect stereoscopic view, while the other panel, opposite the reflecting surface of the mirror, bears the reversed view; the reversed view may be arranged either top to top with the erect view, or with the horizon lines on the



FIG. 1.

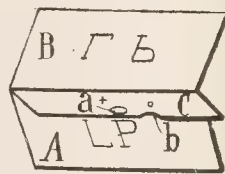


FIG. 2.

same level, and both cut the hinge of the angle perpendicularly at the same point. The arrangement shown in Fig. 1 supposes that the two stereoscopic pictures are looked at in which the two lines of the horizon are both perpendicular to the hinge and intersect the hinge at the same point. The first picture is placed in its ordinary direction as shown by the letters L P on the plane A to the right of the dihedral angle for instance; the picture can be regarded directly by the right eye repre-

sented in the diagram by a dot. The other stereoscopic picture, that is to say the reversed left picture is placed on the left panel B of the angle, the corresponding points of the two pictures being aligned to perpendiculars drawn to the hinge of the dihedral at the same point of the said hinge. In the bisecting plane C is placed, on the left face of the same and on the upper part, a mirror  $\alpha$  in which the observer can see by reflection, by means of the left eye, represented by a cross, the reversed left stereoscopic picture. The reversed picture is again reversed by the mirror, and its actual image thus combines with the right picture L.P. seen by the right eye in the plane A. In the arrangement adopted in Fig. 2 the stereoscopic pictures are arranged top to top. In this case the observer will not have his two eyes one at one side and the other at the other at the other of the bisecting piece C, but both at the same side of the said bisecting piece as indicated by the dot and the cross, and in such a manner that the left eye can easily see the reversed picture by reflection, while the right eye bears directly on the picture the right way up. In this theoretical figure in which the bisecting mirror has been given a great expanse for the sake of clearly defining its position there is supposed to be in front of the right eye an opening  $b$  giving passage to the rays of light to this eye. Leon Pigeon, Rue Millot et Dijon (Cote d'Or), France.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—

PORTABLE APPARATUS.—No. 18,345. Apparatus for travelling photographers. Schmidt.

## Exhibitions.

### C. F. INSTON'S PHOTOGRAPHS IN LIVERPOOL.

MR. C. F. INSTON, F.R.P.S., is giving the seventh of the series of "one-man" shows held this summer at the rooms of the Liverpool Amateur Photographic Association. It was he who started these shows, chiefly with a view to stimulating interest in pictorial photography in Liverpool, and the great success attained has fully justified the effort which has been made. In the present show 104 frames are hung, the majority being 12 x 10 and 15 x 12 bromide enlargements, framed in the passe-par-tout style. These are the backbone of the collection, all are hand camera work, and the variety of subjects, street scenes, dock scenes, landscape, river studies, figure studies, etc., show that all comes alike to Inston. He has "an eye for a picture," and, what is more, when he has got it he knows well how to enlarge, mount, and frame it, so that the whole thing becomes complete and satisfying. When Alvin Langdon Coburn took Liverpool dock scenes on purpose for his one-man show in April, he was supposed to have seen the last pictorial effect to be obtained on such subjects. Liverpool may now breathe again. Inston has shown that there are still "dock scenes" left, and No. 20, "The Black Sail," and No. 42, "The Barge," are fine examples of the class of work which can be found in abundance, if one knows how to see it, the latter being a by no means unimportant item. Many old prize-winners are to be found on the walls, the well-known "Whence and Whither," and "The Storm Rising," two of the author's most important works, being by no means the least pleasing.

In addition to the larger work, there is a series of some thirty half-plate platinotypes of very fine quality and tone. All these are developed with Inston's own formula, and are a very interesting part of the show.

Some eighteen frames, figure studies in the byways and back streets of Liverpool, demonstrate in a most striking manner the simplicity of picture making with such subjects, and Inston's special genius for arrangement, lighting, and "moment of exposure" is nowhere better seen than amongst these; they are well worth the

careful study of those interested in this line of pictorial photography. There are a few, some twenty or so, which are stand camera work. These are chiefly portraits; all the remainder are snap-shots, with a hand camera, and when one sees the variety of subjects so successfully rendered one must wonder why a stand camera is ever used, except for architecture and portraiture.

Inston is not only to be congratulated on the very high pictorial and technical excellence of his own show, but also on the effect his secretaryship has had on the work of the Liverpool Society, which latter has advanced by leaps and bounds during the past year.

C. THURSTAN HOLLAND, F.R.P.S.

### ROYAL CORNWALL POLYTECHNIC SOCIETY.

The seventieth exhibition of the Royal Cornwall Polytechnic Society was opened at Falmouth on Tuesday, September 4. Several divisions of the exhibition show a distinct falling off in the number of the entries, while others show an increase. Unfortunately the photographs are fewer in number than at the last exhibition, but the average quality is much higher. There is a large proportion of bold and striking work, and the general impression is that of a good and instructive collection of photographs.

The portrait and figure section is very strong. There are nearly forty entries, and not more than two or three pictures that can be adversely criticised. Although a moderate proportion of the portraits are professional work there is very little of the conventional studio portraiture, with its artificial accessories and posing. Nearly all the work is thoroughly good, showing character and strength in style, posing and execution. There is a fine series of portraits, mostly large heads, by W. H. Lanyon, of St. Ives, bold and striking in style; a series of portraits, more conventional work, though very good of its kind, by J. Lukey, of Camborne; and two strong portraits by H. T. Jessop, of Exmouth. The most notable figure studies are "The Evangelist," by L. C. F. Robson, and the well-known "Simple Simon" of Louis Dick. Mr. Robson's picture shows a group standing round an open-air preacher; it is raining, and the hazy atmosphere softening everything beyond the group, the reflections in the wet foreground, and the natural and pleasing arrangement of the group round the principal figure form a most pleasing picture. Miss Gertrude Boyns has two novel prints, one showing an artist finishing a picture for the Academy, the second, the reception of the rejection notice.

Landscape work is not nearly so strong as portraiture, though the entries are more numerous. There is very little work that is actually poor in quality, but, equally, there is little that is striking or really strong. Several pictures are strong in conception, but weak in execution. There is a fine study of a breaking wave by W. H. Lanyon. It is a strong carbon print showing an enormous wave just breaking on a rocky beach. The sense of movement is admirably conveyed, the spray surrounding the moving mass of water adding to the vividness of the impression conveyed. There is fine atmosphere and quality in Mr. E. Jarvis's "October Morn," but the print is scarcely sufficiently strong for its size; in the well-lighted exhibition room it looks weak.

In the architectural and other sections the entries are few, but most of the pictures are of good quality. The Rev. E. T. Clark shows a new and effective rendering of the stairway at Wells Cathedral, and Mr. J. C. Burrow two striking pictures of miners at work in coal seams.

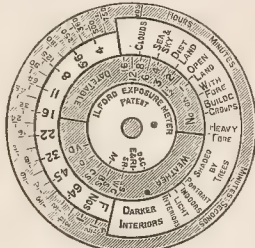
The principal trade exhibits consist of Kodak cameras, etc., Goerz-Anschütz focal-plane cameras, and Johnson and Sons' photographic chemicals.

The judges, Dr. J. Clark, M.A., D.Sc., Messrs. Robert Fox, and Henry W. Bennett, F.R.P.S., made the following awards:—Landscape: First silver medal, Study of a Wave, W. H. Lanyon; second bronze medal, An October Morn, E. J. Jarvis. Portraits and figure studies: First silver medal, portrait, W. H. Lanyon, first bronze medal, portrait, H. J. Jessop, first bronze medal, Simple Simon, L. Dick. Architecture: First bronze medal, A Flight of Steps, Rev. E. T. Clark. Still Life, etc.: No award. Technical photographs: Second silver medal, Miners at Work, J. C. Burrow; second bronze medal, A Flash of Lightning, Sergeant Cleaves. Apparatus: Second bronze medal, chemicals and cameras, John Blaney.



## New Apparatus, &c.

The Ilford Exposure Meter. Sold by Ilford, Limited, Ilford, E. A new pattern of the Ilford meter, embodying recent patent protection, has now been placed on the market by the Ilford Co., and is an extremely complete guide to the exposure of the company's well-known brand of plates. It provides for the factors in exposure of plate speed, subject and diaphragm, and light, the latter being



calculated on the basis of Dr. Scott's well-known tables, in conjunction with a scale for weather conditions ranging from S (sunlight) to V.D. (very dull). Though the meter consists of four concentric dishes, the operations in calculating the exposure are but three in number:—

1. Set weather condition opposite plate.
2. Look out light figure in table of time of day and year.
3. Set subject opposite light figure.

The exposure for every diaphragm from  $f/4$  to  $f/64$  is then shown at once. The user can scarcely go wrong in this very simple procedure, since the three sets of scales are printed each in a different colour, and black must be set only to black, blue to blue, and red to red, when using the meter. This device is a great advantage in placing the meter in the hands of persons unacquainted with such forms of calculators, and should be sufficient to safeguard the meter perfectly from misuse. In such other respects, as compactness—the meter is but 2½ in. in diameter—and its ability to respond to the most varied photographic circumstances, the meter commands our warm approval. The price in card board is 1s.; in aluminium, 5s.; and the one instrument in conjunction with the additional light tables is ready for use in any part of the world.

**SOUTH ESSEX CAMERA CLUB.**—The third Continental excursion has proved an unqualified success, under the management of Mr. Walter D. Welford. The party numbered twenty in all, including friends from Skipton, Stockton, Rugby, Leicester, and Darlington. Something like 1,500 plates were exposed, one member using 120 in Bruges alone. This town was the success of the tour, the general saying being, "I should like a month there." Other places visited were Ostend, Blankenberghe, Knocke, Heist, L'Ecluse, Ghent, Brussels, Malines, Teuveuren, Namur, and Dinnat. Mr. Welford has been asked to arrange for another week in Bruges in September, which he will do if he can make up a party of eight or ten. Any of our readers desiring a week there should communicate with him at Alston Lodge, 61, Mansfield Road, Ilford.

**THE CANTON PRESS, LTD.**, of 15 Furnival Street, E.C., inform us they have amalgamated with the firm of F. Wetherman and Co., the well-known trade, colotype, chromo-litho, and art letterpress printers of Enfield, N., where they are erecting a unique plant consisting of Meihles, Centuries, Phoenix Platens, Aluminium Rotaries, litho, and colotype machines, for the production of art letterpress catalogues, three-colour work, and posters. They are also prepared to undertake chromo-litho for show cards, pictorial posters, etc., and colotype for pictures for fine art publishers, view books, book illustrations, picture postcards, art calendars, etc.

**HERR DUHRKOPF**, of Hamburg, was so pleased with the reception that his first collection of portrait studies met with in Bristol that he has sent sixty of his latest works to the exhibition which the Bristol Photographic Club is holding next month. Visitors to the exhibition may anticipate seeing a most interesting collection.

## New Materials.

"Scaloid" Tablets. Messrs. Johnson and Sons, 23, Cross Street, Finsbury, London, E.C., send us their booklet of photographic chemicals supplied under the name of "Scaloid." The booklet includes directions for the use of "Scaloid" developers (metol hydroquinone, pyro-soda, pyro-metol, hydro-quinone and amidol) reduce intensifiers and toning baths, and imparts much useful information on the use of these solutions. Messrs. Johnson also send samples of a new "Scaloid" toning bath for P.O.P., for which immunity from double toning and softening action on gelatine prints are claimed. The recent heat wave has provided us with excellent test conditions under which to examine the behaviour of P.O.P. the toning solution; the latter, we were pleased to find, was such to recommend the preparation in these respects.

### CATALOGUES AND TRADE NOTICES.

From Messrs. L. Gaumont and Co. we are in receipt of the current list of Elge cinematograph films.

Messrs. Gold Smith and Co. send us their catalogue of apparatus and accessories for midget photography, a comprehensive list of sixteen pages, which is sent free from 44, Chapel Street, Salford, Manchester.

The Ilford Company have just issued a booklet of the "Amateur plate, setting forth the characteristics of their self-developing plates. The booklet includes portions of a recent article by Mr. Snowdon Ward on the plate, and some illustrations of the plate's behaviour under difficult conditions.

Messrs. Wratten and Wainwright have good reason to issue a new price list, and to draw attention to it inasmuch as the period since the issue of the previous edition has been marked by the introduction of the new orthochromatic and panchromatic plates, and in addition, of the bathed pinacyanol and pinachrome plates. The new list very clearly specifies these various manufactures, and adds a number of useful notes on the selection of plates for the various purposes of orthochromatic work, three-colour photography, photo-engraving, and photo-spectroscopy. In all these branches of work, Messrs. Wratten have proved their ability to offer the photographer unusual facilities.

**An Incomplete Portrait.**—According to the "Evening News" last week judgment will shortly have to be pronounced by the Civil Chamber of the Cairo Mixed Court on a most amusing case. Some time ago a native barrister gave a commission to a Greek artist to paint his portrait in oils. It was a three-quarter face portrait and when the work was finished the native barrister was delighted with it, and invited all his friends to come and see the masterpiece. They did so, and to the advocate's disgust, instead of praising the work, maintained a polite but ominous silence as they gazed at the picture. Finally, one of them declared that the artist was clearly a fraud, as he had depicted his subject with only one ear! The advocate recognised that this criticism was only too true, and he rushed round to the artist's studio in a state of great indignation and declared that in view of the just criticism of his friends he would never pay for the portrait. The artist thought that the man of law was jesting, but when he discovered that the barrister was quite serious he was at pains to explain to him that in a three-quarter face portrait it was only possible for the person so depicted to have one ear visible. The barrister, however, declined to regard the argument as valid, and persists in refusing to pay, so the artist has been compelled to bring an action.

At Staines last week the premises of Arthur R. Lane, photographer and picture framer, were broken into. A French policeman named Taylor was found in the shop at 2 o'clock in the morning by a police-constable, and was charged with the theft of several small lens at the Feltham Petty Sessions. Prisoner was remanded for a week.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
.....	Bowes Pk. and Dis. Ph. Soc. ...	Outing to Grays and Low Street.
.....	Hull Photographic Society ....	Outing to Whitby.
.....	Aberdeen Photographic Assn.	Outing to Malden Craig.
.....	Hove Camera Club .....	Outing to Bramber.
.....	North Middlesex Photo. Soc. ....	Outing to Grays and Low Street.
.....	Manchester Amat. Photo. Soc. ....	Outing to Bollin Valley.
.....	Manchester Amat. Photo. Soc. ....	"One Man Show." S. L. Coulthurst.
.....	Southampton Camera Club .....	Print Competitions.
.....	Luton Camera Club .....	Lantern Evening.
.....	Hackney Photographic Society .....	"From Negative to Exhibition Print."
.....	Leeds Camera Club .....	H. W. Lane.
.....	North Middlesex Photo. Soc. ....	"The Scope of a Lens." W. W. Newbould.
.....	Aberdeen Photo. Art Club .....	"A Dive into Belgium." W. L. F. Wastell.
.....		Outing to Baughory House.

TORBAY CAMERA SOCIETY.—Members of this organisation are a band of steady workers, making definite progress and showing improvement in each successive album. In that for July, first place for pictorial quality and for technical excellence is due to "White Lilac," by Mrs. Marillier. This lady is a very capable worker in lower photography, and the present production is up to her usual standard, and altogether typical of her work. A figure study of two children, "On the Sands," while technically excellent, is rather poor in motive and arrangement. A very fine piece of work by Mr. A. J. Anderson, "After the Bath," has not secured notice, which is a pity. It is a study of contrasts—white diaphanous drapery against dark shadows, but very beautifully rendered, and of high quality. It is a little gem. His other contribution is a copy of Hemy's picture, "Seagulls," a most perfect bit of work. Captain Maxwell's "The Teign below Leigh Bridge," has great pictorial quality, and technique of the best. The choice of point of view is very good. He has also another meritorious scene on the same river. Mr. R. Morris submits two dainty productions, the better of which is "Polruan from Fowey," a quaint Cornish village, and "View from Hope Cove." Mr. G. Drury's "A Gathering Storm" is a fine sky study, and the scene, altogether pictorial, secured, apparently, in Torbay. Miss Marillier's floral "Study" suffers rather from a sense of flatness and want of care in arrangement. Her "Garden Scene" is very enjoyable. Mr. Carslake Winter Wood has a view of Dittisham, a place famous for its plums; the photograph in this case being taken at the season of blossoming. His "Sheepster," a Dartmoor village and church, is bolder and more satisfactory. Mr. A. R. Cox shows great promise in "Marguerites," and has a rather well-chosen scene in "Low Water, Putney." Mr. C. F. Rea has a fine eye for a picture, and sends two dissimilar ones—"Off the Fishing Grounds," an evening study, and "In Brixham Harbour," a rather good example of the rendering of water. Colonel Macmullen's portrait study of "Dorothy" is highly creditable. Mr. S. W. Garlands's little prints of scenes in Brussels are good in selection and technically excellent. The members of the society have not yet become contributors to exhibitions, but they might do so, possibly with credit to themselves.

ABERDEEN PHOTO ART CLUB.—The annual general meeting of the above club was held last week, Mr. G. L. Smith presiding. The various reports were read, and showed the club to be in a very satisfactory condition, financially and in membership. The following were appointed office-bearers for the year:—President, Mr. G. L. Smith; vice-presidents, Mr. J. Jarvis and Mr. W. R. Macgregor, M.A.; secretary, Mr. John Rae; assistant secretary, Mr. J. Dalgety; treasurer, Miss M. R. Smith; lanternist, Mr. J. D. Stephen; assistant, Mr. W. Cook; committee—Miss Dalgety, Miss Smith, Miss Robb, Miss Stephen, Mr. Stephen, Mr. Cook, Mr. McCulloch, and Mr. Kennedy. The winners in the monthly competitions were:—Prints—1, Mr. J. Rae; 2, Mr. J. Stephen; 3, Mr. McCulloch. Slides—1, Mr. W. Cook; 2, Mr. J. Rae.

A READER asks Mr. Fletcher, background artist, late of Bridgwater, to send his address to us in order that a commission may be put in hand.

Commercial & Legal Intelligence.

RIVAL PHOTOGRAPHERS.—At Richmond Police Court last week, James Waller, Chiswick, was summoned for assaulting and beating Lionel Hinton, of Hammersmith. Complainant said that defendant, who have been turned out of the Boathouse premises, came up to him and said that it was his fault that he had been ejected. Then he struck him on the nose. In reply to the defendant, he denied that he had threatened to bring a fighting man from Hounslow to deal with him. Samuel Brown said he heard defendant say to complainant that he would "pay him out," and saw him strike him in the face. He subsequently threatened witness also, saying, "I may as well be in for two." Defendant declared that it was a matter of trade rivalry. Last year he was touting for customers for Mr. Hinton's photographs; this year he was taking photographs on his own account. "Many a child," he said, "has been hurt worse at play than that old man was." Fined 20s. and costs.

A HADDINGTON PHOTOGRAPHER'S TROUBLES.—A petition for cession was presented at Haddington Sheriff Court last week at the instance of Joseph Thomson Gordon, photographer, Haddington. Petitioner stated that he used to carry on business in Dunbar. He came to Haddington in 1894, when he had about £100 of outstanding debts. He had been paying off his debts, but never was able to clear his feet and maintain himself at the same time. Two or three years previous to 1905 he found business worse than usual, and had a serious illness in his family. His profit per week in an average year was about 30s., while the household expenses went between 25s. and 30s. weekly. He had a wife and six of a family. A statement of affairs submitted showed liabilities £125 16s. 10d.; assets, £79 18s. 6d.; preferential debts, £14s 1s. 4d.; deficiency, £50 19s. 8d., this being, however, somewhat modified owing to the sale of several pieces of furniture. The petition was granted.

COMMERCIAL "INFANT."—To an action in the Stockport County Court, last week, brought by Coppock and Co., paint manufacturers, against Scholey and Teat, photographers, Doncaster, to recover £6 18s., the price of goods supplied, George Scholey, who said he was the defendant (Mr. Teat being imaginary), set up the plea of "infancy." Defendant produced his birth certificate. His Honour: I may say you are a very old-looking young man. I suppose you are the person mentioned in the certificate?—Yes. Why did you trade as Scholey and Teat?—To make a better show. His Honour pointed out that by itself the certificate was not proof, and that one of the parents must support the plea. It was an unfair way of doing business. He gave judgment against the firm other than Scholey, if he was an infant. It being stated that other actions were pending, and that there were thirty creditors, the defendant's solicitor suggested that the estate should be realised for their benefit. The judge thereupon adjourned the case.

THE affairs of Alfred Margand, photographic enlarger, trading as The Crown Art Co., 115, Seven Sisters Road, Holloway, N., came under review at the London Bankruptcy Court, on Tuesday, before Mr. Registrar Hope. The statement filed by the debtor disclosed gross liabilities amounting to £674 3s. 4d., to fully secured creditors £35, the value of the securities being returned at the same amount. The total liabilities expected to rank against the estate for dividend are returned at £637 3s. 4d.; assets nil. Replying to questions put by the Official Receiver, debtor stated that the receiving order was made on the debtor's own petition, and that he had been adjudicated bankrupt. He was of French nationality, and, after being in America for some years, he came to this country in 1901, and commenced business with a capital of £25 at 235, High Holborn, but he afterwards removed to 83, New Oxford Street, where he remained until October, 1903. He then went to Aberdeen and commenced a photographic enlarging business there in partnership with another person at 18, George Street. Some six months afterwards he retired, and received £20 for his interest in the business. He had since carried on business alone as a photographic enlarger, under the style of The Crown Art Co., at 118, Nethergate, Dundee, and he also used his private address at 115, Seven Sisters Road, N., for business purposes. He had also traded at Bridge Chambers, South Town,



Yarmouth, and at other provincial towns. Of the liabilities due to unsecured creditors, £500 was the estimated amount due to two agents or canvassers, who recovered judgment against him early in 1902 for damages and costs in actions for malicious prosecution. The whole of his stock and furniture at Seven Sisters Road were, in January last, sold under an execution levied at the suit of one of those creditors. He had also had judgment entered against him for £50 in another action for malicious prosecution, and remainder of his liabilities represented general business debts. The fully secured creditors held a bill of sale over the household furniture at Seven Sisters Road. He alleged his failure to have been caused through judgment being entered against him in the actions for malicious prosecution in 1902, to continuous pressure by those creditors, and to the executions levied at his residence, which resulted in his losing a considerable amount of business. His books would show all his business transactions, and his financial position from time to time. His wife had carried on a similar business in her own name, but she was quite able to do so, as she understood the business thoroughly without any assistance from him. None of his goods had been used in his wife's business, and she kept entirely separate accounts for that business. The business was simply one of canvassing for photographs for enlargement. His wife kept all the money she earned. He had never failed before or made any arrangement with his creditors. The examination was closed.

#### NEW COMPANIES.

**HARRINGTON BROTHERS, LIMITED.**—Capital £10,000, in £5 shares. Objects: To take over the business of manufacturing chemists, importers of and dealers in chemicals, drugs, apparatus, photographic materials, oils and colours, carried on by W. B. Harrington, S. Harrington, and I. E. Harrington, at 4, Oliver's Yard, City Road, London, as "Harrington Brothers." The first subscribers are: W. B. Harrington, Lee View, Cork, merchant; S. Harrington, Trafalgar, Cork, merchant; I. E. Harrington, Trafalgar, Cork, merchant; G. A. Cubley, 48, Narcissus Road, West Hampstead, N.W., manufacturing chemist; A. Penzig, 3, Oakley Crescent, City Road, E.C., chemical-warehouse manager; A. Cubley, 48, Narcissus Road, West Hampstead, N.W., surgeon and physician; and M. B. Murphy, 3, Oakley Crescent, City Road, E.C., clerk. No initial public issue. The first directors are W. B. Harrington, F.C.S. (chairman), S. Harrington, G. A. Cubley, A. Penzig, and A. B. Cubley. Qualification £200. Remuneration not less than £10 per annum, divisible. Registered office, 4, Oliver's Yard, City Road, E.C.

**LIFE-SIZE Enlargements.**—We were recently given the opportunity of inspecting at the works of Mr. S. H. Fry, 5, Highbury Grove, London, N., a number of life-size bromide enlargements made by the staff of this well-known firm. Three enlargements 72 x 30 of the same subject we found particularly worth inspecting, as showing the uniform quality obtainable under unfavourable conditions when the work is in skilled hands. The original in this case was a cabinet photograph, which was itself a copy, and we had to confess to no little admiration of the results in all three of the enlargements. Mr. Fry, we saw, has his house in order at his new address, and has made his arrangements for dealing with trade and professional work of a kind that admits of the very rapid and efficient execution of the largest unexpected orders.

In reference to the inquiry of a reader as to procuring the chronoscope of Dr. Miethe's design, made by Bernpohl, Dr. Adolf Heseckel and Co., of 2, Lützowstrasse, Berlin, inform us that they supply the instrument.

**A TRAVEL Exhibition.**—A preliminary prospectus of a travel exhibition to be held at the Horticultural Hall, Westminster, from May 24 to June 3, 1907, has been issued from the offices of the organisers, 75, Chancery Lane, London, E.C. The exhibition is the first of its kind, and is planned on a comprehensive scale. It will include collections of travellers' requisites of all kinds, including photographic equipment. Photography will also figure largely in a section devoted to scenes of travel, and illustrating places and people at home and abroad. The exhibition is to have the moral and financial support of the journal "Health Resort."

#### FORTHCOMING EXHIBITIONS.

September 14 to October 27: The Photographic Salon.—Sec. Reginald Craigie, 5a, Pall Mall East, London, S.W.

September 20 to October 27: Royal Photographic Society.—Sec. J. McIntosh, 66, Russell Square, Bloomsbury, London, W.C.

October 6 to 13: Bristol Photographic Club.—Sec., J. S. Gubb, 23, Berkeley Square, Clifton, Bristol.

October 17 to 20: Rotherham Photographic Society.—Sec., H. Hemmingway, Tooker Road, Rotherham.

October 24 to November 14.—West of England Exhibition (Photographic Section). Entries close October 1. Sec., A. D. Breeze, Union Street, Plymouth.

October 31: Watford Camera Club.—Sec., E. H. Jackson, 1, High Street, Watford.

November 7 to 8: Bedford Camera Club.—Sec., W. H. Hodge, Beaconsfield Street, Bedford.

November 7 to 10: Hackney Photographic Society.—Sec., Wal Selve, 70, Paragon Road, Hackney.

November 14 to 17: Rugby Photographic Society.—Sec., R. Myers, 13 Bridget Street, Rugby.

November 15 to 27: Burnley Camera Club. Entries close November 10.—Sec., Fred Whitaker, Mechanics' Institution, Burnley.

November 16 to 21: Southsea Amateur Photographic Society. Hon. Sec., F. S. Hoyte, "Lismore," Stafford Road, Southsea.

November 20 to 23: Sefton Park Photographic Society.—Sec., A. V. Parr, 34, Loudon Grove, Liverpool, S.

November 27 to 30: Hove Camera Club.—Sec., W. H. Bon, 32, Sackville Road, Hove.

December 6 to 8: South Manchester Photographic Society. Entries close November 21.—Secs., J. H. Haywood and M. W. Thomstone, 43, Lapwing Lane, West Didsbury.

December 11 to 15: Southampton Camera Club.—Sec., S. Kimber, "Oakdene," Highfield, Southampton.

1907.

February 23 to March 2: Birmingham Photographic Society.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 11 to 14: Cripplegate Photographic Society.—Sec., J. Parnham, "Chagford," Old Church Road, Chingford.

February 12 to 23: Sheffield Photographic Society.—Sec., J. V. Wright, 62, Vale Road, Sheffield.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge.

March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.

April 29 to May 14: Photographic Society of Ireland.—Sec., Benson, 35, Molesworth Street, Dublin.

**THE American Salon.**—The third American Photographic Salon will be held during 1906 and 1907, in eight cities of the United States and in Toronto. All pictures are to go before a selection committee of 23 photographers, after which six painters will make a further selection from the thousand frames or so picked out by the photographic committee. The painters are John W. Alexander, Joseph R. Woodwell, Martin Borgord, H. L. Hildebrandt, George Sotter, and J. E. Laboureur. The selection committee is composed as follows: Curtis Bell (chairman), Walter Marshall Clute, Sam Holm, Adolph Petzold, Virginia Prall, Helen P. Gatch, William I. Phillips, John Chislett, J. P. Hodgins, Thomas A. Morgan, Oscar Maurer, Wendell G. Corthell, J. H. Field, James E. Underhill, Clarence M. Rodgers, Nellie Coutant, Carl Rau, Louis Fleckenstein, William H. Zerbe, junr., Phillip B. Warren, W. Parrish, H. W. Minns, and R. L. Sleeth, junr. All entries from Great Britain which should be mounted or unmounted, but not framed, should be sent to arrive by October 1st, 1906, to H. Snowden Ward, 6, Farringdon Avenue, London, E.C., England, marked "For Third American Photographic Salon."

## News and Notes.

**R. P. S. EXHIBITION.**—The following is the list of lectures to be given at the New Gallery during the exhibition of the Royal Photographic Society:—

Thursday, September 20: "A Visit to Gibraltar," illustrated with free-colour slides (by the Sanger Shepherd process), and with monochrome slides, by Miss Acland, by special request.

Saturday, September 22: "Wild-bird Life with the Camera," by William Farren.

Monday, September 24: "Five Centuries of Church Building in England," by Henry W. Bennett, F.R.P.S.

Thursday, September 27: "Homeward across the World"—Burma, India, Egypt, and Italy, by A. H. Dunning, F.R.G.S.

Saturday, September 29: "A Dive into Belgium," by W. L. F. Astell, F.R.P.S.

Monday, October 1: "Forest Life." Notes on Natural History with the Microscope and the Camera, by F. Martin Duncan, F.R.P.S.

Thursday, October 4: "Some Spanish Pictures and a Spanish Full-light," by Arthur Marshall, A.R.I.B.A., F.R.P.S.

Saturday, October 6: "Limestone Marvels of the Subterranean World" (the interior of the caves will be shown on a patent crystalline screen, the invention of the lecturer), by F. Lambert, R.G.S.

Monday, October 8: "Our English Chapter Houses," by E. W. Harvey Piper, Hon. M.S.A.

Thursday, October 11: "A Trip to the Victoria Falls of the Zambesi," by John F. East.

Saturday, October 13: "Corsica: the Isle of Unrest," by Chas. Howdill, A.R.B.A.

Monday, October 15: "Bye-paths in India" (Mangalore, Malabar, Cochin, Travancore, Bhopal, the Himalayas, Rajputana, Vizayanagar, and Tadpatri), by F. Dunsterville, F.R.P.S.

Thursday, October 18: "English and Continental Scenes in Colour" will be shown by the triple projection lantern, by Sir W. de W. Abney, K.C.B., D.C.L., F.R.S.

Saturday, October 20: "A Winter Holiday in Greece," by Albert Cheese.

Monday, October 22: "Some Churches of Central France" (details of the architectural features taken with the telephotographic lens), by Ernest Marriage, F.R.P.S.

Thursday, October 25: "All at Sea with a Hand Camera," by F. J. Mortimer, F.R.P.S.

Saturday, October 27: "Winchester Cathedral," by S. G. Kimber. The lectures commence at eight o'clock.

The "Affiliation Night," to be held during the forthcoming R.P.S. Exhibition, has been fixed for September 28. On this occasion the delegates of affiliated societies will meet in the New Gallery, 21, Regent Street, W., in a partly informal way.

**PHOTOGRAPHIC CLASSES** at the Goldsmiths' Institute, New Cross.—The series of classes, under the direction of Mr. W. T. Wilkinson, commences on September 25, a new feature of the forthcoming curriculum being a series of lessons on orthochromatic and three-colour work. It will deal with orthochromatic, photography, its principles and practice; three-colour photography in theory and practice; making and testing the light filters; production of lantern slides, and of prints upon paper in colour, etc. Each lecture will be illustrated either by a practical demonstration of the process under consideration, or by specially prepared lantern slides projected by an electric lantern.

**THE SCOTTISH SALON.**—The committee has decided to run the Salon for three weeks, and close on Saturday, March 16. Societies which may wish to make arrangements to receive pictures direct from the Salon to other exhibitions should communicate with the secretary, Mr. Robert Milne, Linnvale, Potterhill, Paisley. The prospectus is complete, and will probably be issued towards the end of September. The rules and conditions are practically the same as formerly, but with the addition of a rule by which the committee reserve the right to reproduce any of the accepted pictures in the catalogue, the object in view being not, as it were, to steal

the permission, but to save time in making a formal request, which has been hitherto most willingly granted. The Selection Committee will be asked to select the pictures for reproduction. Secretaries of societies will be receiving, in the course of a few weeks, books of tickets for the Art Union, specially promoted for the 1907 Salon. Mr. Norman S. Cochrane, the secretary, has been busy forming his committee, of not less than nine, and carrying through the other requirements of the Board of Trade. The price of the ticket has been fixed at 6d., and prize-winners may select as many pictures as the prize may warrant, and may add to the value of the prize. Purchasers of tickets are reminded that, while an art union is like a bazaar raffle, in respect that you pay your money and take your chance, in the chance lies the difference. The expenses of the art union being nominal, practically the whole amount received for tickets sold is available for prize money. The art union not only provides a means of reciprocating, to some extent, the support given by exhibitors, but, in disseminating the work exhibited, it assists in a most practical way the fulfilment of the aim of the federation in promoting the annual Scottish Salon—viz., the maintenance of a high standard of pictorial photography in Scotland. The Art Union drawing has been provisionally fixed for Saturday, March 9, a week before the close of the Salon.

**INDECENT PHOTOGRAPHY.**—There was a discussion among the magistrates in the Oldham Police Court last week as to whether certain postcards were indecent or not. They represented statuary. Eventually it was decided that they were, and two men who had offered them for sale were both fined, with costs.

**NATIONAL PORTRAIT GALLERY.**—The 49th annual report of the Trustees of the National Portrait Gallery for 1905-6 has lately been issued as a Parliamentary paper (Cd. 3016). The report alludes to the loss the board has sustained through the death of Dr. Richard Garnett, and records the purchases, donations, loans, and bequests during the year. The trustees state that owing to the congested state of the galleries the difficulty of finding space on the walls for the proper exhibition of recent acquisitions continues to increase, and the attempt to maintain a chronological and historical arrangement of the portraits will soon become unavailing. The trustees have been in further communication with the War Office as to the future disposition of the site now occupied by St. George's Barracks, but up to the date of this report no reply has been received from the military authorities. It cannot, therefore, be said that the trustees have any immediate prospect of obtaining the extension of the gallery which has become of such urgent necessity. The number of students who applied for students' tickets during the year was 53, and 58 students had their tickets renewed. The total number of visitors to the gallery during 1905 was 168,769, which showed a satisfactory increase on every day in the week, the total being the largest since 1896, when the new gallery was opened. The total number of visitors admitted on Sunday afternoons during the summer was 13,411, giving an average of 432 per Sunday.

A GREAT photographic exhibition is announced for next year by the "British and Colonial Druggist," which also makes itself responsible for the management.

**BIRMINGHAM PHOTOGRAPHIC SOCIETY.**—The date of the next annual exhibition has been fixed at February 27 to March 2, 1907.

**THE MEMBERS' DINNER** of the Royal Photographic Society is to be held on Tuesday, September 18, at the Holborn Restaurant. The date is the night before the private view and soirée of the New Gallery, and it is hoped that many provincial members of the society will be present. Applications for tickets should be made to Messrs. Leslie E. Clift or A. W. W. Bartlett, the stewards.

**INSTRUCTION IN PROCESS.**—The twelfth session of the London County School of Photo-engraving and Lithography commences Monday, September 24, 1906, when the following courses of instruction are open to all engaged in the printing, designing, photographic process, illustrative, and lithographic crafts:—Photo Engravers—Line and screen negative making, etching, proving, tricolour work, photo-gravure, and preparation of originals for reproduction. Photo-lithographers—Negative making, photo-lithography, collotype (plate preparation, press and machine work), combinations of lithography and collotype. Photographers—Line and continuous tone negative mak-



ing, printing, enlarging, transparency making. Lithographers—Lithography, map and plan drawing, transfer writing, drawing, design, lettering, photo-lithography. Designers.—Design, drawing, lithography. Draughtsmen.—Drawing, design, lettering, pictorial composition.

Of particular interest to photographers at the present time should be the course of three lectures on "The Theory of Photographic Processes concerned in Negative Making," by Mr. C. E. Kenneth Mees, B.Sc., F.C.S., the syllabus of which is as follows:—The laws of absorption—the exponential law—the relation between absorptive power and the mass of substance present—the relation between exposure and density—Hurter and Driffield's researches—practical sensitometry and the instruments employed—exposing instruments—developing thermostats, photometers. Development—the relation between time and density—the theory of alkaline development—the theory of fixation—colour sensitometry and the measurement of colour filters. These lectures commence on May 9, 1907. There is also a course of four lectures on "Three-Colour and Orthochromatic Photography," by Mr. A. J. Bull, to commence on June 6, 1907.

During the winter session a series of Thursday evening lectures is given on different subjects in the School, admission to which may be obtained on application to the Principal of the School, Mr. A. J. Newton. The following is the programme of these lectures:—November 22, 1906—A. J. Newton: "Commercial considerations in Photo-Engraving." November 29, 1906—Arthur Coles: "Accounting and Economics of Photo-Engraving." December 7, 1906—E. F. Strange: "Artistic Lithography—the Revival." December 13, 1906—T. R. Way: "The Production and Printing of Artistic Lithographs." In the second term.—January 10, 1907—J. Murray Allison: "The Artist and the Advertiser." January 17, 1907—A. H. Tinkler: "Etching Proper, Photomechanical Etching and Fine Etching." January 24, 1907—B. J. Hall: "Fertile and Heliographic Processes." January 31, 1907—Alfred Coe: "Recent Improvements in Collotype." February 7, 1907—O. S. Dawson: "Photographic Printing in Natural Colours." February 14, 1907—Wm. Gamble: "Business Methods of American Photo-engravers." February 20, 1907—Edward Johnston: "Caligraphy." February 28, 1907—Frank Colebrook: "The Illustrative Arts in Recent Exhibitions." March 7, 1907—W. B. Dalton: "Some Notes of English Caricature." March 14, 1907—Joseph Pennell: "Tendencies of Modern Illustration." March 21, 1907—E. W. Foxlee: "Powder Processes in Photography." The full prospectus of the school, giving particulars of the courses of instruction and the fees (nominal), is sent on application to the Principal, at 6, Bolt Court, Fleet Street, London, E.C.

MR. E. L. WHITE.—We learn that Mr. E. L. White, managing director of the Photochrom Company since its formation has resigned that position.

ATTEMPTED SUICIDE.—A photographer named Hyatt, of Kew Green, was charged at the Kingston County Bench last week with attempting to take his life by swallowing a quantity of laudanum. The prisoner had previously been brought up on a charge of arson, and he had been convicted for an assault in a railway carriage. He was remanded.

THE premises of Mr. Arthur Simmons, photographer, of 258, Westminster Bridge Road, were broken into on September 2 by Arthur Jeffcott, a labourer. At the Tower Bridge Police Court, Detective-sergeant Beard, L division, said the prisoner got into the house by squeezing through a window which measured 16in. by 12in. He was only able to steal 12s. 6d. and two bunches of keys. The prisoner had undergone four years' penal servitude for arson. He was committed for trial.

SOCIETY DEMONSTRATIONS.—Messrs. John J. Griffin and Sons inform us that they are now completing arrangements to give demonstrations during the winter session on either of the following subjects:—(1) Velox and its manipulation. (2) Enlarging simplified. (3) The theory and practice of self-toning papers. Secretaries of societies should address them at Kingsway, London.

THE SCIOPTICAN CO.—A correspondent informs us that the present address of the company is Mrs. Smith, 38, Portland Road, Finsbury Park, N.

FLAMANK AND TOWNSEND.—We are in receipt of a notification from 69, Whitehead Road, Aston, Birmingham, to the effect that the above partnership has been dissolved, and that the business be continued at the same address under the style of "Flamank Photographic Works."

THE Proposed Paris Exhibition.—"Truth," in a recent issue publishes the following: "The following experience of mine seems to have been an impudent swindle is related by a gentleman who was last year awarded the medal of the Royal Photographic Society for certain tricolour photographs. Early in the present year he received a letter inviting him to send these photographs to Paris for exhibition. The letter had the printed heading 'Deuxième Exposition Internationale de la Photographie et des Arts, Sciences, et Industries qui s'y rattachent. Paris, Grand Palais des Champs Elysées. Téléphone 709-84.' It was signed 'Le Commissaire Général, L. Gastine.' Believing this to be a genuine affair, the owner of the photographs forwarded them together with a small fee that was demanded for space for exhibition. No acknowledgment reached him, but in June a letter came intimating that the exhibition was postponed till next year. This letter had the same heading as before, but stamped at the bottom it was a new address, 'Bureaux, 13, Avenue de la Motte, Piqueux, Paris.' The signature was 'p.p. le Commissaire Général, Charpenet.' Applications were at once made both by letter and telegram for the return of the photographs. These communications, however, were not answered, and subsequent inquiries in Paris have elicited the information that the whole thing was a fraud, and that the parties who carried it out cannot be traced. It will probably be found that many other persons have been victimised in the same way. No doubt the dating of the first letter from the Grand Palais facilitated the fraud, and it is to be hoped that the authorities there will in future take better care that that address is not used by swindlers."

The gentleman referred to in "Truth" is, of course, Dr. D. H. Hutchinson, of Lowestoft, the recipient of a medal last year at the exhibition of the Royal Photographic Society. Since the paragraph appeared in "Truth," Dr. Hutchinson, so we learn from him, has had his slides returned to him. He writes to us that he cannot tell you who it was that returned them to me, as there was no communication enclosed. Whether the post office officials find that there was no responsible person to receive them at the Grand Palais (the slides being insured for £20), or whether the Grand Palais, Gastine, found that the slides were of no value to him and returned them, I am unable to say. My own impression is that the first theory is the correct one. Although I have recovered my slides I have not received back the monies I paid him, and we have made inquiries in Paris, through a friend of mine, I was told that the whole concern was a fraud, and no trace could be found of Gastine." Dr. Hutchinson also sends us a letter written to him by M. Gastine on the receipt of the three-colour transparencies, the tenor of which does not say much for the way in which the management of the exhibition was conducted.

"Paris, le 2 Mars, 1907"

"Monsieur Hutchinson,  
"35, High Street, Lowestoft,

"DEAR SIR,—I have just received your postal order of ten francs concerning the duty of inscription.

"Your 'lantern slides' can take place as well in the Group X as in the Group X.

"Concerning the Group II, it seems to me less certain that they can be admitted specially, because they do not depend of any scientific work well determined.

"The necessary implacement for your sending is indeed very particular. I will take the necessary dispositions in order that your 'lantern slides' will be well lighted, but it will be necessary for that to consecrate three feet (un metre) at less on 'cimeaise' on about six feet (two metres) high; which loose a pannal of 3 pounds (75 francs) which I will have reduced specially, in rapport of the interest of the sending itself, at 50 francs (two pounds), payable only after that you have received in few weeks your certificate of admission.

"Thanking you for your kind contribution, please accept, dear Sir, my kinds regards,

"LE COMMISSAIRE GENERAL,  
"M. L. GASTINE."

## New Books.

London, a Guide to, for the Visitor, Sportsman, and Naturalist." gives us in its second edition, with corrections and additions, which make it a most commendable guide to the stranger in the metropolis. In pocket size, and the conciseness of its information, are welcome changes from the more bulky guide books. The price of the book is 1s., and the publishers are Greening and Co., 20, Cecil Court, Strand, Cross Road, London, W.C.

## Correspondence.

- \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- \* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE P.P.A. AND ASSISTANTS' CERTIFICATES.

To the Editors.

Gentlemen,—Referring to the correspondence re incompetent assistants, it is curious to find how very few professional assistants attend the various photographic classes or lectures during the winter months. In an ordinary photographic business nothing can be learned beyond printing, toning, and a little bromide printing. At the classes every process is worked in its turn, with full explanation of failures and remedies. Experiments can be made under the best conditions, opportunities are given for enlarging, for orthochromatic work, and for proving its utility; everything done is done with thoroughness, and with a full desire to help the learner and the expert.—Yours faithfully,  
AN OLD PHOTOGRAPHER.

London, S.E. August 28, 1906.

### THE ZANDER FOUR-COLOUR PROCESS.

To the Editors.

Gentlemen,—Much as I dislike controversies in public journals, I cannot permit Baron von Hübl's erroneous criticism of my four-colour process to pass unchallenged.

First of all, Hering's theory does not apply to my process. Moreover, Hübl's colour circle does not agree with my researches, and, therefore, the trapezium in which he makes my colour system appear against the square formed by the colours that he advocates need not be taken seriously, particularly as judging from my practical experience I feel convinced that his four colours would not produce the results he would desire.

The four fundamental colour agents—magenta, lemon-yellow, emerald green, and ultramarine blue—were selected by me, after very careful and lengthy experiments, and are true complementary colours, as they produce the sensation of white when optically superposed in due proportions, and black or grey when combined mechanically as pigments. Baron von Hübl is absolutely wrong in his dogmatism when he asserts that "when, however, a four-colour photograph is attempted by this method, it will soon be seen that the expected result cannot be obtained, for dirty colours will always be obtained." My process is being worked commercially, and the beautiful results obtained are entirely at variance with the latter statement. There is not the slightest doubt about a four-colour scheme, such as I devised, reproducing colours not only far brighter than three-colour work, but also the range of colours obtainable is far more extensive and accurate.

The reason of Baron von Hübl's misleading dogmatism is not far to seek. I can readily see his errors in his diagrams; but it is not of my business to set him right. I have always had the highest respect for Baron von Hübl and his work, and, therefore, can only assume that his four-colour theory has little or no foundation in actual practice or research, or that the latter had stopped short of having been brought to a satisfactory and practicable conclusion.

I would also point out that although Baron von Hübl condemns four-colour work in his article as unworkable, and has also done so in his book, "Die Dreifarbenphotographie" (page 77), he would yet lead us to believe that it has been practically worked, and that I have only endeavoured to re-introduce it. I take strong exception

to such a statement, for I have hitherto failed to discover any examples of a practical working of a four-colour process, either on my own plan, or any other system (except the well-known four-colour scheme of yellow, red, blue, and grey or black). My process is not identical with, or a re-introduction of, any previous photo-mechanical colour reproduction process, but is based on independent and original research, and the outcome of lengthy and patient work and study.—Yours faithfully,  
C. G. ZANDER, F.R.P.S.

15, Whitefriars Street, London, E.C., September 3, 1906.

### FACTORIAL CALCULATORS.

To the Editors.

Gentlemen,—In the factorial calculators you illustrate in your last issue, a separate instrument has to be made for each factor. Thus, a cardboard calculator made for metol (factor 30) would be of no use for any other developer.

There is no need for this limitation, and in the aluminium factorial calculator we issue (the first instrument for the purpose made), the one instrument serves for calculating with any factor, and there are no more figures marked on it than in the ones you illustrate. It is only necessary to point an arrow to the factor used, and the instrument is then set for that factor, the time of development being read against the time of appearance. The division of the circle into 60 parts makes this possible, as seconds' appearance are automatically translated into minutes' development.—Yours truly,

WATKINS METER CO.

Imperial Mills, Hereford, September 1, 1906.

A REPRODUCTION of a portrait of the late Henry Martyn Jeffery, F.R.S., has been skilfully executed in platinumotype by Messrs. Holloway, of Cheltenham, and forwarded to Budapest, Hungary, to be added to the collection of eminent mathematicians at the University of Budapest. The late Mr. Jeffery was headmaster of Cheltenham Grammar School from 1868 to December, 1881.

At Exeter Police Court last week, James Morton, photographer's canvasser, was charged with embezzling 18s. from his employer, Chas. Cox, a travelling photographer, residing at Friar's Walk, Exeter. He was sent to prison for a week.

PUBLIC Taste in Photographs.—Perhaps there is no branch of art practice (says the "Globe") which shows as plainly as does photography how dangerous is the influence of the illiterate patron. Of all the forms of art expression, photography is the one which will give most perfectly and most completely the subtlety of nature, the one which in its absolute exactness of tone can reproduce all the elusive refinements of atmosphere and light and shade. Yet it is the one which is most persistently used to satisfy the ignorant demand for falsity of effect. The photographs which people prefer are those which are least like nature in their exaggeration of tone contrasts, in their want of right gradations, and in their perversion of nature's facts; and, as a consequence, our illustrated magazines are filled with reproductions of photographs which represent the lowest possible type of achievement and the unworthiest form of art. But such is the density of the public misunderstanding of the elementary principles of artistic effort that no protest is ever heard against this prostitution of illustration or against the indifference of the directors of those magazines to all æsthetic considerations.

HUMOURS of the Shop Counter.—Photographic dealing is not without its humorous side, yet we doubt if it could present such a crop of curious blunders as that sent to the "Chemist and Druggist" by a Tasmanian correspondent. A few are: "Opol pills," "iron and hallow pills," "Pacific oiniment," "magneesher," "boricatic ointment," "beatcham pills," "parry goric," "oxaric acic," "sweet niter kuibic and bawlsom compbive," "bensean," "licer's powder," "black dimon die," "proxiden," "genison" and "gensing," "Iredine" and "hydyne," "philerdofler" and "adol-plus," "white heather black oil and heartsorn," "a cheap enimer." A request for "1 Bottle Scothelum" requires inside knowledge, Scott's emulsion being intended. The same might be said of "Eclat with wine"; in this case a catheter was meant. A rather quaint order was for "a glass chube that go in a suck bottle." But, as at home, the orthography of hiera picra was the main trouble. Mr. Hinsby's clients spell it variously as "Hikery pirkey," "ikpriky," "Ikery pikery," "icory picrory," and "ickrepickey."



## Answers to Correspondents.

- \**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*
- \**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*
- \**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*
- \**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

- J. Phillips & Sons, High Street, Biggleswade. *Photograph of a Goat Suckling a Foal.*
- H. Linn, 36, Taylor Street, Woolwich. *Photograph of J. Ashcroft, Goalkeeper of Woolwich Arsenal Football Club.*
- W. T. Whiffin, 770, Harrow Road, Willesden. *Photograph of Queen's Park Rangers Football Team.*
- J. Jarrett, Ewart Lodge, Jameson Road, Bexhill, Sussex. *Two Photographs of Elephants.*
- W. Smith, 35, New Road, Grays, Essex. *Photograph of Grays Beach.*
- S. H. Greenway, 27, Abington Street, Northampton. *Photograph of the Northampton F.C. (Association, Southern League).*

MEMO.—In our next.

P. B.—If you are engaged at a weekly notice we do not see that you can claim anything for wrongful dismissal, nor can you if, in the absence of any definite arrangement, you were paid weekly. If the firm refuses to pay for the overtime and retouching which you have done you can sue them for these amounts, provided you can prove that they are due to you.

COPIES ON LINEN.—Would you explain to me through the columns of your valued journal, how, by a photographic process now in use, copies of builders and engineers' plans can be produced on linen, also where can the necessary materials be obtained?—H. F. WILLS.

You can obtain sensitised linen for ferro-prussiate copies from any of the regular houses, such as J. R. Gotz, 211, Shaftesbury Avenue; Marion and Co., Soho Square, W.; or Allott and Jones, Liverpool.

REVERSING MIRROR.—I should be grateful if you would tell me how to make or where to purchase such a 45 deg. mirror as you mention for street photography in "Ex Cathedra." Will there be no secondary image from the front surface of the glass if glass is used? And it looks as if speculum metal would be as costly as a prism.—Q. S.

Any optical firm, such as W. Watson and Sons, 313, High Holborn, London, E.C., will supply you with a mirror. It should be silvered on the glass side, and there can then be no secondary image. Instructions for silvering a mirror will be found in the ALMANAC.

DARK ROOM LIGHT.—Can you kindly give me, through your "Answers to Correspondents" column, a formula for a solution for a "bichromate" dark room lamp which will give a safe light with Imperial "Special Sensitive" plates? I want a single solution which will give the same results as when a methyl violet stained gelatine screen is put in front of the bichromate solution. The lamp I want to use the solution in is circular, and it is not convenient to use a stained gelatine screen. The solution will be 3/4 in. thick. I have looked up all the formulae I could find in back numbers of the photographic journals and books, but cannot find a suggestion for a solution to give the result referred to. The nearest seems to be that suggested in the "Amateur Photographer," October 11, 1901, page 298, of rhodamine mixed with bichromate solution, but I do not think this cuts off far enough into the red to be safe with the plates mentioned. I have some doubts as to whether rhodamine will mix with bichromate solution, but I have not tried it. What is the best solution you can suggest?—S. C. PUDDY.

We should advise you not to mix a dye solution with the bichromate, since the oxidising character of the latter will very

probably result in the alteration of the colouring matter, if at once, at any rate, in time. And there is no necessity to employ the chromate as the results you require may be secured by a mixture of dyes. We should advise you to prepare a solution as follows:—Fast red, .25; flavazine, .5; methyl violet, .25. The quantities of each dye in the above formula are in milli-grammes per cc. that is to say, if your cell holds 200 cc. you will require .05 of a gramme of fast red. All the dyes are water-soluble, and can be obtained from houses such as Fuerst Bros. or Mawson and Swan.

STUDIO BLINDS.—I am thinking of having new blinds to my studio. The sun shines on the skylight most of the day, and what you have does not seem opaque enough. What would you advise? I thought a row of white on rods to knock along—nearest to the glass—and then underneath these a row of black or dark green. I want something almost or quite opaque in this way. Can you give me information I shall be glad of. In buying material you advise what shall I ask for?—N. N.

We should recommend you to have dark green blinds in preference to black, as they will give the studio a less somber appearance than the black would do. If you have the material thick enough it will be practically opaque. What is known as twill is a suitable material and is very inexpensive.

TONING P.O.P.—(2) Have been going to write you before to see if you can tell me what enclosed substance is? It is one of the formulas for forming a cheap toning solution for post cards put up by a local chemist. He says it is not lead, the others are hypo, alum, and when mixed, throws down a black deposit like black lead. (3) It gives a nice tone and fairly permanent, but still the face of the card. Can you give me a cheap formula which would not stain, and fairly permanent?—P. T.

(1) We cannot say. Your best course would be to address the local newspaper from which you might ascertain the address of the deceased lady's friends. (2) From the minute sample we can only say that it is an acid, probably oxalic or some other organic acid. Either of these with the hypo and alum will form a sulphur-toning bath; a mixture which we strongly countenance for toning purposes. (3) We may, however, give you a formula of which a correspondent who gave it in issue of June 1 last spoke well as regards permanence of results. After well washing and immersing in a solution of alum and salt (the Ilford formula) the prints are again well washed and toned in hypo, 3ozs.; water, 20ozs.; glacial acetic acid, drop.

SPOTS ON P.O.P.—We should like to know your opinion as to what is the cause of spots on enclosed blotting paper. The enclosed is "Fotonic" paper, and directly wet prints are placed on it, they appear in a short time and thus on to back of prints, stain through. We put same down to chemicals in the air, but since we have removed washed prints and blotting paper into another room away from all chemicals they still appear. And I state that fresh paper, such as enclosed, is always (and always been) kept away from all such things.—G. B.

We must confess we are at a loss to explain the cause of the spots. They certainly look to us like the results of dust of hypo or amideol from the air. Perhaps some of our readers who have had a similar experience can give a hint as to the cause.

\**NOTICE TO ADVERTISERS.—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.*

## The British Journal of Photography

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## SUMMARY.

The Photographic Salon opens to-day (Friday) at 5A, Pall Mall East, No. 130, Mr. George Bernard Shaw, photographed in the studio by Mr. Coburn, has created something of a sensation in the daily press. (P. 724.)

Members of the P.P.A. are asked to notice the approaching exhibition at the BRITISH JOURNAL. (P. 721.)

Toning P.O.P. postcards on the wholesale scale. Mr. G. T. Harris explains the methods found by him to be efficient and economical. (P. 725.)

The special methods to be followed in working-up platinotypes are the subject of some notes by Miss M. P. Bell. (P. 729.)

MM. Lumière have recorded their good opinion of alum *plus* sulphite in the fixing bath as a means of tanning the gelatine film. The same two chemicals in the combined toning and fixing bath will prevent P.O.P. troubles in hot weather. (P. 727.)

Recent lectures by Prof. V. B. Lewes have laid stress on the importance of fire-preventive measures and on the value of fireproofing materials. (P. 722.)

A photo-engraver has taken up the recent article of Mr. F. C. Tilney championing the foreign maker and printer of three-colour engravings. (P. 728.)

Fallacies of stereoscopic vision are the subject of an editorial in reference to the recent paper of M. A. Goderus. (P. 723.)

An exposure of coupon frauds, which were recently being practised by a man in the suburbs of London, under the name of a Bond Street photographer, appears on page 733.

An exhibition of photographs by Mr. S. L. Coulthurst is being held at the rooms of the Manchester Amateur Photographic Society. (P. 734.)

## EX CATHEDRA.

### The P.P.A. Exhibition at the "British Journal."

During the past few days we have been in receipt of a number of letters in reference to the exhibition of photographs by members of the Professional Photographers' Association which, on October 11, is to succeed the present show of portraits by the Camerons, mother and son. As some of our correspondents appear not to have perfectly realised our intention in suggesting the exhibition, we would repeat that it is desired that the one photograph which each member of the P.P.A. is entitled to exhibit should represent the work as ordinarily produced in his establishment, not special work or photographs of specially attractive subjects. The conviction which prompted us to suggest the exhibition to the P.P.A. is that photographers cannot help benefiting by seeing the kind of production which their brethren in other districts are producing, and that this simple and friendly act will, at the same time, be a step towards those ideals of co-operation which are yet a great way off. Therefore it will only be to defeat the aim of the exhibition if work of a special character be contributed. We are in hopes that there is still time to clear up a misconception which exists possibly in other minds than those of our correspondents. Eleven days yet remain before prints need be despatched to our offices. Will members of the P.P.A., who have not yet sent a print, make good use of the time?

### An Exhibition Without Rules!

Save only as indicated in the above paragraph, there is a delightful absence of rules as to the holding of the exhibition. There is no selection. Every exhibitor sends one print, and every print sent in will be shown. We imagine that the great majority of the prints will be portraits, but portraiture need not necessarily be the subject. Photographers whose work lies in the reproduction of articles of manufacture in marine or engineering photography are equally entitled to represent themselves as are the portraitists. The exhibitors, as we have said, are limited to members of the P.P.A., but the exhibition will be opened to all during the hours frequently announced in these pages. It will close on November 10.

### Ammonium Sulpho-Cyanide.

Some readers of a pharmaceutical contemporary are expressing discordant views on the necessity or otherwise of complying with the Poisons Act in the case of ammonium sulphocyanide. The wording of the Poisons Schedule is open to misconstruction, yet we do not think that the sentence "all metallic cyanides and the preparations of such



articles" can be taken as including the sulphocyanides which are distinct chemically from the cyanides, and are no more subject to the Act than the ferrocyanides and ferri-cyanides, which are everywhere sold without question. In fact, the Schedule expressly mentions mercuric sulphocyanide in Part II., and thus implies that the sulphocyanides of the alkalis are not regarded as scheduled poisons. This, if we are not mistaken, was also the specifically expressed opinion of the Pharmaceutical Society some ten or fifteen years ago, the pronouncement having been prompted by the Ilford Company, who were at that time popularising the sulphocyanide toning bath for their newly introduced printing-out paper. So far as we know, nothing has since transpired to affect the sale of sulphocyanide.

#### Ordering Plates.

Messrs. Houghtons, Limited, in their current "Monthly," are again drawing attention to a form in the ordering of plates which it is certainly advisable should become a custom in the trade. It is the use of the word "packet" instead of "dozen" when ordering plates. When the latter expression is employed there is the doubt in the wholesaler's mind as to whether it refers to the plates or the boxes, each containing one dozen. "Send me four dozen  $\frac{1}{4}$  Ilford Monarchs" may be four dozen plates or four dozen packets. Messrs. Houghtons' suggestion that the word "packets" should become established may be commended to the trade. It should absolutely prevent the mistakes which result from the ambiguous use of "dozens."

#### Fire Risks.

A valuable series of Cantor lectures by Professor Vivian B. Lewes, delivered before the Society of Arts in the spring, has now been completely published in the Society's "Journal," and will doubtless be issued, as other Cantor lectures, separately, in pamphlet form. Professor Lewes dealt with the many aspects of his subjects, yet did not overlook the importance of preventive measures which may be taken by small householders or by proprietors of photographic studios. The chief value, he pointed out, of the modern methods of rendering timber non-flammable, lay not in the protection of structures or articles composed of it, but in the fact that such impregnated timber is only charred by intense heat. It will not flame, and therefore is unable to spread the combustion. Very many substances had been proposed as efficacious in imparting non-flammable properties to timber, but Professor Lewes' experiments had

narrowed down the list to ammonium chloride, ammonium phosphate, ammonium sulphate, calcium chloride, cesium chloride, zinc chloride, zinc sulphate, stannous chloride, alum, borax, boracic acid, and aluminium hydrate.

#### Fire-proofing Fabrics.

The assistance which curtains and other loosely arranged fabrics render to the spread of even the smallest conflagration is so frequently the factor which converts a tiny outbreak such as the overthrow of a lamp, into a serious fire, that Professor Lewes' counsel as to the fireproofing of fabrics should be accorded the consideration of all tenants of photographic establishments. Just as in the case of timber, curtains or backgrounds are not themselves rendered immune to the action of a flame, but if saturated with a solution of ammonium phosphate and borax, which is as good a fireproofing preparation as any, their capabilities as conveyers of the flame are practically destroyed. Professor Lewes has also some words of advice to householders on the valuable protection offered them in various "extincteurs" and grenades, which act on the principle of disengaging gases which are non-supporters of combustion, just as a handful of sulphur thrown on a grate will extinguish a chimney on fire by its evolution of sulphurous acid gas.

#### September Photography.

A month of clouds and soft lighting. September was looked upon by many as the best month in the whole year for outdoor work. The majority of the work of the late Mr. Vernon Heath, for instance, which it would be difficult to beat now—although there was no orthochromatic photography in his day—was done in September. The glorious tints on the landscape at this season are not to be seen at any other time of the year, and orthochromatic photography places in our hands a means of reproducing them in a way that was impossible at one time. The light, it is true, is not of the same actinic value that it was a couple of months or so ago. But the exposures necessary are not proportionately so much longer now than earlier in the year, as the shadows are longer and the light much more diffused, even when the sun is at its highest. When the sun is near its zenith the shadows are short and very strong and deep, and, as a consequence, a comparatively long exposure is necessary to obtain detail in them. At this season the conditions are different, the shadows are weaker and more transparent

### THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES, and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of

particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, so as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

and there are usually light fleecy clouds about that greatly aid in diffusing the light, so that, in practice, although theoretically the light is really not so strong, a very little extra exposure is necessary beyond what was required at midsummer. To best render the gorgeous tints now to be seen in the landscape a screened orthochromatic plate should be employed, and should be backed to avoid halation.

\* \* \*

#### Photography and the Boat Race.

At no previous race on the Thames was photography so much in evidence as it was at the contest between the Cambridge and Harvard Universities on Saturday last. Cameras of all descriptions were to be seen in every direction; indeed, at some points on the towing path almost everyone seemed to have cameras. The weather and light were all that could be desired for photography, and it would be interesting, if it were possible, to know the number of plates and films that were exposed on the occasion, and what proportion of them proved satisfactory pictures. However, it must have been a good day for the plate and film makers. As an illustration of the enterprise of those who produce cinematograph pictures it may be mentioned that the two crews finished up the day at the Alhambra, where at 10 o'clock they were enabled to see animated pictures of themselves competing against each other only five hours before. Animated pictures of the boat race were also shown at other music-halls the same evening. It is obvious that not much time could have been lost in the production of these pictures.

\* \* \*

#### Odd Jobs.

It not infrequently happens that a photographer, whose main business is portraiture, is called upon to do something out of his usual rut, as, for instance, to photograph articles of manufacture, and he finds himself at a loss how to proceed in order to secure what is required. That such is often the case is clear to us from the queries that are continually reaching us for information. These usually come from photographers in small provincial towns in which there are few facilities for seeing good work of a special kind, or gathering hints on methods of procedure. The majority of skilled portraitists can apply their knowledge to almost any requirements of the art, but to those unable to do so we commend the notes on "Commercial Photography" which appeared on pp. 706-7 of our issue of last week. From these the inexperienced in what is termed "commercial photography" may gain some very useful hints which they should have no difficulty, with a little modification, in applying to any work they are likely to be called upon to execute. We do not say that the information there given will meet every case, but there is enough, with the exercise of some little ability, to accomplish satisfactorily anything that may be required out of the general run of portraiture.

### STEREOSCOPIC TRUTH.

The paper by M. A. Goderus, a translation of which we published in our issues for August 17th, 24th, and 31st, forms a very interesting contribution to the literature of stereoscopy, but we cannot say that all the conclusions of the author can be justified by the theory of stereoscopy, or even by the evidence he has himself advanced. It therefore appears to us very desirable to put before our readers, in somewhat different language, the real conditions that govern true stereoscopic effect.

The fundamental law governing the truth of the effect observed is that all parts of the images shall be seen at the

same angle of convergency as that at which they were produced. Provided that this law is fulfilled, then the form and relief seen in the stereoscope is absolutely true, even though the apparent size and distance of the subject may vary. M. Goderus seems to consider that truth of stereoscopic effect involves also true apparent size and apparent distance, and, from some of his remarks, appears to suggest that if these two conditions are not fulfilled the apparent relief produced is false. It is hardly fair to criticise his statements from a translation, and it is possible that he did not intend to convey this impression, but it is certainly suggested by his remarks on page 690, and as any such idea is quite contrary to facts we feel bound to try to dispel it.

If a pair of stereoscopic views is taken with a lens separation greater than that of the eyes, and is viewed with strict observance of the law of equal convergency, then the impression produced is, as M. Goderus states, that of a view of a subject that is both smaller and nearer than in nature. In other words, it is a view of a small model of the original, but M. Goderus has omitted to point out that this small model is an absolute replica of the original, corresponding with it in every respect, excepting in matters of apparent size and distance. Suppose the original to be a true cube with bas-relief on its sides. Then the image seen in the stereoscope is that of a true cube, smaller than the original, and nearer to the observer, and, on account of this nearness, the relief of the carving is slightly more obvious and bolder than it would appear in the original at its actual distance. This effect is produced in M. Goderus' fig. 13, and is a proof of the truth of the results obtained with widely separated lenses, though he appears to take it as a proof of inaccuracy. If an object appears in the stereoscope to be nearer than its real distance, the relief should appear to be greater, while if the object appears to be at a greater distance the relief should appear flatter, just as it does in the examples given.

The fact that widely separated lenses produce results that, viewed correctly, give an absolutely true impression of everything except apparent size and distance, is a most valuable feature of stereoscopy, for a close view of a small exact replica of the subject is in the majority of cases precisely what is desired. Truth of apparent size and distance is easily attained in theory by making the separation of the lenses equal to that of the eyes, but the advantages of so doing are much over-estimated. In the first place, the result shows no more than can be seen by inspecting the object itself, and the advantages of a near view are lost; and, in the second place, the truth of apparent size and distance will meet with no appreciation whatever, excepting, perhaps, in the case of portraiture, which is hardly a suitable subject for stereoscopy in any case.

M. Goderus has seemingly forgotten that apparent distance is a most deceptive matter, while under the laws of vision apparent size is a variable quantity, differing according as we use direct or indirect vision. If the relative sizes and distances of different portions of the subject are correctly represented (as they are if the law of convergency is fulfilled, however far the camera lenses may be separated) we attain as much in the stereoscopic view as we can wish for. Errors in apparent size and distance cannot be detected except in most unusual circumstances, for both qualities are, at the best, vague and indeterminate.

With very near objects the separation of the lenses *must* be decreased for two reasons. First, because if the separation is too great, the prints cannot be mounted so that the law of convergency is fulfilled; second, because with a too wide separation the two images cannot be brought on to the plate. These difficulties may be overcome by using a special kind of stereoscope, and taking the negatives in two separate converging cameras, but the results are not worth the trouble excepting in very special and unusual cases.



The reference to converging cameras reminds us of an error made by M. Goderus that we are surprised to see in a paper that represents so much thought and experiment. It is an old-established error to suppose that converging lenses and cameras have any particular advantages over the ordinary form, excepting in the particular case we have mentioned. Given correct viewing conditions, the results attained by using parallel lenses and image surfaces in one plane are identical with those produced by converging lenses and plates at right angles with the axes of the lenses. This must be apparent to anyone acquainted with the laws of plane perspective, yet the idea that converging lenses will give truer effects is a myth that has deceived many writers other than M. Goderus. Another common myth is that images produced with widely separated lenses necessarily show exaggerated or distorted relief. As we have endeavoured to show, they do nothing of the sort if the results are viewed with the proper angle of convergency, but if the law of convergency is not observed distortion at once appears. To fulfil this law the prints must be correctly mounted and viewed at a proper distance, but so long as photographers are content to observe no rule of

mounting at all, and study in long-focus stereoscopic views made with short-focus lenses, distortion will continue to be an obvious defect in the great majority of stereoscopic views. The stereoscope lenses should be of approximately the same focal length as the lenses used in the camera, whereas they are very commonly of twice that length. The correct rule for mounting is given in an "Cathedra" note, and need not be repeated here. The rule does not appear to be generally known, and so-called "rules" often observed are usually only correct in certain specified conditions that are seldom mentioned in point is the "rule" laid down by the International Congress that is justly criticised by M. Goderus.

We may observe, in conclusion, that the true effects produced by viewing objects from points more widely separated than the eyes are best studied with the aid of the tele-stereoscope. A few experiments with this simple instrument will soon convince anyone that distortion, exaggerated relief, is not a consequence of wide separation, in spite of the unusual conditions, objects presented in their form perfectly, even when viewed from points separated by several feet.

## THE PHOTOGRAPHIC SALON.

### A FIRST IMPRESSION.

At the moment of going to press we are able to anticipate our review of this exhibition by giving a general notion of its character. Next week we shall go more particularly into criticism.

In the first place, the press-men, if not the public, are pleased to find that there are about seventy pictures fewer than there were last year. This, one would think, might result in a higher average of merit; but the facts do not bear out such an expectation. There have been shows that have surpassed this one in general interest. The men of repute have not made an effort to enhance their reputation, except in the case of Mr. Horsley Hinton, whose two pictures are, we consider, more fresh and more artistic than usual. To the lesser known names, however, the exhibition is most indebted for its attractions. We welcome the work of Eduardo Garrone, who is a newcomer, and whose influence promises to be valuable. The highly artistic and decorative pieces of F. Benedict Herzog, whose "Isolde" last year made a sensation, stand out in work of a higher order than is usual amongst photographers with leanings in this direction.

The greatest sensation of all, however, will prove to be the portrait of Geo. Bernard Shaw—the ubiquitous. We call it a portrait because, in that guise, it arrests attention. The catalogue calls it "Le Penseur," which is the name of a much-talked-of statue—larger than life, though not so natural as this—by the French sculptor, Rodin. Mr. Shaw has very cleverly adopted the pose of this statue, and although, were the two versions compared, a wide difference would be noted,

yet his aptitude for "living pictures" is clearly demonstrated. We are surprised at nothing done by G. B. S., and therefore we can remain calm as we regard his self-respect thus butchered to make a Salon holiday. This diverting photograph is by Alvin Langdon Coburn, who, with characteristic prolixity, has eight works on view. We think "The Rudder, Liverpool," his best utterance. His own portrait is given by both Bar A. de Meyer and by Reginald Craigie. Both are striking works, but, curiously enough, do not look like portraits of the same sitter.

Walter J. Clutterbuck delights us with his fine sense of style and his good feeling for natural light. Similar praise due to Arthur Marshall for his Venetian subjects.

Fredk. Hollyer's portrait of A. Horsley Hinton cannot be regarded as a speaking likeness.

Of Mrs. Käsebie's works we prefer "Josephine." She has sent two early Victorian costume subjects, of which one is ineffectively tinted—by hand presumably.

Percy G. R. Wright has done extremely well with his "Truants," two youngsters being marched along by a peasant woman in a Continental street. And when we have named "The Bridge," by Alex. Keighley, and "Late Afternoon," by Charles Job, we have touched upon the chief works that remain in our minds as good things after leaving the galleries.

It does not follow that there remains nothing else good. On the contrary, work by Mr. F. H. Evans, Rudolph Dührkoop, and many others is as good as we expected of such past masters, and therefore they make no unusual impression.

**BABY'S Singular Death.**—An inquiry was held last week concerning the death of a seven months' baby. The mother said the child had his photograph taken, sitting on the table. She wanted another one, and placed the baby in a chair and put a cat in his lap. The cat bolted, and in making a grab at its tail the baby fell with the chair and struck his head on the floor. He was never well afterwards, and died on Sunday last. Dr. George Robert Young deposed that death was due to meningitis, the result of the fall. The gloomy comment of one juror was that there is a saying

that it is unlucky to have a child's photograph taken before it is twelve months' old, and it proved so in this case; but the jury returned a verdict of accidental death.

**A RHYL Mystery.**—Mr. Charles Henry Deakin, photographer, of Newcastle-under-Lyme, whose clothes were found on Rhyl beach a month ago, has returned to his home. It was not believed that he was drowned, as he was stated to have been seen in Liverpool subsequent to the discovery of his clothes. Any explanation of Mr. Deakin's strange disappearance is refused at his residence.

## SYSTEMATIC TONING OF P.O.P. POST-CARDS.

the advent of the postcard came the necessity for considerable re-adjustment in the routine of the printing-room, if the photographer would successfully meet the increased demand of his output. Studios in small towns that had become accustomed to a weekly output of some dozens of silver prints, principally portraits, were confronted with the problem of producing grosses where dozens had hitherto sufficed. Not only the photographer to deal with increased quantity, of which a sufficient cause of embarrassment to men with limited means and appliances, but as there was no corresponding monetary increase, owing to the reduced price of the postcard, became necessary to avoid any increase in the way of standing expenses. The printer who handled dozens must be prepared to handle grosses, and in the same or even less time; moreover, the margin for waste was of the narrowest, his methods must give certainty of result. The following account of my method of dealing with postcard work may be of interest, and possibly of use, to those photographers who, without being able to retain a large staff of workers, yet require to produce the grosses weekly, and who require a technically good card with a minimum of labour and expense.

### Working from Reproduced Negatives.

It is my practice to use only reproduced negatives for postcard printing, the negatives being made from carbon transparencies obtained from the original 9 by 7 negatives. By using reproduced negatives, I am able to get an average of uniform density that greatly facilitates printing operations. So far from the negatives being kept thin, they are of good density, such as would give a bright print with albumen paper; thin, ghostly negatives are extremely productive of waste, to say nothing of the difficulty of getting good tones, especially with the toning bath I am about to describe.

### Printing by Test Negative.

The negatives are classified according to density, and lettered A, B, C, or D, as the case may be, such classification being, of course, entirely arbitrary. Four postcard negatives in a convenient number to handle in each frame, and the frames are filled from the classified densities, a letter corresponding with the negative density being temporarily affixed to the outside of the frame to prevent error. One negative of each of the densities printed from is retained for use in a small frame as a test or actinometer print. The frames being charged, they are put out to print in groups, each group having its proper test negative. Of course, it is only necessary to examine the tint in the small frame; when that is done all the frames corresponding to the density indicated by it are taken in and changed. On overcast days of fairly uniform light the first printing may be timed, and by doing so a fairly close guide is obtained to the time required for subsequent batches. Hence the printer may be relieved from constant attendance on his frames, and able to progress with washing and toning operations. From practical experience, I find that two gross of postcards is a very convenient batch for one printer and toner to handle. Of course, with an assistant and division of labour the size of batch may be greatly extended. Having thoroughly freed the cards from the free silver by washing and soaking, they are ready for toning.

### Avoid Sulphocyanide.

Now, it is open to question whether the sulphocyanide bath is largely advocated for toning gelatine papers is the ideal bath its extensive employment would suggest its being. Without doubt, in the early days of gelatine papers few of them would tone satisfactorily with any other bath, and at the

present time I know of several commercial papers that are only amenable to sulphocyanide. Generally speaking, the best commercial papers can be toned quite as well by other baths as by sulphocyanide; in fact, the makers in some instances give a choice of other baths. For toning large batches I do not hesitate to deprecate the use of sulphocyanide; it may be that some emulsions and some workers succeed admirably with it, but, judging by the experiences of a good many workers, I know that it is capable of causing very disastrous results when least expected. (*Par parenthèse*, a word of history with regard to the sulphocyanide toning bath may not be without interest; its use is so inseparably associated with the advent of gelatine emulsion papers that one gets to regard it as having been specially introduced as a toning agent for them, whereas it was in use in exactly the form recommended by several manufacturers of the present day at least thirty-five years ago, as a toning agent for albumenised paper.)

### The Toning Formula.

The toning bath I have used for the last two years when dealing with considerable batches of postcards is an acetate bath on the lines of those so extensively used in the days of albumenised paper printing; and, although I have toned some thousands of cards with it, and cards from various makers, I have not yet known an unsatisfactory batch as regards colour. In working, it far surpasses sulphocyanide for regularity, and it has the great advantage of keeping indefinitely as a stock solution. The stock solution is made up according to the following formula:—

Sodium acetate .....	16 ounces.
Gold trichloride .....	240 grains.
Distilled water .....	60 ounces.

The chloride of gold is first neutralised with chalk, and the stock solution requires at least twenty-four hours ripening before being used to prepare the toning bath.

The toning bath proper is made up according to the quantity of postcards to be toned. I find sixteen grains of gold ample for toning two gross of prints. The stock solution is used in the proportion of two drachms to ten ounces of water, or one and a half ounces of stock solution to sixty ounces of water, which forms the quantity used for two gross of postcards, additional gold from the stock solution being added from time to time as the gold gets used up, until about sixteen grains have been used for the two gross.

Let me state here, to prevent any possibility of disappointment, that I do not advise anyone desiring purple tones to try and obtain them with the acetate bath unless their negatives are very much denser than is desirable for expeditious printing. The acetate bath is the bath for rich brown tones, and such it gives readily with negatives of moderate density. Purple tones would, of course, require considerably more gold than is given above for the two gross.

### Toning the Cards.

The sixty ounces of toning bath is contained in a dish about eighteen by fourteen inches, and some two and a half dozen cards, carefully drained from the last washing water, immersed one at a time. After rapidly turning these over once or twice, they should be placed to one side of the dish, and a second like quantity immersed in the toning bath, being kept by themselves. By the time these have been turned over the first batch will be ready to leave the toning bath, and they may be lifted out *en bloc*, and placed in a large vessel of water, with quick separation. Toning with gelatine emulsion is very much quicker than with albumen, and care must be



taken not to tone beyond a reddish brown stage, which is reached well under five minutes. By keeping five dozen cards in the bath at one time, toning is soon accomplished, and after washing in one change of water, the cards may be fixed.

#### Precautions in Fixing.

Two fixing baths are made up, one of 6 per cent. hypo, the other of 4 per cent., the cards being placed in the 6 per cent. bath for ten minutes, and then in the weaker fixing bath for a further ten minutes. In transferring the cards from the washing water to the first fixing bath, each card should be drained of the adherent surplus water by holding it diagonally, otherwise the fixing bath will be weakened by a considerable amount of additional water. About half a gross of cards should be placed in the bath and kept constantly turned for the ten minutes, then transferred to the second bath, and operated by an assistant. Thorough fixation has so often been insisted upon in these pages that it seems superfluous to draw attention to it again, but I fear many photographers still regard fixing as an operation unworthy of their serious attention, and one upon which no time need be "wasted." The practice of getting the prints into the fixing bath and then leaving them to take care of themselves for ten or fifteen minutes cannot by the most charitable be called "fixing," and should never be tolerated by anyone who aspires to even a moderate amount of permanence for his work. Years ago I convinced myself by actual experiment that carefully fixed prints might have an appreciable amount of hypo left in them, and yet be more permanent than prints carelessly fixed and subjected to the absurd amount of washing most photographers seem to think essential to permanence.

#### A Practical Washing Procedure.

With regard to the washing of postcards, I am afraid that my method will scarcely commend itself to the majority of workers. However, as it possesses the twin merits of expedition and efficiency, I will include a description, without any hope that where the careful work of MM. Lumière has failed to convince my description will carry much weight.

For the two gross of postcards two large trays, each capable of holding about half a gallon of water, are taken. The prints are removed, one at a time, from the fixing bath and carefully drained before being placed in the washing water. I attach

great importance to careful draining of each card as it enters the fixing bath, as I find by actual measurement that the prints are rapidly taken from the fixing bath and pass into the washing water, the two gross of postcards taken into the first washing water *fifteen ounces of the fixing water* so that if this rapid passing of cards from one bath to the other is kept up, an enormous amount of washing is required to get rid of the surface hypo. My method of washing, is to pass the cards with careful draining from one tray to another for about four changes of water; the cards are left soaking for about ten minutes, after which the water is poured off, the cards being evenly distributed over the surface of the dish while pouring away the water, and then a squeegee used over the whole, with firm pressure in one direction, so as to press out as much fluid as possible. The tray is again filled with water, the cards left to soak, then washed from tray to tray, as previously described, for another four waters, squeegeed again, washed again with water, squeegeed finally, and placed to dry. I find by actual method that the last washing water shows "no hypo" as tested by the usual means. The Editor of this paper recently pointed out that even after the surfaces of a postcard are freed from hypo the body of the card may contain quite an appreciable amount, and the object of the squeegeeing is to get rid of this deep-seated hypo.

I am afraid anyone reading this description will not accept this method of washing as being expeditious; however, so in fact it is. Two gross of postcards can quite easily be washed in three-quarters of an hour, single handed, by the above method. Washing prints by throwing them into trays, and letting them remain under a tap for so many hours is slow and incompetent; with postcards, owing to the water-logged condition they so readily assume, it is downright absurd. One or two boys can easily be trained to wash the cards thoroughly and quickly, and they are out of hand at the end of the day's work, instead of getting sodden by soaking all night.

Such, then, is the system I adopt for dealing with small batches of postcards, and although it will scarcely commend itself to the extensive producer of P.O.P. cards, it is, as suggested at the commencement, a very convenient method where only a few gross weekly are wanted.

G. T. HARRIS, F.R.P.S.

## ON THE PHOTOGRAPHY OF THE INFRA-RED RAYS

(A Note Presented to the Paris Academy of Sciences.)

In 1880 Sir W. Abney published\* the announcement that, under special conditions, a collodio-bromide emulsion exhibited a remarkable sensitiveness to the less refrangible rays of the spectrum. Abney distilled off the ether, washed, and redissolved the pellicle. He believed to have reached wave-length  $2\mu$  in the solar spectrum, but the limit was actually  $1.4\mu$ .<sup>\*</sup> Nevertheless, the process exceeds in photography of the infra-red the use of any of the sensitising dyes. It has been reattempted since, but never, it would appear, with any success. I have established the condition of production and the nature of the product in such a way as to enable me to eliminate the causes of the failures of my predecessors. I have devised certain new processes which give results superior to those of Abney, and which are, I hope, susceptible of still further improvement.

\* Phil. Trans., CLXXI. 1880. CLXXVI. 1881.

† Rubens (Rapports présentés au Congrès de Physique, t. II., p. 144. Paris, 1900) has given the limit as  $1.4\mu$ .

1. I first raised in different ways the proportions directed by Abney. In all cases, under the influence of heat, the sensitiveness of the emulsion to the less refrangible rays was found to be considerably increased both when silver or bromide was in excess. The transformation, however, is sharper with silver in excess, and takes place partially even in the cold, if the excess is considerable—e.g., 1 gm. to 5 gms. silver bromide.

An emulsion obtained by means of concentrated solutions of silver nitrate and bromide of zinc or cadmium became more sensitive than emulsions prepared in the ordinary way.

The reduction of the pyroxylin, which was carried as far as possible, was also favourable to sensitiveness.

It should be noted, as one of the principal causes of failure, that it was not always possible to reach, even approximately, the number given by Abney without the bromide precipitating in large flocks. According to its mode of preparation the pyroxylin confers on the mixture of ether and alcohol a different

viscosity—varying from 1 to 10, according to some writers—and is this which determines the quantity of silver bromide which can remain in suspension. I have had to employ 1.5 gms. of pyroxylin (feebly nitrated) for 10 gms. of silver bromide—that is, ten times the quantity given by Abney. The emulsion described by Abney may be characterised as follows:—Greatest possible concentration of the reacting solutions; permissible minimum of pyroxylin to give a homogeneous emulsion.

The bromides of zinc and ammonium are almost exactly equivalents. The mixture of alcohol and ether can be replaced by ethyl-alcohol or acetone. The transformation of the silver bromide is then of a purely physical order, and is also always accompanied with an increase in the size of the grains.

Lastly, the emulsion was exposed under pressure to temperatures rising up to 100 deg. F. during one hour, and 40 deg. during twenty-four hours. It was not found possible to exceed the limit named by Abney, the bromide becoming granular and decomposing.

It is well, after distilling off the ether, to allow to cool, to re-add the ether, to shake, and to commence the operation afresh. Solutions two or three times as dilute as those directed by Abney can thus be used, and a more homogeneous emulsion thus prepared.

The sensitiveness to white light is also increased, but not in the same proportion.

2. It is well known that when exposed to heat a gelatinous emulsion increases enormously in sensitiveness to the more refrangible rays, less for the yellow and red, the variations of the concentration of the salts and of the gelatine having the same influence, *mutatis mutandis*, as in Abney's emulsion. This similarly led me to suppose that the same phenomenon characteristic of silver bromide is manifested in each case, and the following experiment was undertaken to confirm this view. A precipitate of silver bromide was obtained under suitable conditions in alcohol, or water, washed, and heated for a few minutes in water, either pure (which is best) or with the addition of a little silver nitrate. It gave, after emulsification in gelatine and fresh application of heat, plates which are much more highly sensitive to the infra-red than those of Abney. After five minutes' exposure to the spectrum of a Nernst lamp, far poorer in calorific rays than the solar spectrum, which was used by Abney, we obtained an impression which decreased steadily from the blue to 1.4 $\mu$  without showing the abrupt breaks as do plates containing colouring matters. The characteristic blue colour of the Abney emulsion (evenly transmitted light) appears immediately, and in the cold. I shall give the technical data later.

WALTER RITZ.

## FOREIGN NOTES AND NEWS.

### The Alum Fixing Bath.

The following abstract of a paper, recently read by MM. A. and L. Lumière and Seyewetz, before the Société Française, will be useful, setting at rest the moot point as to the value of the alum and hypo fixing bath, the use of which has been strongly deprecated in some quarters. The use of sulphite to prevent the decomposition of the alum and hypo was first suggested by Valenta in 1889. The use of sodium bisulphite, or acid sulphite and soda, is, however, new, we believe, though as this compound may be formed by the addition of sulphuric acid to sodium sulphite, it will at once be obvious that the chrome alum, sulphite and sulphuric acid and hypo fixing bath suggested first by Cramer is indirectly the bath now suggested. The authors point out that it is well known that more or less complete insolubilisation of a gelatine film may be effected by the addition of formaline, formosulphite, or alums to the fixing bath. The disadvantages of formaline are that it leads to subsequent stripping of the film and considerable discolouration of the fixing bath if any traces of developer are carried into the bath.

Alums slowly decompose the hypo, giving rise to the deposition of sulphur and subsequent sulphurisation of the images.

The bisulphites of aluminium or chromium in suitable proportions in the fixing bath will render gelatine insoluble, without giving rise to the precipitation of sulphur. The same results can be obtained by admixtures of an alkaline bisulphite and ordinary or chrome alum.

Comparing the action of the two alums it was found that using a 15 per cent. solution of hypo the greatest insolubilisation of the gelatine was produced with 0.5 per cent. of chrome alum and 1.5 per cent. of ordinary alum. Chrome alum is much superior to ordinary alum, as one-third of the quantity is required, and, further, the gelatine is so hardened that it will stand a temperature of 212 deg. Fahr. whilst with ordinary alum at 167 deg. Fahr. the gelatine softens and strips from the glass.

The quantity of sodium bisulphite and the commercial solution referred to, should not exceed 1 to 1.5 per cent. Less than this quantity produces incomplete insolubilisation and with excess, the hardening action is quite destroyed.

Testing the plates thus hardened, the authors find that the hypo is eliminated as rapidly as if the film was not hardened. Intensification and reduction also take place as rapidly as with plates fixed in an ordinary fixing bath.

As the gelatine will stand such high temperatures without softening hot water may be used for elimination of the hypo, with consequent

hastening of the operation. Further, the negatives may be rapidly dried by heat without any melting or running of the film.

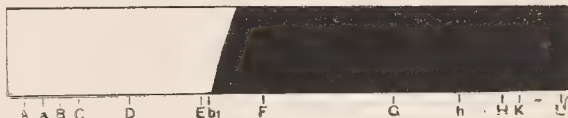
The actual formula there for a fixing bath made up on the above experiments would be:—

Hypo .....	3 ozs.
Sodium bisulphite lye .....	100-150 grs.
Chrome alum .....	50 grs.
Water .....	20 ozs.

The hypo should be dissolved in the greater part of the water, the bisulphite and chrome alum in the remainder, and the solutions mixed.

### A New Yellow Screen Dye.

Dr. Franz Novak calls attention in the "Photographische Korrespondenz" to a new dye, called "filter yellow K," which has been introduced by Meister Lucius and Bruning. The special feature of this new dye is that it absorbs the whole of the ultra-violet, a feature which is possessed by very few of the yellow dyes now used for making



colour screens. The accompanying diagram is from a negative taken in a large quartz spectrograph of the K. K. Lehr und Versuchsamt at Vienna, and it will be seen that the absorption extends from L in the ultra-violet to 6 $\frac{1}{2}$  F.

### Alum in the Combined Bath.

The composition of the combined bath has always been one of those questions upon which the theorist has too often been at variance with the practical worker, for it has been a fact established for many years now by the researches of Valenta, of MM. Lumière, and Chicandard and Seyewetz, that alum or an acid, when mixed with hypo, gives rise to the continuous evolution of sulphurous acid, sulphuretted hydrogen, and the precipitation of sulphur with the absolute certainty of sulphurisation of the silver image.

The practical worker has proved that combined baths containing alum not only gives better tones and greater regularity, but the prints thus treated have stood for years without showing any change. The advantage of the use of alum, too, in hot weather is obvious.

MM. Lumière and Seyewetz have examined this question again, and



point out that the tanning action of combined baths containing alum is practically nil, if the baths are made with boiling water, as is usually recommended, because nearly the whole of the alumina is precipitated. Probably as the natural corollary of their researches mentioned above, they now find that the commercial solution of sodium bisulphite entirely prevents any decomposition of the hypo in the combined bath by alum, and suggest the following formula:—

Hypo .....	5 ozs.
Sodium bisulphite lye .....	100 minims.
Lead acetate .....	20 grains.
Alum .....	400 grains.
Gold chloride .....	6 grs.
Water .....	20 ozs.

The authors find that ordinary alum is superior to chrome alum; paper treated with the above bath tones very little slower than with the ordinary bath, blisters are entirely avoided, and the gelatine will stand a temperature of 176 dg. Fahr. without melting.

### Testing Old Toning Baths.

Karl Worel, of Graz, calls attention to a very simple method of testing old toning baths for gold and platinum, which may possibly be

useful. It has been worked out by Donau at the technical High School at Graz. A small loop is made at the end of a short length of platinum wire and heated to redness in a spirit flame, and then dipped in pure borax powder; some of the borax will adhere, and if the wire is heated in the spirit flame it will melt and form the well-known bead. If the bead be touched with an old toning bath containing gold, and again heated a rich ruby red, colour will be imparted to the bead, and so sensitive is this test that it will prove the presence of 0.000025 mg. of gold. Platinum gives a fawn colour by transmitted light, and the bead when looked at is milky, and 0.00005 mg. of platinum can be detected in this way. Alkalies have no effect on the reaction, and only very large quantities of salt cause the colouration to turn violet. Acetates, sulphocyanides, hyposulphites, and phosphates are also without action, and it is only very large quantities of silver that prove troublesome, and this should be precipitated first. The bead must not be heated too long after touching it with the solutions, otherwise the red gold colouration turns blue, then greenish-blue, and then colourless. If large quantities of gold are present and the bead is heated for some time it becomes liver colour by reflected, and blue by transmitted light.

## COLOUR-PRINTING IN ENGLAND AND ABROAD.

### A REPLY TO MR. TILNEY.

MR. TILNEY is always readable, but I am afraid he has allowed fairness to be sacrificed to liveliness in his article on the colour prints at Earl's Court. While, of course, it is well to realise our own shortcomings, I do not think his wholesale castigation of the native engraver entirely deserved, as from my own observation I feel sure the Continental work does not surpass, or even equal, our own efforts, if *speed of delivery* is considered together with quality.

If Mr. Tilney implies that no English engraving work goes abroad he is not quite right, for this has gone over to France. One English firm has a branch in Paris, two others have an agency there, and do a considerable amount of business, while another firm is about to open an establishment for making colour blocks in Paris. It is true that this is not Germany; but all that Mr. Tilney says has been said many times before about France. The colour department of two of the largest colour firms—one in Germany, and the other in Austria—are managed by men whose experience has been largely gained in English or American works respectively.

It is quite true that competent art direction is desirable in photo-engraving, but my experience is that artists generally expressly dissociate themselves from anything connected with photography, to say nothing of photo-mechanical work, which possesses no interest to them except as a target for abuse.

Moreover, I do not think it is art directorships that enable the Continental firms to turn out satisfactory colour work; it is due to the longer time they can spend patiently fine-etching, a time which owing to the speed at which we work in England, cannot be afforded. This rush certainly tends to deteriorate the appreciation of fine work, and lessens finally, perhaps, the capacity to execute it. However, the customer is quite as much to blame as the engraver for this. I have been over the works of three of the four firms mentioned by Mr. Tilney, and if the finished work was excellent, the first colour proofs were quite as bad as I have seen anywhere. To correct these plates does not require so much an artist as a craftsman, who can appreciate a colour match (like a woman always can, without being in any sense an artist) and who knows his materials thoroughly, so that he can accurately imitate the copy before him. The artist, I fancy, would be apt to prefer pleasing colour, even if not quite like the original, or even to suggest improvements; in fact, it is difficult to imagine anyone of real artistic power remaining a copyist, or even a supervisor of the copying of the mass of rubbishy originals at present reproduced in three-colour.

Mr. Tilney is right in recognising the merit of showing original and reproduction together; but he is in error in supposing that English firms shrink from this ordeal. If he had been to the recent Printing and Stationery Trades' Exhibition, at the Agricultural Hall, where the best English three-colour firms were exhibiting, he would have seen numerous exhibits of original and reproduction side

by side, as was the case at the former exhibition two years ago and also at the exhibition at South Kensington.

I take exception, too, to Mr. Tilney's assertion that the original is never delivered with the reproduction. I have been in the trade for many years, and, except by accident, or reasons of inconvenience of size or value, I have never known a reproduction to be sent home without the original, unless by the request of the customer.

Mr. Tilney says that the colour-plates in the "Studio" are printed in Vienna. The blocks are made there, it is true, but the printing is done by a well-known English firm. By the way, if my memory serves me correctly, there was a time when the black-and-white blocks for this publication were made abroad; now they are made in England. It is possible the same thing will happen with colour work. Then Mr. Tilney presumes incorrectly regarding the Unie process being the same as the "nature" grain of Messrs. Dawson, the former makes use of the light-sensitive properties of bitumen, while the latter was a swelled gelatine process. A large English firm bought the Unie process, but, although getting excellent results, has had to discard it, I believe, in favour of quicker methods.

"Four-colour is not worked in this country to any extent, although the examples of it are common enough," says Mr. Tilney, so that apparently the "common enough" fourth colour gets the work without our native engravers knowing it. Surely Mr. Tilney has seen the recent "Vanity Fair" cartoons, which are native typographical colour work not "passing for three-colour."

It is difficult to follow Mr. Tilney, when he first sneers at the efforts to improve the process on the mechanical side (which is what "theory" aims at doing) and at the same time blames the block makers because so much fine-etching is necessary. Does he think that Germans are not experimenting with filters as well as using the "art" direction, because, if so, he is mistaken; though I can assure him they are still doing more fine-etching than we are in England, and, if their results excel, it is due to nothing else but the patient care with which this part of the work is executed. First-class work of any kind cannot be done except at the cost of time; even if journalists would probably improve their matter, without necessarily hurting their playful style, if they took the time to verify their assertions. But our English habit is, unfortunately, not to allow this consideration to weigh when native engraving is concerned; while a customer sending work abroad is willing to wait a sufficient time to give opportunity to have the work done carefully and agree to the number of printings the foreign block maker considers necessary, here the work is generally restricted to three printings and must be delivered in an extremely short time. To an employee, especially a limited company, having no particular interest in the work, except as a means of money-making, this is not unsatisfactory, as the more work turned out in a given time the greater the profit.

Mr. Tilney concludes with fine sarcasm at the expense of the English fine-etcher, referring to the menial duties the apprentice may be called to perform in commencing his career. How, then, does he suppose the German fine-etcher commences his career? Is the capacity of fine-etching fully developed in him before he enters the workshop? Every one may not be capable of becoming a fine-etcher, but the average English fine-etcher of the same experience is just as capable of doing good work as the German, if allowed sufficient time, which would be less than the German would require. I have known a fine-etcher threatened with dismissal unless he could turn out more work, although it was known that with greater speed quality must be sacrificed. I daresay the German has the better temperament for the work of all kinds, including colour reproduction. He is better disciplined, and so quiet that I have seen fifty litho artists at work in a German house and one could hear a pin drop in the room. He is more steady of work than the Englishman, who looks upon his work as a necessary evil, from which he is not sorry to escape in order to partake in some form of sport. This applies to employer as well as to employed, and, carried to excess, is bad. On the other hand,

the nation may be considerably better for this love of exercise; it may explain, for example, why our illegitimacy rate is lower than that of Germany.

Another fact is that the big Continental houses have been making a feature of colour blocks longer than we have; they have, therefore, longer-experienced men, they are generally better equipped as regards apparatus, and especially as regards space. Three-colour in England is rather a recent boom, and at present anyone who can show any sort of pretence at competency is certain of employment. So difficult is it to obtain men that one firm has a standing advertisement offering employment to colour etchers. It is not only necessary to be willing to pay for brains, as Mr. Tilney suggests, there must be a supply available. Unfortunately, fine-etchers have to be made as well as born.

I do not give any names, as it would look like advertising the particular firms mentioned, nor do I wish to blow my own individual trumpet, but I am willing to meet Mr. Tilney if he desires to have further evidence of my statements.

PHOTO-ENGRAVER.

## WORKING-UP PLATINOTYPE PORTRAITS.

The following notes on a special branch of work appear in a recent issue of "Wilson's Magazine," under the name of Miss M. P. Bell, a lady who has written a good deal in the American magazines on the methods of working-up prints.

In these days, when so much of the professional photographer's work is printed in platinotype, it is essential to know how to finish portraits made by this process, for there is no denying the fact that they need to be very carefully worked-up if they are to present a finished appearance possessed by a good silver print from a well-etched negative. Mere spotting is certainly insufficient. There is a roughness in the texture of the image on the platinotype paper that needs pulling together. Careful handling is necessitated by the moisture-absorbing quality of the paper. One must know, too, how much colour to put into one's brush for the effect desired, and a false touch of colour, once put on, cannot be got off again. When once the requisite lightness and firmness of touch has been obtained, however, platinotype paper offers a delightful medium for touch work, and a well-finished platinotype print is (most pleasing to the eye.

The beginner should take up a few waste prints for his early practice. A few black specks may be noticed here and there on the print. These must be lifted out bodily with a knife. A small scalpel or the best knife for this purpose, with its rounded blade and pointed end. Practice in its use will bring skill, and the specks can be easily moved without a mark on the print. Unless they are taken out, they will entirely spoil the effect in the portrait.

When a too heavy touch of colour has been put on, it may be reduced in intensity by quickly applying a brush that has been washed out in clean water. This must be done with scrupulous care, or the surface of the paper, being soft, will rub up, which will be fatal to the print, as it is almost impossible to get it smooth and even again.

The roughness of the paper also necessitates care to see that the colour is so laid on that it appears right whichever way the print is held to the light. It will, of course, look best when the print is viewed in the same light-direction in which the work was done, but the finisher should turn the print round as he works, and view the work from both sides—i.e., lighted from left and right—as the work proceeds.

We will begin with an ordinary vignette photograph that has just come from the mounting-room; but, first of all, let it be dry. Have your colours ready: lampblack and sepia, water, a No. 2 sable brush for the eyes and fine parts of the face, and one or two larger brushes for the broader effects of dress and background. Have also two or three compartments in your palette—a china one—for colour of various thicknesses, or two or three little saucers.

Look at the tone of your print; if it is a black tone, the lampblack by itself will probably match it; but if it is of a warmer tone, slightly inclining to brown, it will be necessary to mix with the black a little sepia. See that the colour, when mixed, is exactly

the tone of the print; I have seen photographs that have been finished with a colour that did not match, and the effect was execrable.

I have always found it well to begin with the eyes, after doing the usual spotting, for spots distract one's attention; the eyes speak out the mind and character of the person plainly, but, because they are so important, they have to be done with the greatest care. Do not try to alter them unless you understand the principles of drawing. Observe where the pupil comes. The pupil and shadows of an eye often come out too faint in a platinotype, and need strengthening; but it must be done lovingly—not to put a black patch of colour in the middle and a black line round with a strong black line for eyelashes, as is so often done in cheap work, but to put the colour in with care and judgment, so as to bring out the beauty of the eye and not make it look like a staring doll's eye. The eyelashes may also be strengthened, but also with care; the eyebrows and any inequalities of lighting can be blended. This is where the pulling together comes in: a strong light here, which catches the eye too much and must be toned down, or a little shading in of the neck there, bringing all into harmony.

The hair, also, often needs attention. In the case of ladies, perhaps the fringe has got an awkward break in it which needs to be filled up, and some shadows may require to be strengthened, or high-lights toned down. Especially is it necessary to touch up the hair in cases where it is turning grey or is quite white. Grey hair always photographs whiter than it is, and people are often sensitive about their hair getting grey, so this must always receive special attention. It must be darkened in all the shadows, and carefully shaded in all the high-lights. I have never known a case yet where this was not necessary.

Having finished the face, you must now take the dress. In white dresses a good deal will be found necessary to do: shadows to be strengthened, and other shadows, perhaps, to put in where detail is wanting. A great deal can be done in this way to improve a photograph and make a pleasing picture, especially in evening dresses, where filmy lace or chiffon seem to compose the bodice. The neck, of course, you have already done.

Now we come to the background, and this is a very important part of the picture. There are two ways in which a background can be put in. One is: have some black chalk and white chalk scraped to a fine powder, also a little sepia chalk to tone the mixture to the colour of the picture, and with a pad of cotton-wool rub the colour into the background, with a circular motion, until the desired tint is obtained. Care must be taken to have no grit in the powder. Now, with a piece of pointed india-rubber, trim off the edges either with a suggestion of leaves or a cloudy effect. There is room for much fancy in this method; it is a quick and ready way of putting in background, and is very effective. The amount of background must, of course, be regulated by the kind of picture it is, and how much is required to throw up the head and shoulders sufficiently in relief.



# PHYSICAL CHARACTERISTICS OF RELIEF ENGRAVINGS, ESPECIALLY RELATING TO HALF-TONES.

THE following is the continuation of the article from the "Inland Printer," by Mr. N. S. Amstutz, the last instalment of which printed last week. The author there referred to certain tables which accompany the present text, considerations of space having compelled their withdrawal at the last moment from last week's JOURNAL. For the same reason one or two of the illustrations referred to in the enclosed text must be held over until the next issue.

TABLE G.—Giving pitches, unit areas and "covering" dots for various lines per inch.

KINDS OF DATA.	Lines per inch for Tables G and H.					
	50	65	85	100	110	120
Screen pitches .....	.02000 in.	.01533 in.	.01176 in.	.01000 in.	.00910 in.	.00833 in.
Diagonal pitches .....	.02850 in.	.02175 in.	.01663 in.	.01413 in.	.01287 in.	.01178 in.
Unit Areas .....	4000.0 sq. in.	2365.4 sq. in.	1380.6 sq. in.	1000.0 sq. in.	828.0 sq. in.	693.9 sq. in.
Diam. of "Covering" dots .....	.02850 in.	.02175 in.	.01663 in.	.01413 in.	.01287 in.	.01178 in.

TABLE H.—Giving percentages, clear spaces and dot data for above listed lines per inch.

Dot Diameters.	Dot Areas.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.
.0010 in.	7.85	.196	.0273	.33	.02075	.57	.01563	.79	.01313	.95	.01187	1.13	.010	.00833	.007
.0015	17.67	.44	.0268	.75	.02025	1.28	.01513	1.77	.01263	2.13	.01147	2.55	.010	.00833	.007
.0020	31.42	.79	.0263	1.33	.01975	2.27	.01463	3.14	.01213	3.79	.01087	4.57	.010	.00833	.007
.0025	45.09	1.23	.0258	2.07	.01925	3.55	.01413	4.91	.01163	5.92	.01037	7.07	.010	.00833	.007
.0030	58.84	1.76	.0253	2.98	.01875	5.12	.01363	7.07	.01113	8.53	.00987	10.20	.010	.00833	.007
.0035	72.59	2.41	.0248	4.07	.01825	6.97	.01313	9.63	.01063	11.62	.00937	13.58	.010	.00833	.007
.0040	86.34	3.14	.0243	5.31	.01775	9.10	.01263	12.57	.01013	15.18	.00887	18.13	.010	.00833	.007
.0045	100.09	3.98	.0238	6.72	.01725	11.52	.01213	15.90	.00963	19.20	.00837	22.35	.010	.00833	.007
.0050	113.84	4.90	.0233	8.30	.01675	14.20	.01163	19.64	.00913	23.70	.00787	28.30	.010	.00833	.007
.0055	127.59	5.93	.0228	10.02	.01625	17.20	.01113	23.76	.00863	28.69	.00737	34.20	.010	.00833	.007
.0060	141.34	7.06	.0223	11.94	.01575	20.45	.01063	28.27	.00813	34.15	.00687	40.78	.010	.00833	.007
.0065	155.09	8.28	.0218	14.03	.01525	24.0	.01013	33.18	.00763	40.65	.00637	47.80	.010	.00833	.007
.0070	168.84	9.62	.0213	16.28	.01475	27.55	.00963	38.49	.00713	46.45	.00587	55.50	.010	.00833	.007
.0075	182.59	11.05	.0208	18.68	.01425	32.0	.00913	44.18	.00663	53.30	.00537	63.70	.010	.00833	.007
.0080	196.34	12.56	.0203	21.25	.01375	36.4	.00863	50.27	.00613	61.0	.00487	72.50	.010	.00833	.007
.00833a	544.96	14.18	.0198	23.98	.01325	41.1	.00813	56.75	.00563	68.5	.00437	85.0	.010	.00833	.007
.0085	567.45	15.92	.0193	26.89	.01275	46.1	.00763	63.62	.00513	76.9	.00387	92.0	.010	.00833	.007
.0090	636.17	17.73	.0188	29.90	.01225	51.3	.00713	70.85	.00463	85.0	.00337	102.0	.010	.00833	.007
.0091a	650.04	19.64	.0183	33.20	.01175	56.8	.00663	78.54a	.00413	95.0	.00287	113.0	.010	.00833	.007
.0095	708.82	21.65	.0178	36.58	.01125	62.6	.00613	86.0	.00363	105.0	.00237	125.0	.010	.00833	.007
.0100	785.41	23.79	.0173	40.18	.01075	68.9	.00563	94.0	.00313	115.0	.00187	137.0	.010	.00833	.007
.0105	865.90	25.95	.0168	43.90	.01025	75.1	.00513	104.0	.00263	125.0	.00137	150.0	.010	.00833	.007
.0110	950.33	28.3	.0163	47.75	.00975	82.0	.00463	113.0	.00213	137.0	.00087	165.0	.010	.00833	.007
.0115	1038.69	30.7	.0158	51.83	.00925	90.0	.00413	123.0	.00163	145.0	.00037	180.0	.010	.00833	.007
.01176a	1086.20	33.2	.0153	56.10	.00875	96.0	.00363	133.0	.00113	156.0	.00000		.010	.00833	.007
b .01178	1089.69	35.8	.0148	60.50	.00825	104.0	.00313	143.0	.00063	165.0			.010	.00833	.007
.0120	1130.97	38.45	.0143	65.00	.00775	112.0	.00263	154.0	.00013	175.0			.010	.00833	.007
b .01237	1230.92	41.3	.0138	69.80	.00725	120.0	.00213	165.0					.010	.00833	.007
.0130	1327.32	44.15	.0133	74.62	.00675	128.0	.00163	175.0					.010	.00833	.007
.0135	1431.14	47.15	.0128	79.5a	.00625	137.0							.010	.00833	.007
.0140	1539.88	50.1	.0123	84.5	.00575	146.0	.00063						.010	.00833	.007
b .01413	1568.11	53.45	.0118	89.0	.00525	155.0	.00013						.010	.00833	.007
.0145	1681.30	56.7	.0113	96.0	.00475	165.0	.00000						.010	.00833	.007
.0150	1767.15	60.15	.0108	102.0	.00425	175.0							.010	.00833	.007
b .01533a	1867.81	63.4	.0103	108.0	.00375	185.0							.010	.00833	.007
.0155	1888.92	67.2	.0098	114.0	.00325	195.0							.010	.00833	.007
.0160	2010.62	70.9	.0093	120.0	.00275	205.0							.010	.00833	.007
.0165	2138.25	74.6	.0088	126.0	.00225	215.0							.010	.00833	.007
b .01663	2172.08	78.5a	.0083	132.0	.00175	225.0							.010	.00833	.007
.0170	2269.50	83.0	.0078	140.0	.00125	235.0							.010	.00833	.007
.0175	2405.58	87.0	.0073	146.0	.00075	245.0							.010	.00833	.007
.0180	2544.69	91.0	.0068	154.0	.00025	255.0							.010	.00833	.007
.0185	2688.03	95.0	.0063	165.0	.00000								.010	.00833	.007
.0190	2835.29	99.0	.0058	175.0									.010	.00833	.007
.0195	2986.48	103.0	.0053	185.0									.010	.00833	.007
b .0200a	3141.59	107.0	.0048	195.0									.010	.00833	.007
.0205	3300.84	111.0	.0043	205.0									.010	.00833	.007
.0210	3463.61	115.0	.0038	215.0									.010	.00833	.007
.0215	3630.50	119.0	.0033	225.0									.010	.00833	.007
.02175	3715.44	123.0	.0028	235.0									.010	.00833	.007
.0220	3801.33	128.0	.0023	245.0									.010	.00833	.007
.0225	3978.08	131.0	.0018	255.0									.010	.00833	.007
.0230	4151.76	135.0	.0013	265.0									.010	.00833	.007
.0235	4337.36	139.0	.0008	275.0									.010	.00833	.007
.0240	4523.89	143.0	.0003	285.0									.010	.00833	.007
.0245	4714.35	147.0	.0000	295.0									.010	.00833	.007
.0250	4908.74	151.0		305.0									.010	.00833	.007
.0255	5107.05	155.0		315.0									.010	.00833	.007
.0260	5309.29	159.0		325.0									.010	.00833	.007
.0265	5515.46	163.0		335.0									.010	.00833	.007
.0270	5725.55	167.0		345.0									.010	.00833	.007
.0275	5939.57	171.0		355.0									.010	.00833	.007
.0280	6157.52	175.0		365.0									.010	.00833	.007
b .02833	6390.18	179.0		375.0									.010	.00833	.007

\* = CLEAR SPACES OF BLACK DOTS ONLY. CLEAR SPACES OF WHITE DOTS are the same as the dot diameters.

a = Region of "Three-quarter" white, or birth of Crescent dots.

b = Diameters of "Covering" dots.

The illustrated definitions of the names used, shown in Fig. 18, do not show square, diamond or elliptical shaped dots, which are produced by special diaphragms.

The percentages above the "a" region are only approximate. The values are dissipated in "overlapping" and the HIGHEST values indicate the whole area of the overlapping effect, to the extent that they exceed 100.

TABLE I.—Showing relation of clear spaces to depth or printing quality.

Depths.	CLEAR SPACES.																			
	.001 in.	.002 in.	.003 in.	.004 in.	.005 in.	.006 in.	.007 in.	.008 in.	.009 in.	.010 in.	.011 in.	.012 in.	.013 in.	.014 in.	.015 in.	.016 in.	.017 in.	.018 in.	.019 in.	.020 in.
.0005 in.	.50	.25	.16	.125	.100	.083	.071	.063	.055	.050	.045	.042	.038	.036	.033	.031	.029	.028	.026	.025
.0010	1.0	.50	.33	.25	.20	.17	.14	.13	.11	.100	.09	.08	.077	.071	.067	.063	.059	.056	.053	.050
.0015	1.5	.75	.50	.38	.30	.25	.21	.18	.17	.15	.14	.13	.12	.11	.100	.094	.088	.083	.079	.075
.0020	2.0	1.00	.66	.50	.40	.33	.29	.25	.22	.20	.18	.17	.15	.14	.13	.125	.12	.110	.105	.100
.0025	2.5	1.15	.83	.63	.50	.42	.36	.31	.28	.25	.23	.21	.19	.18	.17	.16	.15	.14	.13	.125
.0030	3.0	1.50	1.00	.75	.60	.50	.43	.38	.33	.30	.27	.25	.23	.21	.20	.19	.18	.17	.16	.15
.0035	3.5	1.75	1.38	.81	.70	.53	.50	.44	.39	.36	.32	.29	.27	.25	.23	.22	.21	.19	.18	.17
.0040	4.0	2.00	1.33	1.00	.80	.67	.57	.50	.44	.40	.36	.33	.31	.29	.27	.25	.24	.22	.21	.20
.0045	4.5	2.25	1.50	1.10	.90	.75	.64	.56	.50	.45	.41	.38	.35	.32	.30	.28	.26	.25	.24	.23
.0050	5.0	2.50	1.66	1.25	1.00	.83	.72	.63	.55	.50	.45	.42	.38	.36	.33	.31	.29	.28	.26	.25
.0055	5.5	2.75	1.93	1.38	1.10	.93	.79	.68	.61	.55	.50	.46	.42	.39	.37	.34	.32	.31	.29	.28
.0060	6.0	3.00	2.00	1.50	1.20	1.00	.86	.75	.67	.60	.55	.50	.46	.43	.40	.38	.35	.33	.32	.30
.0065	6.5	3.25	2.16	1.60	1.30	1.08	.93	.81	.72	.65	.59	.54	.50	.46	.43	.41	.38	.36	.34	.33
.0070	7.0	3.50	2.33	1.75	1.40	1.11	1.00	.88	.78	.70	.64	.58	.54	.50	.47	.44	.41	.39	.37	.35
.0075	7.5	3.75	2.50	1.88	1.50	1.25	1.07	.99	.89	.80	.73	.67	.63	.58	.54	.50	.47	.45	.42	.39
.0080	8.0	4.00	2.66	2.00	1.60	1.33	1.14	1.00	.93	.85	.77	.71	.65	.61	.56	.53	.50	.47	.45	.43
.0085	8.5	4.25	2.83	2.13	1.70	1.42	1.21	1.06	.95	.85	.77	.71	.65	.61	.56	.53	.50	.47	.45	.43
.0090	9.0	4.50	3.00	2.25	1.80	1.50	1.28	1.12	1.00	.90	.82	.75	.69	.64	.60	.56	.53	.50	.47	.45
.0095	9.5	4.75	3.16	2.38	1.90	1.58	1.35	1.17	1.06	.95	.86	.79	.73	.68	.63	.59	.56	.53	.50	.48
.0100	10.0	5.00	3.33	2.50	2.00	1.67	1.43	1.25	1.11	1.00	.91	.83	.77	.71	.67	.63	.59	.55	.53	.50

TABLE J.—Showing Etching Rates of Figures 9, 10 and 11, and Table F at 110 lines per Inch.

FOR SMALLEST BLACK (●) DOTS OF "WHITES."					
DATA	"Enamel."	10 Minutes.	20 Minutes.	40 Minutes.	
Diameter	.0042 in.	.0025 in.	.0020 in.	.0014 in.	
Reduction of diameter		.0017 in.	.0012 in.	.0008 in.	
Rate per minute		.000085 in.	.000065 in.	.000035 in.	
Measured depth		.0017 in.	.0011 in.	.0006 in.	
Estimated depth		.00085 in.		.0014 in.	
FOR WHITE (○) DOTS OF GRAYS.					
Diameter	.0075 in.	.0057 in.	.0034 in.*	.0100 in.*	
Increase of diameter		.0012 in.	.0019 in.	.0026 in.	
Rate per minute		.00006 in.	.000048 in.	.000031 in.	
Measured depth		.0012 in.	.0006 in.	.0002 in.	
Estimated depth		.0006 in.	.00096 in.	.00124 in.	
FOR SMALLEST WHITE (○) DOTS OF SHADOWS.					
Diameter	.0026 in.	.0028 in.	.0046 in.	.0063 in.	
Increase of diameter		.0012 in.	.0020 in.	.0027 in.	
Rate per minute		.00006 in.	.00005 in.	.000034 in.	
Measured depth		.0008 in.	.0013 in.	.0017 in.	
Estimated depth		.0006 in.	.0010 in.	.00128 in.	

\* Modified by "crescent" shaped black dots which originate at the time the white dots have been increased to a diameter that is equal to the screen pitch; in this case, at 110 lines, to .0091 inch.

TABLE K.—Data of Special Test Engravings, Figures 21, 22 and 23, for Depths, Diameters and Printing Quality, at Different Lines per Inch, Under Ordinary Etching Conditions.

KINDS OF DATA.	LINES PER INCH.								
	65 lines.			110 lines.			150 lines.		
	"Whites"	Grays	Shadows	"Whites"	Grays	Shadows	"Whites"	Grays	Shadows
	●	○	○	●	○	○	●	○	○
Diameter†	.0026 in.	.0119 in.	.0058 in.	.0018 in.	.0090 in.	.0050 in.	.0013 in.	.0065 in.	.0026 in.
Areas, 0 or ●	53.99 ●	1112.21	264.21	25.46 ●	636.17	196.35	13.27 ●	331.83	53.99
Per cent. white	97.76	47.	11.18	96.92	76.9	23.7	97.02	74.9	11.57
Per cent. black	2.24	53.	88.82	3.08	2.31	76.3	2.98	25.1	88.03
Measured depth†	.0038 in.	.0027 in.	.0020 in.	.0030 in.	.0026 in.	.0018 in.	.0020 in.	.0017 in.	.0012 in.
Clear spaces*	.0192 in.	.0119 in.	.0058 in.	.0111 in.	.0090 in.	.0050 in.	.0081 in.	.0065 in.	.0026 in.
Printing quality	.198	.267	.290	.270	.289	.360	.247	.261	.461 in.
Screen pitches	0.1538 in.			.00910 in.			.00666 in.		
Diagonal pitches	.02175 in.			.01287 in.			.00942 in.		
Unit areas	2365.4 sq. in.			828.0 sq. in.			443.5 sq. in.		
"Covering" dots	.02175 in. diam.			.01287 in. diam.			.00942 in. diam.		

\* Clear spaces of white dots are of the same dimensions as their dot diameters.  
● = Smallest black dots in "whites." ○ = White dots in grays. ○ = Smallest white dots in shadows.  
† Values verified with Bausch & Lomb Optical Co.'s D88 Microscope, under a magnification of 87 diameters, with a 5 objective and a 1-inch ocular. The depth values given are the mean of ten separate readings from different portions of the "whites," grays and shadows.



TABLE G.—Giving pitches, unit areas and "covering" dots for various lines per inch—Continued.

KINDS OF DATA.	Lines per inch for Tables G and H.					
	133	150	175	200	250	300
Screen pitches.....	.00732 in.	.00666 in.	.00571 in.	.00500 in.	.00400 in.	.00333 in.
Diagonal pitches.....	.01064 in.	.00942 in.	.00808 in.	.00707 in.	.00565 in.	.00471 in.
Unit areas.....	565.5 sq. in.	443.5 sq. in.	326.0 sq. in.	250.0 sq. in.	160.0 sq. in.	110.9 sq. in.
Diam. of "Covering" dots.....	.01064 in.	.00942 in.	.00808 in.	.00707 in.	.00565 in.	.00471 in.

TABLE H.—Giving percentages, clear spaces and dot data for above lines per inch—Continued.

Dot Diameters.	Dot Areas.	Dot Per cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.	Dot Per Cent.	Clear* Spaces.
.0010 in.	7.85	1.39	.00964	1.77	.00842	2.4	.00708	3.14	.00607	4.91	.00465	7.8	.00333
.0015	17.67	3.13	.00814	3.98	.00792	5.42	.00658	7.07	.00557	11.94	.00415	15.93	.00333
.0020	31.42	5.56	.00684	7.08	.00742	9.65	.00608	12.56	.00507	19.63	.00365	28.32	.00266
.0025	49.09	8.65	.00614	11.06	.00692	15.09	.00558	19.62	.00457	36.8	.00315	44.25	.00222
.0030	70.69	12.52	.00764	15.95	.00642	21.7	.00604	28.26	.00407	44.2	.00265	68.7	.00166
.0033a	85.53											77.1a	.00101
.0035	96.21			21.7	.00592	22.52	.00458	38.5	.00357	60.1	.00215	87.	.00077
.0040a	125.66	22.25	.00664	28.32	.00542	38.55	.00408	50.15	.00307	78.5a	.00165	113.	.00060
.0045	159.04	28.15	.00614	35.7	.00492	48.8	.00358	63.6	.00257	96.	.00115	144.	.00040
b. .00472	174.97												
.0050a	196.35	34.75	.00564	44.25	.00442	60.2	.00308	78.5a	.00207	128	.00065	157.	.00033
b. .00565	257.53	41.8	.00314	53.6	.00392	72.9	.00258	95.	.00157	149.	.00015		
.00571a	256.07					78.6a	.00237						
.0060	282.74	50.0	.00464	63.7	.00342	86.	.00208	113.	.00107				
.0065	331.83	58.65	.00414	74.7	.00292	102.	.00158	133.	.00057				
.00686a	349.57			78.5a	.00276								
.0070	384.55	68.05	.00364	87.	.00242	118.	.00108	154.	.00007				
b. .00707	392.58					136.	.00058	157.	.00000				
.0075	441.79	78.18	.00314	99.	.00192								
.00752a	444.15			78.9a	.00312								
.0080	502.66	89.9	.00264	113.	.00142	154.	.00008						
b. .00808	512.76					157.	.00009						
.0085	567.45	100.	.00214	127.	.00092								
.0090	636.17	113.	.00164	144.	.00042								
b. .00942	696.93			157.	.00000								
.0095	708.82	125.	.00114										
.0100	785.41	138.	.00064										
.0105	865.9	153.	.00014										
b. .01064	889.16	157.	.00000										

\* = Clear spaces of black dots only. White-dot clear spaces are the same as the dot diameters.

a = Region of "Three-quarter" whites, or birth of "Crescent" dots.

b = Diameters of "Covering" dots.

Fig. 20 is based on similar data, but in measured values from Table F.

Figs. 21, 22, 23, are three special test engravings at 65, 110, and 150 lines per inch, in order to determine therefrom the depth values of Table K, at 110 times, the black dot (●) depths, in terms of 1.200 millimeter, at a magnification of .87 diameters, with a series of ten readings gave 15, 14.5, 14, 14, 15, 14.5, 18, 16.5, 17.5, and 14.5, or a mean of 15.35. These are standard etches, and the depth is given as an exemplification of ordinary practice from which to judge the interrelation between various lines per inch, the dots and depths.

It might be said "let well enough alone," but no trial by error process is "well enough," and many failures and anxious moments could be avoided by an intelligent inspection of dot diameters in etching and the use of properly graded stops in the camera. It goes without saying that the degrees Baumé of the acid, as well as its temperature, are vital, and should be noted by the careful etcher.

Messrs. J. A. C. Branfill and William Gamble, of London, have given the relation of stop size and shape to screen distance exhaustive treatment, so that this phase of the subject is only touched on in passing.

It is interesting to note the etching rate of Fig. 2, in comparison with those of Figs. 9, 10, and 11, as disclosed by the curves on Fig. 24, especially the difference in rate between the (o) and (●) dots. This figure, with the gray values omitted, is self-explanatory. Table J gives the data of Table F from which Fig. 24 was drawn, the other data are found in Table A.

MESSRS. HUTCHINSON AND CO. are bringing out a complete natural history, illustrated entirely by the best available photographs. The text will be written in a popular style by such good naturalists as Dr. Lydekker, Dr. Boodle Sharp, and Sir Herbert Maxwell. The first part of "The Living Animals of the World," as the book will be called, has just been issued. There will be twenty-four parts in all, published at 7d. each, and including 1,200 illustrations, with twenty-five coloured plates.

When the white dots (o) are under consideration, the printing quality (14 of Fig. 18) values given in Table I are for ideal conditions. The unit "I" is taken as indicating when the clear space are the same as the depth. This value, if the ink transference from the rollers to the printing face was theoretically perfect, would continue to represent printing quality, even though the dimensions were much reduced below those ordinarily considered as having reached the practical limits of minuteness.

Theoretical printing quality values require a modification, which may be termed the press constant, which will vary with the ink, hygroscopic, temperature, and paper conditions. The values given in Table K show a better printing quality for the white dots than for the black ones (●), because the depth, in proportion to clear space, is greater in the case of the former than the latter; this explains why the white dots (o) will persist in printing in background, etc., when the customer may want a dead black, which cannot, however, be attained in proper harmony without remaking the engraving or burnishing down the size and depth of the undesired dots.

If the printing quality of the white dots (o) was not better than that of the black ones (●) the minuteness of their dimensions would certainly not admit of any printing value at all. When one deals with diameters of .0026 inch and depths of only .0012 inch at the points where the largest masses of ink are dealt with, the results are little short of marvellous, and the engraving and allied printing arts take on all the features of precision engineering.

N. S. AMSTUTZ.

It is announced that Dr. R. A. Reiss has been appointed Extraordinary Professor of Scientific Photography in the University of Lausanne. Another sign of the tendency on the Continent to provide instruction in the principles of photography from the scientific standpoint is the appointment of Dr. W. Scheffer, of the staff of the C. P. Goerz Optical Works, to deliver a course of lectures on applied scientific photography in the Berlin University during the summer season.

## COUPON FRAUDS.

Coupon fraud has been worked recently in the suburbs bordering Epping Forest. The methods adopted are those which have been used in our columns more than once. The alleged agent of a photographer calls at a house and explains that on payment of a small sum a coupon can be had which will entitle the purchaser to sitting at a nominal sum in a studio in the neighbourhood. The coupon represents the canvasser's headquarters as at a distance, and when the purchaser visits the studio in his vicinity he finds that the photographer indignantly denies any knowledge of his self-styled representative, of whom no more is seen. This stereotyped and is constantly reviving, the latest exponent of it being a man who, as a correspondent writes us, was recently prosecuting his business in the Eastern suburbs of London. Our correspondent writes:—

For some time past a man has been calling upon residents in Epping Forest and neighbourhood selling coupons bearing the name of a photographer in Bond Street, W., with whom I am quite acquainted, and stating that firm to have purchased my business, and that they are supplying pictures at ridiculously low prices. In many cases persons have unfortunately believed the story and parted with their money, and they have been told to call at my studio on main Sunday afternoons. My premises are, of course, always closed on Sundays, and when they have called and found this to be the case they have begun to understand that something was wrong. Naturally, such a state of affairs has caused me considerable annoyance, and is damaging to my business, as, of course, I should not think of issuing coupons. The police have had the matter in hand some time, but have not succeeded as yet in catching the party. Enquiries made at the firm whose name appears on the coupon show that such coupons are honoured at that establishment, and that they give books of coupons to any one who likes to ask for them without giving their name and address. I might mention, however, that I wrote twice to the firm in question laying the matter before them and they did not answer my letters, copies of which are in my book. It occurs to me that the man may have made use of photographers' names in other districts in a similar way, and if you would make the matter known among your readers it might lead to a solution of the matter. Of course, the object in making use of a local name is the difficulty he would find in selling coupons for sittings at an establishment ten miles or so away. The man is described as dark, clean-shaven, middle height, dressed in blue serge suit, and having a usual plausible manner.

The "Daily Mail," in a recent issue, gave the following account of the canvassing frauds:—

"Two 'well-dressed and gentlemanly' men appear to have made some progress with a photographic coupon swindle. Calling on people in the suburbs, they present a photograph coupon order for 6s. 6d., purporting to be issued by 'Lintott, photographer, 118, New Bond Street, W.,' with the special inducement that the first thirty coupons will be sold for 3s. There is no 'Lintott, photographer,' at 118, New Bond Street, though, up to six weeks ago, a genuine coupon business was carried on there by a person of the name, who had previously called in his coupons. The ingenious swindlers appear to have copied the coupons, and their success can be measured by the fact that a firm of art dealers at the address given have been called upon by about sixty coupon-holders."

This account is confirmatory of that of our correspondent, and we have have ourselves ascertained that Mr. Lintott, who, until recently, was practising photography at 118, New Bond Street, was unable to renew the lease of his premises, and, on account of this fact and on that of his wife's health, has removed his business to a town on the Riveira. Possibly this fact was known to the present workers of the coupon frauds, who have taken advantage of Mr. Lintott's removal to use his name and address in this swindling business.

MOTHERWELL Young Men's Institute Camera Club. — The fifth annual exhibition of pictorial photographs will be held on November 7, 8, 9, and 10, 1906. Entries close October 25; exhibits, November 2. Prospectus and entry form will be obtainable in a few days from the secretary, Mr. Jas. Dunlop, Myrtlebank, Motherwell, N.B.

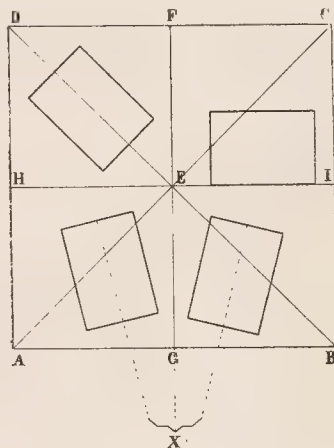
## Photo-Mechanical Notes.

## A New Photo-Mechanical Non-Photographic Colour Process.

A TITLE, such as the above, which is perhaps a contradiction of terms, must nevertheless be used to describe the process patented by Max Grünbaum, of 55, Wolfhager Strasse, Cassel, Germany. The complete specification (No. 17,638, 1905) at once disclaims any spectrographic basis of the process.

The picture is not broken up into the three colours by photographic means, but by the preparation of water colour drawings by hand by a chromolithographer having a good eye for colours. Outline proofs are prepared from the picture to be reproduced, and these are coloured by hand in water colours for the blue, red, yellow, and possibly grey plate. These three or four water colour drawings or washes are united upon a plate, as in the figure.

The arrangement of the water colour drawings upon the plate is of greatest importance. It is effected in the following manner: Upon a square plate A B C D lines are drawn through middle point E parallel with the sides of the square and connecting F (the middle of the side C D) with G (the middle of the side A B) and H (the



middle of the side A D) with J (the middle of the side B C). After this the two diagonals A C and B D are drawn. Upon this plate there is then fixed in the panel or division E J C F which has been formed the water colour drawing for the red printing block, in such a manner that its longitudinal axis runs exactly in the direction of the line E J. In the adjacent division H E F D the drawing for the blue printing block is fixed, so that its longitudinal axis runs parallel with the diagonal D E. The drawing for the yellow is arranged in the division A G E H, and if there is a drawing for grey it is arranged in the division E G B J, the two being opposite and their longitudinal axis making an angle of 20 degrees to the line E G. By this means both angles will have the same apex X.

## Line Blocks from Sepia Prints.

A recent patent (No. 2,149, 1906) of W. Graaf and Co., of 10-11, Potsdamerstrasse, Berlin, claims protection for the following process: A print is employed with white lines upon a brown background, in a similar manner as used for the preparation of ordinary positive copies. Such prints are known as sepia prints and by similar names, and they are usually obtained on papers sensitised with mixtures of nitrate of silver, citrate of iron and ammonia, tartaric acid, and gelatine. A print obtained in this manner is put upon a printing plate or a printing stone, which has been previously coated in the well-known manner with a sensitive bichromated gelatine coating, or with a coating of bichromated gum or of asphaltum, and it is then exposed to the light. After the printing process, the printing plate is developed in the well-known manner and made ready for printing.



**PHOTO-MECHANICAL PATENTS.**

The following patent has been applied for:—No. 18,183. Improvements in the production of plates for printing purposes. Sherard Osborn Cowper-Cowles, 4, South Street, Finsbury, London, E.C.

**Exhibitions.****PHOTOGRAPHS BY MR. S. L. COULTHURST AT MANCHESTER.**

On Saturday, September 8, a "one-man show," consisting of the work of Mr. S. L. Coulthurst, was opened at the rooms of the Manchester Amateur Photographic Society, 57, Market Street. The collection of pictures numbers eighty-two, and a special feature of the catalogue is that the date (of the original negative, we presume) is set down against each picture. Thus additional interest is given to the exhibition, inasmuch as it becomes a photo-biographical record of the worker as well as a record of his work.

Having examined each picture, and marked the works that made the strongest appeal to us, it is interesting to note, upon reference to the dates, that four out of eight, belong to the middle of the last decade, two to 1904, and two to 1906.

It is not a collection of Mr. Coulthurst's best work, and of that only. The preface of the catalogue invites us to view the exhibition from a particular view point. "It is intended to be representative of the author's exhibited work covering a period of fourteen years." Naturally, therefore, it contains some prints that Mr. Coulthurst would not exhibit in the ordinary way to-day. It is, however, all the more interesting biographically, and we are persuaded that such an exhibition is more instructive to the members of the M.A.P.S., for whom it is primarily prepared, than it would have been had it contained only such works as the author's present and chastened judgment would approve.

The exhibition is also interesting from the "process" point of view. Here we have represented all the usual printing processes of the period, even Ozobrome, the youngest of a large family, making a welcome appearance. As to subject matter, the show could hardly be more varied. It includes architecture, landscape, seascape, portraiture, figure work, and examples of still life.

One of the earlier pictures, "The Old Bridge," "An Essex Backwater," "An Autumn Sunset," and "When grey-ey'd morning, etc.," please us best. Among the most successful of the later ones may be mentioned "Hoar Frost and Mist" and "Freeze, freeze, etc.," two excellent winter pictures; while "The Children's Corner" is a charming representation of sunlight, white dresses, and child life, harmoniously treated. The exhibition will remain open till October 6.

**Patent News.**

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications have been made for Patents from August 27 to September 1.

**MIDGET APPARATUS.**—No. 19,383. Improvements in apparatus for miniature work. Herbert Bettesworth Page, 111, Hatton Garden, London, E.C.

**COMPLETE SPECIFICATIONS ACCEPTED.**

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**PHOTOGRAPHIC DESIGNING.**—No. 7,250. 1906. The invention is a system of designing by aid of photography. The apparatus forms an endless number of pictures different from each other, but all from the same unit design. The base plate, 1 (Fig. 6), rests on a frame, *a*, which carries a reflecting surface, *b*, sloped towards a source of light, *c*. The ground plate, 1, has an opening and receives a frame, 2, which carries the unit design serving

as base for the production of various figures. A plate, carried by four columns, 3, fitted to the base plate, 1. An objective, 5, directed downwards is arranged in the middle of plate, 4, and can be covered over by a flap, 6. A photogra

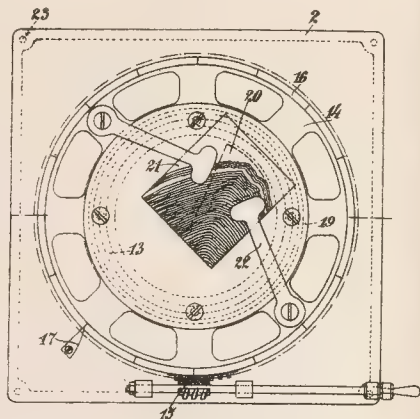


Fig. 1.

camera, 7, is arranged above the objective and has a back resting on a plate, 8. According to Figs. 1 and 2, the frame is provided with a conically shaped aperture to receive a rim, formed integrally with a disc, 14, and in which aperture the

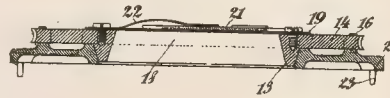


Fig. 2.

13, is adapted to rotate. This serves as guide for the discs, when turning the same; the turning of the discs being effected by worm gear, 15. In order to have an exact measure for

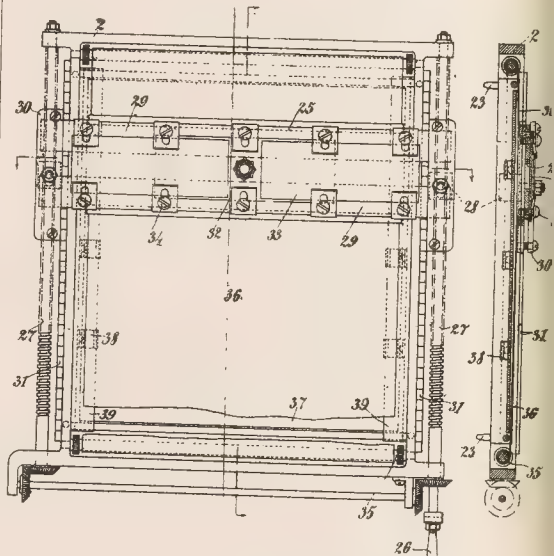


Fig. 3.

Fig. 5.

turning, the disc, 14, has a scale provided on a ring, 16, over which a pointer, 17, fastened on the frame, 2, engages. The central opening, 13, of the plate, 14, is for the most part covered by a disc or mask, 19, firmly screwed on to the plate, 14, by means of four screws, two of which are shown in Fig. 2. O

the mask, 19, the transparent plate, 21, is arranged and kept tight by spring controlled arms, 22, these arms being secured to the disc, 14. When the crank handle, Fig. 1, is rotated, all the parts, 13, 14, 19, 21, and 22 and aperture, 20, rotate together, and therefore during the whole rotation the same portion of the ground figure remains always over the aperture, 20. The disc or mask, 19, has a recess or opening, 20, with a central angle of 45 degrees, whilst the scale, 16, shows sixteen equal divisions. The opening, 20, is covered by the photographic negative, 21, which carries the unit design and is held to its support as described by clamps, 22. Four pins, 23, serve for fixing the frame, 2, to the base plate, 1. With the arrangement shown in Figs. 1 and 2, the photographic plate, 21, on which a unit design of any kind has been applied by hand, by means of a relief copying apparatus or a Rose-engine or the like is laid



Fig. 4.

on the mask, 19, so that that part of the unit design which has to be utilised for the production of the pattern is situated above the opening, 20, and is then fastened in the manner described. Then the whole arrangement is placed on the base plate, 1, and is sealed from above against the light in the manner shown in Fig. 6, whilst the light coming from the source of light, *c*, can enter through the above-mentioned opening of said plate. The part of the unit design situated above the slot, 20, is then photographed, and afterwards the objective is covered over the flap or cover, 6, and the disc, 14, turned through a certain

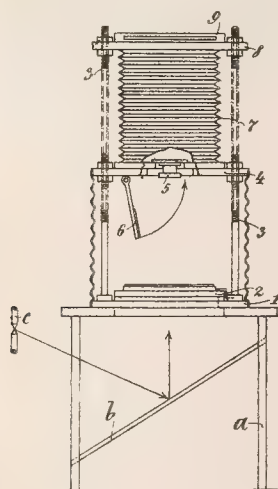


Fig. 6.

angle. In the present case this is taken corresponding to the central angle of the slot, 20,  $\frac{360}{8}$ , viz., 45 degrees. The corresponding part of the unit design is now again photographed, so that, in addition, the picture already existing on the plate in the back, 9, the same picture is directly photographed beside it. In this manner eight pictures are formed consecutively on this plate. As these, however, taken together do not in this special case form any figure complete in itself, they are formed on a second plate in a similar manner. Both the plates are then developed and so placed with their picture sides together, that the part pictures of the one plate fit as mirror picture to that of the other plate, and so form a rosette-shaped figure, and then both the plates are again photographed together. The pattern shown in part in Fig. 7 is an example prepared in this manner. Instead of

two unit designs of the same kind, the unit designs of different kinds prepared in this manner may be combined to form a picture. An endless number of various patterns may be formed from one and the same unit design, according as one or other part of the same is placed over the slot, 20, and according as this slot or its central angle is larger or smaller. According to the displacement the partial figures may be more or less interwoven, or may be arranged at definite distances from each other. For example, each separate part of the scale may be skipped over when exposing. From the first pattern produced from the unit design, according to the same process, the most numerous variations can be obtained, as is shown by holding any desired part

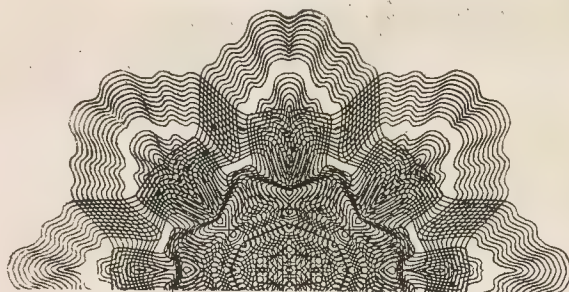


Fig. 7.

of Fig. 7 between two flat mirrors, standing vertical to the plane of the picture and arranged at an angle to each other. Besides, however, pictures obtained in this manner, as has already been referred to, others may be obtained by interweaving the same. In order to obtain a completely uniform picture, the above-mentioned angle, which is represented by the amount of displacement must naturally be a perfect fractional part of 360 degrees, but within these limits may be as large as desired. The scale, 16, might also be otherwise added up. The same applies for the slot, 20. Either a separate mask, 19, may be used for each slot, 20, or several slots may be arranged in the same mask. Neu Graphic Actien Gesellschaft, Orlikon, Switzerland.

PLATE CHANGING.—No. 23,431. 1906. The apparatus requires the 21 figures for its explanation. William Augustus Peters, Johns town, Pennsylvania, U.S.A.

#### CATALOGUES AND TRADE NOTICES.

A profusely illustrated circular of backgrounds reaches us from Messrs. Turner and Co., of Exchange Street, Blackburn, who make a special line of these and other studio accessories such that it should be worth any photographer's while to obtain the list and examine the very excellent selection of designs offered by Messrs. Turner.

MESSRS. THOMAS ILLINGWORTH AND Co., of Willesden Junction, London, N.W., announce that their new gaslight paper "Zigas" will be ready for the market on October 1, on which date particulars of a £50 competition will be available, and free samples of the new companion to the well-known "Zigo" may be had.

A NEW list of their photographic materials reaches us from the Leto Photo-Materials Company (1905), Ltd., 9, Rangoon Street, London, E.C., in which the sizes and varieties of the various papers are conveniently tabulated. We think the company does their "Leto-Gaslight" paper an injustice by omitting any mention of its particularly pleasing surface, a characteristic of the paper which certainly distinguishes it from others of the same description, and which we know to be appreciated by many, no less than by ourselves, for its rich appearance. The list is sent free on application.

MESSRS. BARTONS, mount specialists, of 114, Golden Hillock Road, Birmingham, send us samples of mounting papers in great variety of colour and surface. We can heartily commend the series of greys, blues, greens, buffs, and browns, as well as some papers with a figured surface. The exhibitions and the work of the better photographers both set the tasteful worker on the quest of papers suitable for mounts and folders, and to such of our readers as have failed to



find all they desire, Messrs. Barton's selection of samples (6d. post free, and worth the money) ought to set at rest all further anxiety. We hope to see good use made of the papers by both professional and amateur readers.

## New Books.

"Colour-correct Photography." By T. Thorne Baker, F.C.S., F.R.P.S. London: Dawbarn and Ward, Limited. 1s.

"Color" is the spelling adopted in the title and the text, but our friends of Farringdon Avenue will perhaps forgive our old-fashioned preference for the spelling, which represents a more euphonious word, and which is, we believe, philologically less open to objection than that which obliterates our derivation of the word from the French—not from the Latin. But, to refrain from cavilling at orthographical mannerisms, there is surely no doubt of the need of such a book as that before us, and Mr. Baker may be congratulated on presenting a highly technical subject in a simple, almost a colloquial, manner. He who purchases the book in anticipation of an orgy of spectrum curves and absorption diagrams is doomed to the disappointment of not finding one in the book, but the volume is certainly what it claims to be, an exposition of the use of orthochromatic plates and filters in the various branches of indoor and outdoor photography. There are, of course, several points on which we think the author, even though writing on popular lines, might have been a little more precise and correct. For instance, to state that all the colour-sensitive plates are "green"-sensitive is not strictly true, for almost every commercial colour-sensitive plate has the familiar gap in the green, and is really yellow-green sensitive. Again, we are told that the "Geka" Flexoid filters are made of celluloid, whereas the base is gelatine. Want of precision in formulæ and working details is particularly noticeable in the instructions for making the liquid for a tank dark-room lamp, and in the preparation of the filters. Taking the former case, the author prescribes certain quantities of dyes and "water—a sufficient quantity to cause any deep ruby rays to penetrate"; exactly how much this may be could only be told by spectroscopic examination. Again, for preparing the yellow screen, we are told to stain fixed-out lantern plates till they "appear of a light lemon-yellow colour," directions which, considering the many accurate formulæ extant for making screens of definite absorption, are rather loose. Stress, too, is laid on the absorption of the ultra-violet, and, in a list of "anilin" dyes, as the author calls them, naphthol yellow, tartrazine, and aurantia are specially recommended for absorption of the same; whilst, unfortunately, they all transmit a distinct and strong band in the ultra-violet. The statement, too, that the mixture of Canada balsam and xylol, recommended for cementing the screens, will dry in an hour, is certainly not true. One of the chief defects in the work, however, is the omission of all mention of the development of panchromatic and colour-sensitive plates by time alone, the method which is practically the only satisfactory one. The book is issued by Messrs. Dawbarn and Ward in style uniform with the comprehensive "Figures, Facts, and Formulæ," and other recent handbooks on photographic work.

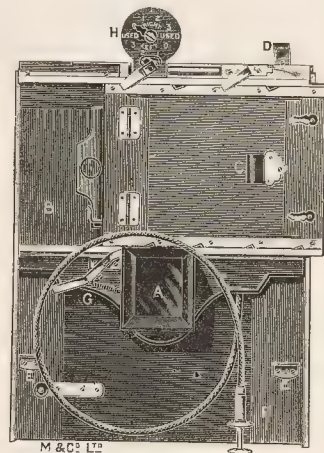
Our contemporary, the "Deutsche Photographen Zeitung," over which Herr K. Schwier presides, sends us the catalogue of the exhibition at present being held at Breslau in connection with the Convention of the Deutscher Photographen-Verein. This body, composed almost exclusively of professional photographers, meets this year in the Eastern Province of the German Empire, and the exhibition brought together in consequence of its visit embraces prints submitted in competition for prizes offered in considerable number by the houses in the German photographic trade. The catalogue, which is issued at sixpence, contains sixteen supplements in photogravure, and other photo-mechanical processes, among which is an exquisite and characteristic piece of portraiture by Herr R. Dührkoop.

We have to welcome the seventy-sixth number of "The Photo-Miniature" (Dawbarn and Ward, 6d.), the chief contents of which are chapters on the hand camera. The treatment of the subject is on modern lines, as evidenced by the special chapter dealing, in a practical way, with orthochromatic photography with a hand camera. The formulæ for sensitising plates and making light filters, though not advanced as new, should, nevertheless, be perused with interest on account of the success which has attended their use in practice.

## New Apparatus, &c.

The "Soho" Repeating-Back. Sold by Marion and Co., Ltd., 22 and 23, Soho Square, London, W.C.

A very convenient back for midget photography has been introduced by Messrs. Marion, under this title. Its construction and mode of use will be explained by the drawing without many words of explanation. The dark slide to which a focussing screen is attached has its two way movement (across, and up and down the plate) supported by the movement of the slide in its horizontal guides either direction. As a result, the manipulation of the apparatus exacts very little from the operator in the way of attention at focussing—the figure shows the apparatus at this stage. The slide carrier is pushed down to the stops EE, and the camera is then ready for the first exposure when the shutter is withdrawn.



slide is then drawn to the left, exposing the lower half of the quarter plate contained in it in three stages, which are duly registered on the dial. The slide is then reversed in position and the (previous) upper part of the plate similarly exposed. The mechanism of the attachment appears to us to be commendably free from complication in its working parts, and the apparatus should certainly prove reliable in practice. The back can be fitted to any half-plate, or whole-plate camera, and costs, including fitting, £3 5s. Extra dark slides are supplied at 10s. We understand that a half-plate size of the back is in preparation.

A NEW FORM of lens mount has been designed by Mr. J. E. Goold, the official photographer of the well-known engineering Tynes firm of Armstrong. The essence of the invention lies in the form given to the mount, which is spherical externally instead of cylindrical. The interior of the mount is, of course, tubular, and the glasses are mounted therein in the usual way. The advantage of the exterior shape is that the mount can be carried in a spherical bearing, and is thus capable of being pointed up and down and right and left in the simplest way, and of being clamped rigidly in any position. The movement thus provides the facilities of a swing from without the bulk and disabilities of camera construction, which that accessory involves. Mr. Goold has also adapted his invention so that an ordinary lens may be attached to the (supplementary) spherical mount, and though this device has not the virtues of compactness possessed by the spherical lens mount proper, yet it has obvious advantages for providing a wide range of movement of the lens.

THE Northern Tasmanian Camera Club will hold an exhibition, in February next, with the following open classes, in addition to those for its members only: Landscape, seascape, portraits, architecture, animals, hand camera work, still life, enlargements, stereoscopic lantern slides, photographic postcards, club exhibits, and colour photography. The secretary of the exhibition, from whom all particulars are obtainable, is F. Styant Browne, 112, Brisbane Street, Launceston, Tasmania.

## New Materials.

"Allochrome" and "Panchromatic" Plates. Made by Wratten and Wainwright, Croydon.

We have received for trial, samples of Messrs. Wratten and Wainwright's "Panchromatic" and new "Allochrome" plates. The latter are much the same as formerly, except for the greatly enhanced sensitiveness. It is frankly stated to be a plate of the usual cyanotype type, sensitive to green and yellow, but not to red, so that light can be used in the dark room; but the effect of the dye is to be much more marked in these plates than in any others we have tried of the same character. As a result, the use of a blue filter does not entail such an increase of exposure as has hitherto been necessary. The same yellow filter, which, on the usual iso plate requires from six to ten times the exposure necessary without screen, on these plates will only require twice the exposure. Consequently, we have been able to take very satisfactory snapshots under any of the conditions of hand-camera usage; with a blue filter in position, and therefore a very much better rendering of the tones of the subjects photographed.

The "Panchromatic" plate is a more remarkable plate, for this appears by spectroscopic tests to be almost equally sensitive to all the visible colours; even the infra red can be photographed if sufficient exposure is given. Of course, the sensitiveness to blue predominates, but to nothing like the same extent as in any other plate we have ever handled. The qualities mean that a very much lighter colour can be used to get a true record in monochrome of any subject presented to the camera when the plate is used. Messrs. Wratten supply a yellow filter to be used for average landscape work, which requires only one and half times the exposure necessary without any filter, and they state that absolute luminosity value can be rendered even the deepest paintings by using their 8-times filter. In our own tests we have been perfectly satisfied with the rendering given by yellow filter multiplying the exposure by four times; and it seemed that any deeper filter would only prolong the exposure without noticeably improving the result.

It is for three-colour work that these plates are of the utmost value. It may be stated that they are being used every day for this purpose in the studio for three-colour portraiture, the three exposures totalling less than five seconds, although the lens aperture used is by no means abnormally large. We, ourselves, tried a three-colour portrait outdoors, but our first attempt was hopelessly over-exposed, and not having a shutter to the lens (working at  $f/7$ ) we had to stop down in order to enable us to give hand exposures of half second through each filter, and yet not over-expose the plate. For curiosity we tried the difference of exposure required under a red filter with these plates, and with the best red-sensitive plate hitherto available, and found that the "Wratten Panchromatic" required exactly one-tenth of the exposure necessary to give the same result on the other plate; and, indeed, we have seen some satisfactory snapshots taken under a red filter.

Owing to this extreme colour sensitiveness we have had to develop these plates in absolute darkness, but using a dark room clock we have had no difficulty in this, and the plates have then been entirely free from fog, giving excellent density and gradation, and, like all Messrs. Wratten's plates, about as near mechanical perfection as could appear to be possible.

Taking all their qualities into consideration, the price, viz., 1s. 6d. for the "Allochrome" and 2s. for the "Panchromatic," per dozen, quarter-plates, is probably justified.

After our experience, we do not think that Messrs. Wratten at all exaggerate in their claims regarding the colour sensitiveness of their new plates, and we feel that their introduction marks a decided advance in plate manufacture.

Kodak Solio P.O.P. (Hardened Film). Sold by Kodak, Limited, Clerkenwell Road, London, E.C.

If a brand of paper which lightens the printers' troubles by ensuring the persistence of a sudden heat-wave is to be deemed a boon, then the gratitude of users of gelatine printing-papers is due to the Kodak Co. for the introduction of a variety of the well-known Solio P.O.P., which possesses resistant properties towards trying weather conditions. In making a P.O.P., no maker

can convert gelatine into something else, yet the Kodak Co. have gone so far towards achieving the impossible that the new paper behaved in the manner of a normal P.O.P. when the weather had brought the temperature of our water supply to over 70 deg. Fahr. Under these conditions there was no reason, so far as we could see, for abandoning the sulphocyanide bath, nor none for fearing that the prints would suffer from their sojourn in the tepid solutions. The new paper is supplied in glossy and matte, the former in white and mauve, the latter in mauve only, and it is also obtainable in glossy and matte postcards.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
15.....	Manchester Amat. Photo. Soc.	Outing to Liverpool.
15.....	Hull Photographic Society .....	Outing to Wansford.
15.....	Blackburn Camera Club .....	Outing to Osbaldeston Woods.
17.....	Bowes Pk. and Dis. Ph. Soc. ....	"After Treatment of the Negative," E. W. Taylor.
17.....	Bradford Photo. Society .....	"Time Development." J. F. Seaman.
17.....	South London Photo. Society....	"Inford Lantern Plates." A. Brooker.
17.....	Luton Camera Club .....	"Exposure and Development." Demonstrated.
18.....	Manchester Amat. Photo. Soc.	Discussion on "One Man Show."
18.....	Hackney Photographic Society	Excursion Prints Judged and Criticised.
19.....	Worthing Camera Club.....	Exhibition of Pictures by G. H. Capper.
19.....	North Middlesex Photo. Soc. ....	Outing to Coombes, Botoilphs, and Bramber.
19.....	Hove Camera Club .....	"Enlarged Negatives." Mr. Chas. Beadle.
19.....		Outing to Chichester.

EDMONTON AND DISTRICT PHOTOGRAPHIC SOCIETY.—On August 29 Mr. William Quin gave a lecture on "Photography as a Hobby and as an Educational Factor." The lecturer said that of all hobbies photography was one of the most intellectual, and as an art-science it had stood for years. He took it for granted that all present that evening had taken up photography as a favourite pursuit, for on that rested a great deal as to what their hobby was to each one of them individually. It was no uncommon thing to hear of persons taking it up with enthusiasm; but, directly that was exhausted, all their love for their hobby was gone! Then there were those who could not make any headway with it. And why? Simply because they were half-hearted. They did not possess the heart, nor the strength of will to take it up seriously and see what they could make of it. Photography, said the lecturer, is not only interesting but also instructive, inasmuch as it reveals to the eye all that is beautiful in nature. Viewed only as a hobby, it is certainly one which fascinates and gives pleasure, not only to its votaries but to others as well. Speaking upon the subject in its relations to education, the lecturer said that of such importance had photography become that it had been assigned a place in more than one higher grade school, and doubtless the time was not far off when it would be a subject in the syllabus of every public school. Certainly some of our best institutions had included it in their course of instruction. It might be truly said that for years past photography had increased so much in importance that it had now become a great factor in all educational studies. A writer, speaking of photography as an aid to study, said:—"The future of photography was absolutely boundless. Already it was spreading with marvellous rapidity into every part of the habitable globe. It was the handmaid of science, and a useful adjunct in many departments of industry. To the traveller and explorer it was indispensable, recording, as it did, truthfully the scenery which, perhaps, never before had man gazed upon. In the lecture room, laboratory, etc., it was fulfilling a useful mission. It had even penetrated the sanctuary and temple, and by means of the optical lantern, had been made the means of useful teaching to thousands."

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—The annual conversazione in connection with this flourishing society was held last week at



Collyer Hall, High Street, Peckham. The large company of members and their friends was presided over by Mr. C. H. Oakden, F.R.P.S. He explained that by an unwritten law the winter session was always opened by such a function, the society ever endeavouring to cultivate social intercourse. To many of their excursions and so on, he explained, ladies could be invited, the day winding up with "high tea" and a concert. Songs were rendered by Messrs. Laurence Harewood, Mark A. Kinghorne, and Harry Gale, solos on violin and mandoline respectively were given by Messrs. H. Wicks and Albert Stoneham, Messrs. Kinghorne and J. M. Snellgrove recited, Mr. Henry d'Albert exhibited his powers as conjurer and ventriloquist, and Mr. Charles F. Dickinson gave an interesting and amusing lantern lecture on "Some Excursion Reminiscences"—one picture showed the secretary of the society, in the conscientious discharge of his duties, carrying a lady across a shallow brook. The syllabus indicates a very attractive programme, those lecturing, etc., including Messrs. H. Snowden Ward, F.R.P.S., C. Marshall, A.R.I.B.A., H. W. Bennett, F.R.P.S., etc. A number of interesting excursions have been arranged.

## Commercial & Legal Intelligence.

"For cheap photographs go to Blases."—Such were the words, printed in large type, posted on the windows of one of the principal shops in Heywood Market-place, some months back. For a time the shop seemed to do a roaring business in miniature photography, but there was a falling off in the volume of trade, and the proprietor left. The Heywood Corporation, however, found him, and last week, at the local court, Thomas Blases was summoned for owing £1 17s. 4d. for district rate, £1 1s. 8d. for electricity, and £1 3s. 10d. for gas. The defaulter, it was explained, had gone to the Isle of Man, and the summonses had been served by the Manx police. During the conversation which ensued between the magistrates and the Corporation collector, it was explained that a letter had been received from a solicitor at Douglas, stating that Blases was going into bankruptcy. As a matter of fact application was made at the Vacation Court, Douglas, last week, for Blases to be adjudged bankrupt, and it was stated that he had been in business at Douglas for fifteen seasons. His liabilities amounted to £300. As there were no assets his Honour adjourned the application. The Heywood magistrates have also adjourned the summonses against Blases for twelve weeks to see what comes out of the bankruptcy proceedings. Councillor Coupe, one of the justices, remarked that it was no wonder people got cheap photographs.

**RETOUCHING PHOTOGRAPHS.**—In the City of London Court, on Thursday in last week, before Mr. Tattershall, Mr. T. B. Brown, photographic artist, 163, Queen Victoria Street, sued William Bartlett and Son, chair makers, High Wycombe, for the sum of £1 5s. for work done in connection with certain photographing of Chippendale furniture which had been sent them by the defendants. The plaintiff's case was that the photographs in question were sent them and they were given carte blanche to do what they could in bringing out the details. This they did by making enlargements which were touched up by them. The defendants could then, had they chosen, have had the photographs reduced to what size they liked. It was understood that the defendants required the photographs for a high class catalogue. The work had been done and the defendants had sent them 10s. which they had credited. The proper charge for the work done was £1 5s., and after giving credit for the sum paid there was 15s. still due. The defendants' representative said that the photographs as sent by the plaintiffs were absolutely useless for their purpose, they having been enlarged. The chief charge made by the plaintiffs was for retouching photographs, but the plaintiffs had not retouched the photographs which the defendants had sent them, but had retouched the enlarged photographs. They had since sent two similar photographs to Messrs. Spottiswoode with an identical letter of instructions, and they had the work required to the photographs, charging only a sum of 5s., and they had been given the order. The plaintiff's representative said that the only way to bring out the details in the photographs sent them by the defendant's was by enlarging. Mr. Bonn, called for the plaintiff, said that the defendants by their letter gave them carte

blanche to work the best possible result from the photographs they sent them. The size of the photographs were three inches. As the plaintiffs wished to get the very best result, the only way for them to do was enlarge them double the size to see that the tails were properly retouched after enlargement. There was no need to prevent the defendants reducing the size of the enlargements and the photographs resulting from the enlargements would be the details much better. The artist who had done the work for the plaintiff, called as a witness, said he thought the original photographs sent them by the defendant had been taken by an amateur with a kodak camera. The photographs were small and indefinite detail. For the defence, it was said that the instructions given to the plaintiff was to retouch certain photographs which were enlarged with a letter. Before doing the work which the plaintiff wanted, they should, the defendants contended, have written asking for instructions. The defendants admitted that they told the plaintiff to do the best possible work to the photographs enclosed. The Assistant Registrar said that the defendants in their letter of instructions began by saying that the photographs wanted for high-class catalogue work and they were also asked that the work should not be stinted. The plaintiff and his witnesses told it was necessary to enlarge the photographs and reduce them to the original size. He thought the defendants' instructions were somewhat vague and he thought the plaintiff was justified in doing the best he could with the photographs. Judgment was entered for the plaintiff for the amount claimed, and an allowance was made of 10s. for the witnesses.

**A POTTERIES BANKRUPTCY.**—The affairs of Mr. S. J. H. Ellis of 48, Morland Road, Burslem, now 12, Bleak Street, Stoke, came before the Registrar at the Hanley Bankruptcy Court last week. The statement filed by the debtor disclosed gross liabilities amounting to £144 3s., all of which is expected to rank for dividend, assets estimated to produce £38 3s. 5d., leaving a deficiency of £105 19s. 7d. The alleged cause of failure were "illness of my father and insufficient business to meet my expenses, also competition of a local photographer." Debtor said he commenced business as a photographer, at 48, Morland Road, about June, 1902, prior to which time he had been employed by his father, Mr. S. Ellis, photographer of Hanley, for seventeen or eighteen years. He had a small capital and purchased a few effects from the previous occupier of the premises for about £15. The business was chiefly credit, being for manufacturers than portraiture. He carried on business until April 26, when he made a deed of assignment to Mr. Albert B. accountant, of Tunstall. He estimated that the illness of his wife had entailed an expenditure of over £50. The fact that another photographer of the same surname as himself had set up business in the town had materially affected his business. A statement in a letter to an Ealing creditor that he had that day sent out accounts for £96, and that he had got plenty of orders to go on with was untrue. The Registrar said that debtor ought to be ashamed of himself for writing such a letter. It was nothing but an abominable fraud. The examination was closed.

**MR. GUY RAWLINGS,** a photographer, of Chichester House, Chancery Lane, has had fame thrust upon him through a theft committed in his studio last week. Mr. Guy Rawlings was seated in his studio when he heard a curious sound behind a background. Immediately afterwards there was a noise on the stairs, and he saw the prisoner going down, carrying in his hands a bag and umbrella he had stolen from the studio. Mr. Rawlings followed and gave the prisoner into custody. The prisoner said that he would plead guilty, but would not say how he was tempted to commit the theft. "On July 18 I was liberated from Pentonville Prison after doing twelve months for stealing an overcoat. When I was liberated I had ten shillings in my pocket, and went to stay at a London County Council lodging house in Parker Street. After my money was gone two men who sell papers in the neighbourhood of Chancery Lane gave me papers to sell for them. About a fortnight ago Mr. John Burns—the Cabinet Minister—drove up to the Parker Street lodging house in a cab. I think he stayed in the lodging house for about a quarter of an hour. When he came out and got into the cab that had been waiting for him, one of the lodgers said to Mr. Burns, 'What do you want here?' Mr. John Burns said to the man, 'If I get out of this cab I'll put my fist on your nose.' On hearing this I

said nothing, and Mr. Burns drove away. About ten minutes after this I went up to the man and said to him, in a straightforward way, 'You had no right to speak to Mr. John Burns like that.' The next day I went for my papers as usual, but both the men who had been employing me told me I had better go to Mr. John Burns for a talk. I only tell you this to show how I lost my employment, and was tempted to steal." Sir Albert de Rutzen: You are committed for life.

#### NEW COMPANIES.

**H. B. DAWSON, LTD.**—Capital £2,100, in £1 shares. Objects: To acquire the business carried on at 85, Fore Street, E.C., as J. H. B. Dawson, and to carry on the business of drapers, mercers, hosiers, hatters, photographers, haberdashers, dealers in leather goods, cutlery, stationery, jewellery, instruments of utility or amusement, &c. No initial public issue. Registered office, 85, Fore Street, E.C.  
**ROBERT H. EDGAR, LTD.**—Registered August 30. Capital £5,000, in £1 shares. Objects: To acquire the business carried on at 128, George Street, Croydon, by R. H. Edgar and H. Roberts, to adopt an agreement with the said vendors, and to carry on the business of electrical and mechanical engineers, manufacturers of and dealers in electric, photographic, and other appliances and apparatus, etc. Initial public issue. Registered office, Stanley House, Eldon Park, Croydon, Surrey.

## Correspondence.

\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.  
 \* We do not undertake responsibility for the opinions expressed by our correspondents.

#### MR. INSTON'S PHOTOGRAPHS.

To the Editors.

Gentlemen,—I was pleased to see from the JOURNAL last week that Mr. Inston is showing his photographs at Liverpool, and I hope that photographers in the North will not feel that the two London exhibitions so overshadow any provincial show as to neglect the opportunity of seeing the work of the secretary of the Liverpool Amateur Photographic Association. Though I am not a member of that society, and have had the opportunity of knowing Mr. Inston's work only as I have seen it at exhibitions in different parts of the country, yet I would like to say that the younger men who are cultivating pictorial photography should not omit to appreciate Mr. Inston's attitude towards the gospel of dodge and "fake," of which I continue to hear much. If I may quote a remark once made by my hearing by Mr. Inston it will show the method pursued by our Liverpool friend—and it is one in which I am in most complete sympathy. It was: "I would rather kick my heels on a quay for an hour waiting for the right combination of sky, light, and so forth, than get all these separately and laboriously combine them into a single print." Perhaps I may be old-fashioned, but I am of the opinion that in this way the photographs which are to be reckoned as triumphs of our art in the future are being made.—I enclose my card, and remain, Gentlemen,  
 NORTHUMBRIAN.

September 10, 1906.

**ROTARY Photographic Social Club.**—The first sports meeting held under the auspices of the Rotary Photographic Social Club, in conjunction with the works at West Drayton of the Rotary Photographic Club, Ltd., was held on September 1. A large number of swimming races, and other contests took place, and the grounds of the club by the river at Yiewsley were given over to a succession of entertainments which did not conclude until late in the evening. The prizes were distributed by Mrs. E. Haelen; and Mr. Haelen, in acknowledging a vote of thanks to his wife, expressed the pleasure which it gave both of them to be among their staff.

**MR. H. G. LEVINGS**, secretary of the Gravesend Photographic Society, advises us of his change of address to 27, Perry Street, Gravesend.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.
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#### PHOTOGRAPHS REGISTERED:—

- F. FOOT, 6, Pitt Street, Jersey. Photograph of the Arrival in Jersey of the 47th Line Regiment of France.
- S. W. B. JACK, 32B, Lowther Street, Carlisle. Photograph of the Insignia of the Corporation of the City of Carlisle.
- F. ROBINSON, Gainsborough House, High Street, Camberley, Surrey. Photograph of the Opening of the Frimley Urban District Council Offices. Photograph of Sir Nathaniel Barnaby, K.C.B.
- E. V. PARKIN, 58, Wilkinson Street, Sheffield. Photograph of the Sheffield United Football Team; Seventeen Players Constituting First Team, with Secretary and Trainer. Photograph of the Sheffield United Football Team. A Group of First Team and Reserves with both Trainers and Secretary.
- T. DOVE, 136, Strand Road, Bootle, Liverpool. Photograph of an Electric Train from Liverpool and Southport.

**TYPES FOR NEGATIVE TITLES.**—I should be pleased if you could inform me where I can procure a book of various styles of printing suitable for titling theatricals' photographs for exhibition purposes.—B. M. W.

You had better apply to John Haddon and Co., Salisbury Square, London, E.C.

**LANTERN SLIDES.**—Having made a holder for lantern slides during binding operations I have been advised to patent same. Will you be kind enough to give me full particulars of patents, and about what it is likely to cost, and oblige?—CONSTANT READER.

If you apply to the Comptroller, Southampton Buildings, London, W.C., he will send you the offered circular of instruction and charges.

**AN OLD OIL PAINTING.**—I herewith enclose you photograph of an oil painting, which I have in my possession. I have had it viewed by several experts, who say it is a very well-painted portrait. (1) Was there an artist of any note about 1759, in the name of Pinsita? (2) What nationality is the name Pinsita? (3) Has there been any pictures sold lately (say these last few years), as I have been informed there has of that name? (4) Could you give me a rough estimate as to its value? Also the best means of disposing of it?—CHAS. MILLS.

You had better write to Mr. Augustin Rischgitz, The Studios, Linden Gardens, Bayswater, London, W., sending the photograph and asking if it is worth while to have the painting valued.

**PATENTS.**—I should esteem it a favour if you would kindly inform me of the most inexpensive way (provided it is safe) of protecting a machine for photographic use, which I wish to offer for sale.—LUCERNAL.

Your best way is to obtain provisional protection at the Patent Office. If you write to the Comptroller, 25, Southampton Buildings, London, E.C., you can obtain a form of instructions and particulars of the cost.

**COPYRIGHT.**—A certain firm have published a picture postcard, showing a young lady and gentleman in a certain pose, with a certain wording on the bottom of the card. Should I be in any way infringing their copyright by taking a lady and gentleman in a similar position—viz., embracing each other and appending the same wording? The latter is of a commonplace order, such as anybody might write on a postcard. (2) Are the works of Francis Ridley Havergal copyright? I have been informed they are not, and can be used by anybody.—H. H.

(1) So far as the photograph is concerned, you are at liberty to take a similar negative from your own models. We could answer you more decisively as to the postcard if you had sent us



the original, which you propose—we cannot say much for your sense of morality—to copy. It is conceivable that the whole card, wording, photograph, and any drawing may be registered as a design, and your production may prove to be an infringement of that. You will have only yourself to blame if you get into trouble. (2) We cannot say.

**STUDIO QUERIES.**—Kindly give me your advice on the following:—

(1) I propose to build a portable studio, like sketch sent, 25ft. long x 11ft. wide, 8ft. 6in. to eaves, 12ft. at highest point, sloping to 11ft.. If built like sketch that would give 10ft. x 8ft. of glass, together with 8ft. x 4ft. of side light, 4ft. 6in. from ground. I am advised to build it like that, as the 1ft. 6in. would give a nice shadow. I should start with glass 3ft. from end, then 8ft. of glass, then fill up the remainder with wood and galvanised iron. Do you think this will do? If not, kindly say how you recommend me to build it and get a good north light. (2) A suitable colour to paint the interior, as I shall matchboard it. (3) I am buying a 12 x 10 camera, which I should want to use indoor or outdoor; chiefly for groups, outdoor. Would a good R.R. lens do for both? Must I have a portrait lens for the studio, or would the portrait lens do for outside work? Any information will greatly oblige.—NEMO.

(1) The 1ft. 6in. at the top of the studio might well be increased to 2ft. 6in. or to 3ft. It would be better to start the glass about 4ft. 6in. from the end, instead of 3ft., as you propose. By having but 8ft. of glass you will be confined to working one end of the studio; hence your light must be from one side only. (2) French grey will be a good colour. (3) A portrait lens is not a suitable one for outdoor work, and a R.R. is a slow one for studio purposes, though it is sometimes used. We should recommend you to have a portrait lens of 11in. or 12in. focus for the studio, and a R.R. or one of the anastigmat type, of about 16in. focus, for outdoor work. With the former you will be able to take full-length cabinets, and, stopped down slightly, whole-plate pictures; with the latter 12 x 10 groups.

**COPYRIGHT.**—We should be glad of your opinion as to whether we have a good case for infringement of copyright under the following circumstances:—Some time ago you made the enclosed photograph copyright for us. In the course of business we supplied the view, which we have marked, to a local stationer, with permission for him to use same for postcards. Recently, without our permission, he has handed the block of this view, amongst others, to the “\_\_\_\_\_” for them to illustrate an article on Woking. We are in correspondence with the proprietors of this paper, and in their last letter they say they are writing the stationer, as he gave them permission to use the views.—A. W. AND CO.

It is a clear case of infringement. We should advise you to accept a guinea for the reproduction from the publishers; or, if they refuse to settle promptly on these terms, to make it two guineas. The paper has no case at all.

**PLASTER CASTS.**—Will you please tell me in this week's issue of your paper where I can get the plaster cast as recommended by Duchochois; also the price of same? I only want a head and bust to see the effect of lighting.—G. E. F.

From one of the Italian firms round Hatton Garden, such as G. Baldacci, 31, Hatton Wall, E.C., or D. Landi, 36, Charles Street, Hatton Garden, E.C.

**COLLODION EMULSION.**—Could you, through the columns of your valuable paper, give me a formula for unwashed collodion emulsion that will work as quickly in exposure as the wet process? I have tried several formulæ, but they are too slow.—C. B. CLIFFORD.

We are very doubtful if you will be successful in making an unwashed collodion emulsion that will equal the wet process in sensitiveness. However, the following is a good formula for an unwashed emulsion: Ether, 720, 5 ozs.; alcohol, 820, 3 ozs.; high temperature pyroxylene, 50 grains; bromide of zinc, 76 grains; sensitise by adding 120 grains of nitrate of silver, dissolved in half a drachm of water, and an ounce of boiling alcohol. After the plates have been cooled and washed, immerse them in the following: Tannin, 150 grains; water, 10 ozs.

A. W. ADAMS.—We should certainly advise either of the reflex

instruments, both of which are first class. You should have a larger aperture for the lens,  $f/5$  or  $f/4.5$  is as large as ad and you cannot do better than select a lens, the separate elements of which can be used of this aperture. You are able to select an anastigmat of focal length suitable for camera and of this aperture from the makers' list in the ALMANAC.

**A DEFECTIVE NEGATIVE.**—I intensified a negative, bleaching with potass bichromate, and re-developing with amidol. Unfortunately I omitted to add the soda sulphite to the amidol, staining the negative. I dipped the negative into the hypo, which brought it down very thin. I now require to intensify it again. I am so very thin I am in doubt what method to adopt.—BRAD.

As the negative is a mere ghost, we should recommend you to use the uranium intensifier, as per the formula in the ALMANAC. You had better treat the plate to a weak bath (1 in 50) of acid for ten minutes, and afterwards wash it for half an hour in order to bring into the best condition for intensification.

**DEALER.**—See our advertisement columns, in which you will find announcements of the kind you seek.

**COPYRIGHT.**—Will you kindly inform me, through your valuable journal, whether the following subjects are copyright or are free for publication? “Moses in the Bullrushes,” “The Huguenots,” “The Black Brunswick” (Millais), “Before the Bath,” “After the Bath” (French subjects).—E. R. EDE.

Copyrights in the original paintings have no doubt expired, but we do not imagine that the copyright in copies of the paintings has yet run out.

**PLATINUM RESIDUES.**—Will you kindly inform me, through your journal, the best way to throw down the platinum from an aqua-toning bath?—PLAT.

A solution of ferrous sulphate (green vitriol) is added to the mixture brought to the boil in an enamelled iron saucepan. The platinum is thereby thrown down as a heavy black powder.

**PYRO.**—In our next.

**FLASHLIGHT.**—I have been asked to take a flashlight photograph of a bazaar at night, in a room about 50ft. long and 30ft. wide, and should be glad of your advice. There is a platform at the end of the room, from which I propose to take the photographs. There will be a number of people in the room at the time. What kind of apparatus to use? (2) What kind of powder to use, and the quantity? (3) The best plates to use and the shutter exposure for them? (4) Should I be right in placing the flashlight at the back of the camera and a little to one side? Would the gas have to be lowered?—BAZAAR.

(1) Unless you care to go to the expense of a good lamp, such as the “Weiss” or “Warwick Brooks,” your best plan will be to use a good flash powder, spread in a line in a shallow trough, made from a strip of thin sheet iron. (2) A good brand such as the “Agfa,” “Argentorat,” or “Ideal” (Houghton & Co. Ltd.). About a quarter of an ounce of the powder should be sufficient, with an ultra-rapid plate, and the lens at  $f/11$  or  $f/16$ . (3) Any plate sold by the makers as the most rapid of the brands. (4) Yes, and a good height from the ground, 8ft. to 10ft. if the height of the room will permit. (5) Gaslights in globes may be included in the picture, but we think they detract from the effect of the photograph.

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## The British Journal of Photography

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## SUMMARY.

The P.P.A. Exhibition at the BRITISH JOURNAL.—The last day for receiving prints is Wednesday next, September 26. Packets should be addressed to 24, Wellington Street, Strand, W.C. Will each member of the P.P.A. make a point to send one print? The exhibition opens October 11.

The Photographic Salon.—The real sensation of the Salon is the marvellous decorative work of F. Benedict Herzog, Nos. 76 and 147. Detailed criticism of the exhibition commences on page 745.

The R.P.S. Exhibition.—The fifty-first exhibition, which opened yesterday, shows a greater variety of good work than has been seen in several years. (P. 741.)

Photographers' Show Cases.—A few prints, arranged to harmonise with the internal coverings, are advocated in an article, which explains how a seaside photographer employed show cases profitably. (P. 743.)

F. Dundas Todd, in an address to an American convention, analyses the costs of production of photographs in a studio, and urges a strict surveillance of the separate departments. (P. 748.)

The claims of photogravure to the serious attention of professional photographers are emphasised in a note on page 743, in which it is suggested that the supply and printing of photogravures might be taken up with profit by a process worker or photographer. (P. 743.)

The coupon fraud has been active in the suburbs of Birmingham. (P. 742.)

Dr. Frederick Graves gives the formula for a concentrated combined bath for the rapid toning of P.O.P. (P. 745.)

An exhaustive work on pigment printing processes, by MM. Demachy and Puyo, has been published. (P. 755.)

Preparations are being made at Hereford for the 1907 meeting of the Photographic Convention. (P. 753.)

A further development of catatype is among the patents of the week. (P. 754.)

## EX CATHEDRA

### The Royal Photographic Society's Exhibition.

A comparison between the pictorial section of this exhibition and the Photographic Salon is not only natural, it is inevitable. The latter society is an avowed rival and, therefore, emulation and competition are rife. Were it not for this rivalry the work in both places might suffer, for it is an undoubted incentive. We believe that the general opinion is that the present show of the R.P.S. reaches the high-water mark of merit in the annals of that society—now pressing towards its second jubilee. The galleries are certainly arranged and decorated with faultless taste. The little columnar arrangements of figured silk tape show what thought has been devoted to artistic points that will escape the crowds who come to see the pictures. There are no sensations at the New Gallery, unless the portraits of Mr. Coburn constitute a mild one. He greets us jauntily—a veritable "Last of the Dandies"—as we enter; and he deplores our departing—on the companion door-jamb—as we leave. Those who have been unlucky enough ever to glance into the distorting mirrors outside some popular eating-houses, will have some idea of the varying expression on Mr. Coburn's respective faces. What makes the strength and attractiveness of this display is very largely the great variety in the classes of work shown; the different points of view from which the exhibitors regard picture-making by photography, and the great influx of newcomers, many of whom are from abroad. The last point is one of supreme gratification, for it shows that our mother society is not a hole-and-corner business; but has the appreciative recognition of the world. Herr Paul Pichler makes a far finer show here than at the Salon, to which he has not been kind. His "San Vigilio," and "Der Waihter," are things so fine as to remind us of the late Boecklin, whose magnificent compositions they greatly resemble. Dr. Ledenig is another foreign factor in the success of the show. For romance and true feeling it takes the first place. Herr Feledi makes a welcome third, and Sig. Ornano a fourth.

\* \* \*

### A Few of the "Plums."

The style of print that used to be known as the "treacle" style, a sticky-looking juicy-brown production, has almost entirely passed away. We remember the time when nearly all the pictures in the "Royal" galleries were of this kind. Greys now hold the field, and white mounts are frequent, whilst the passe-partout method is conquering the heavy old oak mouldings. One or two little silvery prints recall the steel engravings of fifty years or more ago, a proof that we are on the eve of a great Early Victorian revival. "La Forêt Enchantée," by M. A. Gomez, emulates a style



still a little older. With its romantic subject, its white mount, and title adornments (by photography also), it is a very pleasing fancy cleverly carried out. Dr. Evershed's "The Crane," shows how much can be done by judicious selection to make a modern ugliness play a beautiful part in a picture. This ability belongs also to Mr. Batkin, whose omnibuses in "A Rift in the Fog" are things of beauty. Nudes are not numerous here, but the nicest treatment of them is by Miss B. Johnson. She has placed them in a little idyllic landscape, and given them a classic touch by making the chief one play upon the ancient Greek double pipes. Mr. Mummery's landscapes are better than usual, which is saying much, indeed, and those by Mr. Stuart are noteworthy also, especially where he does not allow himself to lose effect, which is, after all, the charm of landscape work and is well looked after this year. The visitor will find that there are not more than half a dozen pictures without some feature warranting their place on the walls, whilst the good things strike him with remarkable frequency.

**Municipal Photographs.** An interesting sequel to the recently advertised offer of the Cardiff Town Council to purchase a set of six specially attractive photographs of the borough for £5 is reported in the current Cardiff papers. Five pounds was the munificent sum which the Council dangled as a bait to the local photographers, and this sum was awarded to one of them. The prints, however, were not considered good enough, and a professional photographer, Mr. W. Jenkins, was asked by a committee to supply a set for £25, the whole Council subsequently deciding that the photographers of the town should be allowed to compete for this sum. The questions now before the astute councillors of Cardiff are: "Who is to pay Mr. Jenkins for the work he has done?" and "Are the local photographers to be allowed to compete for the work, part of which has been done by Mr. Jenkins?" We hope some of our photographic friends will profit by the indiscretions of the Cardiff Council.

#### The Coupon Fraud in Birmingham.

Our article of last week on the frauds recently perpetrated in the eastern London suburbs apparently applies to a man who is working the game near Birmingham. We learn that a man has been canvassing the poorer classes at Aston, getting orders, so he alleged, for a photographer in that suburb. He quoted charges which were one-third those of the photographer—and in

every case managed to collect a deposit of money in some cases no more than sixpence. In some instances people were to visit the studio; in others they were to be called upon, and the result, of course, has been that the self-styled canvasser has decamped with his money. Photographers who may have similar experiences—would seem that this particular man is travelling all over the country—should lose no time in communicating with the police. Unfortunately, by the time the information is received, it is too late to do anything; but it is not unlikely that the fellow imitators may apply to a photographer for the services of a canvasser. Any such application just now may be received with considerable caution.

#### Is There a Remedy for Coupon Frauds?

The years during which the coupon swindlers have flourished unchecked almost discourages any hope that the form of fraud, which is so particularly injurious to photographers, may be stamped out. The trouble, of course, is that the persons who are the victims of the frauds belong to the classes which may be depended upon not to take legal action. It is, as a rule, the servant girls who are the most easily gulled by a plausible tale. The photographer has not sustained any damage, and therefore he cannot take any action, and the victims of the frauds themselves have not the time nor inclination to go to law; they rather put up with the loss of their sixpences and shillings. The question is how is the fraud to be stopped, and the annoyance to photographers to be checked? The only way we can see for photographers in suburban districts to display prominently, in their showcases or shop windows, notices cautioning the public that they do not issue coupons or employ canvassers, and that any persons using their names do so fraudulently. If this were universally done the swindle would soon die out, as there would be no victims to be duped.

#### A Society Fixture.

Secretaries of societies who complain of the difficulty of providing novel fixtures for their members' instruction may be grateful if they suggest how one evening at least may be filled with pleasure to the members. Let the society purchase the new book by MM. Demachy and Puyo, reviewed this week in another column, and frame the supplements in *passé-partout*. Quite an interesting show will be thus provided, to which a local art critic would no doubt come and give his verdict on the reproductions from the non-photographic standpoint.

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

The forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of

particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers all over the world as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, as to be well in advance of the Christmas publishing season, and the co-operation of advertisers to that end will be esteemed by the publishers.

if this cannot be arranged, a member of the society able to read M. Demachy's text could draw up an account of the processes used in obtaining the pictures, and explain the points which they illustrate. The opportunities of comparing the works of leaders in pictorial work with their own confessions of the *modus operandi* occur so seldom, that they should be embraced, and the reproductions in "Les Procédés d'Art en Photographie" are remarkably near in quality to the originals.

**Vandalism by the London County Council.** Comments strong and deep have been made in the daily press during the last week or two on the vandalism to be perpetrated by the L.C.C. in cutting down, lopping, or otherwise disfiguring, the trees on the Victoria Embankment, to make room for their tramway. The L.C.C. seem to give no consideration whatever to the aesthetic, and as they have got their Act of Parliament to run the tramcars along the Embankment, they can do as they like with it. Hence the beauty of London's only real boulevard is to be sacrificed by it. The trees, since they were planted, have grown to goodly proportions, and the embankment has become the happy hunting ground of a large number of London photographers, as well as of photographic visitors to the metropolis. As the cutting down has not yet commenced, and the trees are still in good foliage, those who wish to secure pictures of the Embankment as it at present is should avail themselves of the opportunity while it lasts, which will not be long, as the cars, it is said, will be running by the commencement of next year. It was evidently an oversight, in framing the Act permitting the L.C.C. to run their cars along the Embankment, that a clause was not inserted providing that the trees should not be disturbed in any way.

**Photogravure for Portraiture.** For some time past it has been a matter of surprise to us that high-class portraitists have not, at least to some extent, availed themselves of photogravure for their pictures. This is the more surprising seeing that so much has been published during the past few years on the process, and that it is after all a very easy one to work, while the results obtainable are unapproachable by any other. At the present time, when every effort seems to be directed towards making photographs resemble engravings as closely as possible by printing them on matt papers, mounting them on plate or Japanese papers with India tints, plate marking, etc., there should be a field for true engravings. After a few practical lessons, such as are obtainable at the Regent Street Polytechnic or the Bolt Court School, any intelligent photographer should be able to produce excellent plates of the dimensions required in ordinary portraiture. Briefly, the process is this: From the ordinary negative a transparency is made, preferably by the carbon process; this can be retouched to any extent in the usual way with the pencil, and the shadows strengthened should they require it to increase the vigour of the picture. A copper plate, such as used by engravers, is then grained in the dusting box with powdered bitumen and then heated to fix the grain on the metal. On the grained plate a carbon print from the transparency is developed in the ordinary way—a special tissue for the purpose being now supplied by all the makers of carbon tissues. The print on the metal being obtained it only remains to etch in the image with solutions of perchloride of iron, when it is ready for printing from after the manner of copper-plate printing; and, of course, any coloured ink can be used for the purpose. Should any retouching on the plate be found necessary the lights may be increased by the burnisher, or scraper, and the shadows strengthened

by the roulette, and no great amount of skill is required to do the work. When once the plate is obtained and has been faced any number of prints up to thousands can be made from it, at any time, at quite a nominal cost. They require no mounting. They can be printed direct on plate paper, or on India tint, or on Japanese paper. In appearance they will be quite different from ordinary photographs made to imitate engravings—they will more resemble good old mezzotint prints, which have recently been realising such fabulous prices at picture sales. It goes without saying that our suggestion will only appeal to the higher class photographers who can command fair prices for their productions, though, after the plate has been obtained, prints from it can be produced at the same cost—or less—than by ordinary photographic method, by any copper-plate printer if the photographer does not care to do the printing himself. There should be, we think, a considerable business to be done by any firm who care to make a special bid for the custom of photographers in the way of preparing photogravure plates and taking off the impressions.

#### The Picture Postcard in France.

We shall expect to learn, when the next annual report of the Postmaster-General is issued, that the present is a record year for the number of picture postcards that has passed through the English office. The craze for picture cards seems to be even still greater in France than it is in this country, if we may accept the statement of the "Standard's" Paris correspondent, who, writing one day last week, says that in Paris alone 1,500,000 picture postcards were delivered daily during the months of July and August. This, he adds, is equal to an average of more than one card for each adult inhabitant. It is also mentioned that the increase on the daily average between April and July was 500,000. Whether these figures are equalled in London may be open to question, but there seems no evidence of the popularity of the picture postcard waning in England at present.

#### THE PHOTOGRAPHERS' SHOW CASE.

In two previous articles, which appeared in the "Journal" for August 10 and 31, we spoke of the considerations which should govern the photographer in selecting and arranging the display of his works in his window. Many of the opinions there expressed apply also to the show case, but some further notes on this adjunct to a studio seem to be called for, since there are many photographers who, through local circumstances, are forced to use a show case in place of a window for displaying their works, and others who, though possessing a window, have show cases in various parts of their town quite apart from their place of business. It is to these latter that the following is mostly directed, the former having usually elaborate cases which are almost amenable to the same treatment as a window. These will, perhaps, find our former papers of some use.

When there is no window attached to a gallery it is usual to have the cases at the doorway and in the porch, the situation making it necessary to have two or more separate and distinct cases, which is a decided advantage. Each case effectively separates its contents from the others, and it is thus possible to make a widely different and yet harmonious exhibition. Each case, however, must be treated by itself and the contents receive careful thought when the choice of specimens is made.

The show cases themselves do not require much discussion, since local conditions usually govern the choice of size and shape. It is preferable, however, when the



case is to be hung on to a wall, that the glass be hinged to the frame so as to open without removing the whole. When heavy fronts are in use the hinges should be of the best pattern, and a small strut be fixed on to the lock end of the door so that when the door is opened this strut will pull down and support the weight of the glass rather than put all the strain on the hinges. When the case is supported on pillars or posts, so that the back is easily accessible, it is better to have the glass firmly fixed and the back made to open, there being less weight and less chance of the glass breaking. In both of the above cases the show board upon which the pictures are fixed (we are not here discussing deep cases to take enlargements and small pictures on shelves) is loose and movable. There is another type of show case which is made to hang on a railing, the show board itself being made to serve as the back; being, in fact, similar to a very large picture frame. These are not recommended, as they are awkward to change and are liable to admit wet.

The inside of the case or the covering of the show board is usually of some textile material. The old-fashioned red plush is luckily not now much used. Nothing could be worse for the purpose, and the use of it is a sign of most lamentable taste. Red is the colour above all that will clash and kill almost every style of monochrome and all coloured work, except perhaps the strongest oils, and as we all know, red plush is the most vivid and shrieking of any type of red material. What is wanted is some quiet smooth-surfaced material that will serve its purpose for covering up the rough board and isolating the pictures upon it, while it is itself inconspicuous. Any of the art serges are cheap, and keep their colour fairly well. Art canvas in certain shades is extremely good, whilst common holland can be used with a very few colours of mount and print. The colour to be chosen depends entirely upon the colour of the mount and print to be placed upon it, and is determined upon the same principle as the selection of a mount dealt with by a writer in the "Journal" for 1905. The colour may either harmonise or slightly contrast, according to taste. For brown prints upon brown mounts dark green is a good colour, or old gold, but do not get a brown too near the shade of the mount or the object is defeated and the repetition of colour irritates, and moreover the print will tend to sink into the ground. With a contrasting print on a brown mount the cloth may well be brown; this gives the effect of a larger mount; or the cloth may be of the same tone as the contrasting prints; this gives the effect of a board round the print effectually isolating it from its neighbour. With a brown print on green mounts either a brown or green cloth is indicated. With brown prints on cream or other light mounts brown cloth gives the best effect. If green were used, practically three colours would be introduced, and the less colours one has the easier it is to make a tasteful and harmonious show.

It will be noticed above that we have only mentioned one colour of print on a certain cloth, and then the reader thinks, "Yes, but I want several coloured prints and mounts in one case, what then am I to do?" The answer is, don't do it. This throwing in of different tones of prints and mounts into one small case where the case itself is considered as a whole before the contents are noted is the great cause of unsatisfactory and inartistic displays. The result is almost sure to be clashing discord, and when viewed from a short distance the effect will be spotty and distracting rather than giving the effect of one harmonious whole. If the reader will examine those show cases that appear to him to look the smartest and best, we are sure that he will find that the contents are almost invariably on one tone of paper, and on mounts exactly

similar in tone and texture, though, of course, differing in size, shape, and style of trimming. A few selections of varying colours can be placed in a case so that the result is pleasing, but to the majority of photographers we say, "Don't." One gets repetition in way, and if every print were exactly similar in style, subject, and subject, the result would merely be monotony. One gets repetition with variety by having (as of course one must) each portrait of a different sitter, and 'rimming' prints in different shapes, as well as by including cartes, cabinets, 1/1 plates, and panels in the case.

Another cause of unsuccessful displays is the overcrowding of specimens so that none have a fair chance. This overcrowding is very prevalent and quite unnecessary. A small number of prints with space between them is much more pleasing than if each mount be placed quite close to its neighbour. When setting out the boards cabinets will probably be the backbone. See that they include a variety of shapes—cabinet, panel, circle, etc., and also use some 1-1 plates or panels to break up the spaces. It is very usual when preparing to fix the photographs to work from the middle, having exactly the same sizes and shapes in each quarter of the board. This is bad and should be avoided. The result is stiff and lacking variety. Avoid all appearance of geometrical patterns; it is far better to insert photographs with a studied carelessness. Of course, the horizontal and perpendicular lines must be correct, or the effect is slovenly, and this is not the idea we wish to convey. The spaces between the mounts should not be all equal but well varied, neither should the side or the top and bottom of a mount be in an exact line with the sides or top and bottom of the mount adjoining it. Take care, however, that the difference is so marked as to seem intentional and not appear to be due to carelessness.

The above remarks may be applied equally to boards of paper mounts, but prints mounted on paper require even more room than the ordinary mount to show to the best advantage. If about a dozen cabinets are placed in a case 6ft. by 4ft., well separated and not symmetrically placed, the effect is very good. These mounts should be fixed with drawing pins to obtain the full delicacy of effect. Gimp tacks, either brass or black, are suitable for the boards.

Show cases are particularly suitable for rapid change advocated in our last. One photographer at a pleasure resort where the population is always changing has eight or more boards to fit one of his principal cases. Each board is fitted with different specimens:—Sepia carbon on (1) cream, (2) brown, (3) paper vellum mounts, (4) sepia carbons with Cosway border, (5) black platinotype or carbon on rough white paper mounts, (6) black print on grey mounts, (7) red carbons on paper vellums, and so on and so on. With green carbons, collodion and silver prints, rough brown and green deckled edge mounts, also two or three board mounts and specialities of his own there is no end to the changes that can be made. And all this costs him no more than the usual six or seven changes given to a case in a year, for each board goes into the case for a day only in turn until it comes round to the first board again, when each is passed through. In this way he has a complete change every day for eight or nine days, and the sequence is arranged so that the board placed in the case on one day is as different as possible from the photographs shown on the preceding day. In this way visitors will see a different show perhaps every day of their stay, and not knowing the secret, are bound to put the exhibitor down as a pushing man. This method of having several boards for one case can also be used for specialisation, as suggested in the note on shop windows.

## CONCENTRATED TONING.

Every photographer, amateur or professional, at some time or other is beset by the worries and difficulties of that simple business, the toning of P.O.P. And often it happens that he has a batch of prints that must be finished quickly.

Though much has been urged against the combined toning and fixing baths, they have one great advantage, and that is that, with very little labour, they will quickly tone and fix, with little washing, when time is precious; and for this purpose it is necessary to employ a concentrated bath.

And in accordance with the amount of concentration, so is the time reduced; indeed, by using a very strong bath the process may be practically instantaneous.

No preliminary washing, at least with most brands of paper, is required, and only a thorough final washing.

But the immersion of the prints must be as quick and even as possible, and though there is not the danger of marking as in separate toning baths, it is advisable to thoroughly and carefully immerse each print at once.

Of course we may use concentrated simple toning baths if we wish, but there is no great saving of time as in the case of combined baths. Supposing we take such a bath as the follow-

ing:—In about 3 oz. of tepid water dissolve 40 grs. soda tungstate and 60 grs. ammonium sulphocyanide, then 6 to 8 drams of hypo; then add one to two grains of gold dissolved in a little water. The amount of gold will vary with requirements as to depth of tone, etc.

The prints should be rather over-printed, as they will sometimes lose a good deal of depth in this bath.

But if properly carried out a bath of this kind at normal temperatures will tone and fix with considerable rapidity, and the range of colours obtained will vary upon the amount of concentration; if we reduce the water the speed will naturally be increased.

But a rapid toning and fixing that will often serve for rough and test work and for proofs will be accomplished in a few seconds. When one comes to study the question of permanency one must admit that there are doubts, but with thorough washing after the operation there is little to fear.

Some very rich brown and black tones may be got in a bath such as above; the blacks, however, require time, and it is rather for quick work without special regard for tone that such a bath is to be recommended.

FREDERICK GRAVES.

## THE PHOTOGRAPHIC SALON.

FOLLOWING up our impressions given in last week's issue, we may confirm our ideas of the chilly sobriety of this usually exciting show. The present lack of sparkle may be due in a measure to the more spacious hanging of the prints and the consequent thinned-out appearance; though that in itself can hardly be deemed a disadvantage. It may be because the decorations are this year of a low-toned brown paper, panelled off by strips of veneered mounting-board; though here again we cannot but admit that in itself this scheme of decoration is very suitable and in very good taste. Indeed, we are disposed to pay a special tribute of praise to Mr. Coburn, who, we understand, has taken upon himself the whole artistic responsibility of the hanging and decoration this year, and the lion's share of the labour too. The fact remains, however, that a visitor, upon entering the gallery, is more than ever struck with the monotony of sober tint that seems always and unavoidably to belong to a show of photographs. He sees so much of this estimable brown paper showing amongst the pictures. He misses those touches of red, green, blue, and yellow which in former years have enlivened the proceedings, however intolerable they may have been at close quarters. There are certainly two attempts at colour by M. Puyo that surprise us as coming from a man of such taste, and one also by Mrs. Käsebier; but these do not count as decorations.

### What is a Sketch?

According to an unwritten law of the Salon, Mr. Will Cadby leads off. His pallid trifles are usually offered first, either as hors d'œuvre to whet the appetite, or else upon that other feasting principle of saving the best until last. Considering the severe selection that must be necessary where so little room is available, we do not feel that much sense of proportion is evident in the hanging of five child studies all so similar in aim and treatment that one alone would very well have been representative of Mr. Cadby's style. His sixth work, a so-called sketch, is to our minds likewise usurping the space of some more single-minded and genuine effort. A sketch, in photography, is just about as absurd and impossible as a flash of lightning on probation in the heavens. A sketch is a preliminary stage in a long process; this "Snow Sketch" is *per contra* the laboured result of elimination. Artistically considered it is a sheer blank; photographically it is a blank soiled with the dregs of photography. By its author it is thought to be worth one guinea. In Mrs. Cadby's work there is more respect for the proprieties. One of her plant studies shows honesty, both as its subject and in its

motive; but it cannot be said that she has secured exactly the characteristic charm of the silky and opalescent seed pods of *Lunaria biennis*. So with the "Shepherd's Clocks," which appear to be spiky rather than fluffy.

Mrs. Fannie E. Coburn has a good sense of style in landscape, but not sufficient susceptibility to the differences of tone values. In her "Eastbourne" the shore has come much too dark we should say, and in "Reflections" the water should not be of the same tone as the sky, to mention only one point. Two very lively and pleasing heads come from Mrs. Jeanne E. Bennett. They are called "Mirth" and "Toby." Her "Soap Bubbles," a little girl seriously occupied with tobacco pipe and suds, is a pretty thing, and a clever piece of work.

### Tomfoolery.

A child, and the lower half of its nurse, is sent by A. S. Goss—from Canada, and therefore the circumstance does not surprise us. But the fact that it should have been honoured with wall space here does surprise us. The most remarkable qualities, had it possessed them, should have damned inevitably such tomfoolery as this, and it probably would have done so were it not that anything in the shape of an American photograph seems so to fascinate the "Links" as to paralyze altogether their critical faculty.

### MM. Puyo and Demachy Experiment.

We are afraid that those staunch supporters of this annual exhibition, Messrs. Puyo and Demachy, have not sent their choicest, this year, or it may be that their choicest have been rejected. At any rate, we would very gladly surrender M. Demachy's experiments in ootype and "oils" in favour of three or four of those charming studies of his in materials of which he is a past master. The very palpable erasures of pigment which do duty for high lights in his present works, and the absence of certain inimitable qualities which are the birthright of photography, leave us a trifle disappointed. Similarly, we take but little pleasure in M. Puyo's "Tête," and the "Portrait," both "en 4 couleurs." The first, as we pointed out last week, is ghastly; the other is tinted without reference to natural truth, and without respect to decorative charm. M. Puyo, however, solaces us in his two other works, "Après Vêpres" and "L'Étang." The latter is a particularly soft and silvery study of willows, having the light and touchy qualities of a sketch in water-colour, but being free from any obvious imitation of a work in that medium. Peasant women squatting at the foot of a market cross or some such



structure is the subject of his remaining contribution. Its only fault in our eyes is a little hardness of line about the heads of the figures.

### One for Detail.

Mr. J. Craig Annan has two landscapes and four portraits. On the whole we prefer the landscapes. "Stirling Castle" is without doubt one of the best in the show. It has all the richness, all the strength, and all the breadth that is sought for to-day by this or that new method of printing; but it has, in addition, the pleasing characteristics of legitimate photographic processes which are nowadays too often allowed to go by the board. Detail, for instance, is one of its chief attractions, not only for its own sake, but for the exquisite rendering of textures which detail only can secure. The little horse, less than an inch long, is sleek of coat and clean of limb. Compared with the wall behind him he furnishes an excellent object lesson in the proper use of detail as an exponent of pictorial facts. "Stirling Castle," in the dignity of its style and the absorbing interest of its minutiae, resembles a copper engraving of the French School in the eighteenth century. "The Thames at Hampton," by the same worker, is good also; but it portrays one of those Martinesque effects that we have now grown callous about in photographic pictures, yet which would set us all aquake with fear if we saw it actually in nature. Of Mr. Annan's portraits we like "The Lady in a Silk Gown" best, though we submit that this might have been finer than it is, had not the lighting been uniform and monotonous.

The landscapes of Mr. Malcolm Arbuthnot lack the saving touch of nature. His near hills and distant hills are positively identical in tone and texture. They therefore violate one of the first principles of landscape art. Moreover, this violation is due entirely to tampering and manipulation—liberties that we hold should only be taken with photographic views by those whose observation and experience save them from pitfalls and solecisms. The best of Mr. Arbuthnot's works is perhaps "Launching the Boat," which has a capital subject; but even here the sky, the shore, and parts of the boat are all of the same tone and texture.

### Poetical Effects.

We frankly admit that Mr. George Davison's "Across the Sand Hills, Harlech," is beyond us. We bow and pass on to "The Mitre, Hampton Court," wherein we acknowledge a poetical effect—something of a "mood," which informs the rainy (?) scene and stirs up memories. There is positively nothing of this in the "bald and unconvincing narrative" of Mr. Pratt's "Pine Branch." Why so empty a thing was framed, and why hung here, we are at a loss to conjecture. Something a little more sustaining is discovered in Mr. W. Bennington's "Evening Mists, Coombe Bottom." Yet in this we find a falling away from the high standard which this clever worker has already established. We do not think the subject of a tangle of telegraph wires worth a picture, however well done, and therefore come with relief to his "Pines," which has in it the true witchery and eloquence of landscape. Upon this work we heartily congratulate Mr. Bennington, for it is at once ambitious and successful. We have marked it as one of the beautiful things of the Salon exhibition. His "Portrait" is also very pleasing.

In "Maltings on the Lea," Mr. John Anderson (now a "Link") has availed himself of exceptionally fine subject matter; but we scarcely think he has made the best of it. He has shown rather too much in his view. We remember a small version of this subject, exhibited by Mr. Mummery a few years back, in the Dudley Gallery. Tiny as that picture was, it had a more dignified selection and treatment than the one now before us. All Mr. Anderson's pictures here suffer from a murky stodginess. On the other hand, Mr. W. B. Post has chosen the better part in "going for" real happy refreshing daylight in his pretty piece, "The Beaver Dam," the best of his three contributions. We are always pleased to see Mr. Chas. Emanuel's bright, clean little views, of which two are here entitled respectively "A Dorsetshire View" and "Corfe Castle."

Miss G. Aitchison's single contribution is so good that we truly wish there were many more of them. Her "Steep Street" is an excellent little picture of an old house with a wealth of paved roadway before it, patched with sun and shade. All its parts are in keeping. Breadth holds the interest of detail within itself, and truth of effect is simply and unaffectedly given.

### From Italy and Germany.

The characteristics of two prints exhibited by Sig. Edoardo Rone, a new name in these galleries, are clean tones, rich and varied, and contrasted with an accent of high light. The first, "Dolore," represents a peasant woman who has thrown herself by a bedside in an attitude of despair. Above her, through a narrow window shaft of sunlight enters striking the adjacent wall. The work has a great feeling. "Bobo de Bèbe" represents, perhaps, the same model who now plays with a child upon her knee. The livelier subject has a livelier display of tones. Both prints are also excellent, considered photographically. Two other works, from Dresden, are strong and different way. They are by Herr Ernst Müller, and one is a remarkable portrait of "Kunstmalers Georg Müller-Breslau." It appears to have been inspired by the intensely vigorous and realistic portraits of certain old German masters, if not by those one or two moderns who affect the old style. No one could deny the virility of this portrait or its intense interest as a human document. It is something quite new in photographic portraiture, and likely, we think, to exert a good influence upon the work of this country which is prone to run after transatlantic vagaries. "Dame am Fenster" is not so extraordinary to British eyes.

### Decorative and Natural Effects.

Mr. Mummery's "Broxbourne" is a composition selected with a cute eye to decorative effect. It comes very happily. There is an unaccountable loss of strength under the right-hand bank that does not seem to be due to any possible play of light at that point, and a little mystifying. A decorative idea exists also in Mr. Brogden's "Railway Station," where the structural ironwork of the station has been turned to happy account in a bright and interesting little picture of railway land. Two seascapes by Mr. F. J. Mortimer are admirable studies, full of light and movement. "Racing Home" is very lively and exhilarating; whilst "Dirty Weather in the Channel" gives very unmistakably the sensations of chill and bluster as spray felt under such conditions on shipboard.

Mr. A. Horsley Hinton is represented by two studies of what may be heath fires in the one case; but is river mists in the other. We derive much pleasure from this departure in subject, though we are not quite sure that the effect is not a little overdone in both "On the Moors" and "Early Morning—Windsor." "A Silent Day," by Mr. David Blount, is light, airy, and otherwise satisfactory; but his "Study of Trees" suffers from Want of any suggestion of distance.

The best of the three works sent by Herr Rudolph Dührkoop is the magnificent "Twilight" that was recently in our own exhibition. Mrs. Susy Mahony sends a delightful view of the Customs House, Dublin, under the title of "A City Highway." It has light, but its somewhat divided composition mars it. Sunlight and shadow are prettily given in the print of a tree-shaded cottage which Mr. C. D. Kay calls "Sunlight," and another cottage subject, called "Autumn," is likewise notable for its light and air. This is by A. H. Blake, M.A. Of his riverside scenes we prefer "The Wharf."

### Living Pictures and the "Altogether."

Having worked through her line of Madonnas, Mrs. Barton has now come to the level of the saints, presumably. We confess to a slight feeling of relief. Specialisation is all very well, but it palls upon the critic. In "St. Catherine" she gives us a figure of a maiden, whose pose, costume, and air is very cleverly reminiscent of early Italian painting. In fact, the deep even tones of the draperies, the hard and edgy treatment of the crinkly veil, the exact adjustment of the model's hand, argues a deal of commendable patience in the setting up of this *tableau vivant*. The result is pleasing in spite of the obvious "get-up," and this says much for Mrs. Barton's artistic sure-footedness in a difficult path. And whilst on the subject of *tableaux vivants*, we may revert again to that other piece of *pose plastique*, namely "Le Penseur." It is an astounding piece of dare-devilry on the part of all concerned. There appears to have been no anxiety, on the part of either sitter or operator, that the well-known features of a much-discussed playwright, novelist, Socialist, journalist, musical critic, photographer's model, etc., should not be recognised. The conclusion is, therefore, that whatever sensation must follow this epoch-making disregard of the proprieties on the part of a public man, must be welcome

to the advertising triumvirate, which includes Rodin, the French sculptor. Truly, they have their reward! The original "Penseur" was an extravagantly conceived piece of staginess, since the thinker ever fisted his forehead in the brutal style of this thinking piece of savage animalism; and it argues little artistic reception on the part of those concerned in this aimless copying, that no better rôle could be found for it. The only grace of the photograph in question is the fine way the light falls on Mr. Shaw's flanks. There are other nudes in this show: but none is so naked and unashamed. Two back-views of men with bowed heads, who sink towards "The Gloomy Portal," we may now regard as displaying a very pink of shrinking modesty. The portal is gloomy enough, but we fail to find in it any suggestion of poetical intent, and we think the whole affair utterly misses the mark. It is by Herr, or Monsieur, Paul Pichier, of Vienna ("Wien, Austria," in the catalogue, with delightful inconsequence, has it). Mr. William A. Stewart has two nude subjects, which are more or less successful, according to one's feelings about these things. For our own part, we are a little tired of the languishing or folded-up varieties of skins that look as though they were black-leaded. "The sorrow that is of Man and Endureth for Ever" is the cumbersome title of Mr. Stewart's crumpled-up figure, who appears to be balanced upon a globe of such dimensions that the slightest shove would slide him off and finish his sorrows for ever. (Poor Watts, and his Hope!) Mr. Stewart's other work is "Ex Umbra." It is a good

try, highly creditable; but photography does not lend itself to high-falutin' allegory treated realistically. Such a title as "The New Model" has been expediently chosen by Herr Heinrich Kühn for one of his two nude studies, in order to justify the embarrassing shyness found generally in all photographers' nudes, but particularly in this. The only thing that can save such essays from a lurking twang of naughtiness is a rightdown frank treatment, such as the ancient Greek adopted. We should not see nakedness in a truly artistic nude. Miss Adelaide Hanscom has done commendably in this respect. There is more than mere nudity in her "Nude Study." But of all the efforts that rely upon bodily beauty, there is, in our opinion, none here to beat Mr. Cavendish Morton's "Fantasia." We admit that in many respects it is showy, and, as indeed it claims to be, fantastic. It is nude in intent; although the paint, or "tights," in which the female harlequin is clothed might win an evasion of the law. But where she scores over the shame-crushed, face-averted undressed ladies of these haunts is in her conscious pride of the beauty of her own lithe form, strained and quivering with physical energy; and the firm sweeping lines that practised activity induces. Proud of herself, as she should be, she is proud of our pleasure in her, and confirms our estimate of her gracefulness by looking down upon us with a radiant smile that a half-mask only makes the more tantalisingly irresistible.

[The remainder of our notice must stand over until next week.]

### THE PRESS ON "LE PENSEUR."

Mr. A. L. Coburn's picture, "Le Penseur," having drawn forth a good deal of comment in the Press, we may quote a few extracts as showing the views entertained of the picture as a work of art, although opinions are less generally expressed on this topic than on the motives of "G. B. S." The "Chronicle" wrongs Mr. Coburn in attributing the possession of a wife to him.

The "Daily Chronicle" says:—Celebrities in the nude may, therefore, become a fashion. It has been a vogue before in oils, so why not with the camera? The lens may be made to show as much discretion as the painter's brush. Many artists, thinkers, and authors have sat to Mr. Alvin Langdon Coburn, who is a young American with a genius for impressionistic studies by the camera. He commands his own fees for a sitting, and is autocratic on the posing of his subjects. He has a wife who shows in the Salon some studies which reveal a sense of mystic beauty. And he has an individuality which is accentuated by the wearing of a straight brimmed silk hat.

Reviewing the Salon in a later issue, the "Chronicle" says:—There is at least one photograph which has already made itself very much talked about—by reason of what one hopes to be only a chance resemblance to a certain public man with no clothes on. If it were intentional it would have been a piece of bad taste, of which it is uncharitable to suspect the photographer.

The "Manchester Guardian's" London correspondent writes:—The "sensation" of the show is Mr. Coburn's "Le Penseur," which seems to wear the head of Mr. G. B. Shaw. A nude Napoleon, they say, was sculpt by Canova, but I can recall no other precedent.

The "Yorkshire Daily Observer" says:—The sensation of the show is a picture by Mr. Coburn entitled "Le Penseur"—a nude figure in the pose of Rodin's famous statue of the same title. If Mr.

Coburn's "Thinker" is not Mr. Bernard Shaw, the likeness is remarkable, and the critics have with one consent agreed that it is the original "Superman," with nothing between him and his Maker. Mr. Shaw stood sponsor for Mr. Coburn when he first came to this country, and a portrait of him was one of the most striking works in the artist's own exhibition. The new work, though it is occasionally some natural amusement, is not unworthy either of the artist or his model.

Whether (with Rodin's statue of the same title in his mind) Mr. Shaw posed for this work or not the result, as manifested by Mr. Coburn with the camera, is a picture of strength and subtlety.—"Evening Standard and St. James's Gazette."

The "Standard," writing of No. 130, says:—Here we have a portrait (*horrescimus referentes*) of Mr. Bernard Shaw. We are diffident in making this assertion, because Mr. Coburn or Mr. Shaw may say that it is not true. Short of proceeding to identification by fingerprints, however, we are prepared to affirm that the original of this portrait is Mr. Shaw. The picture is called "Le Penseur," and is quite like M. Rodin's famous statue. Mr. Shaw has sat for what Trilby called the *ensemble*, and in doing so he has made good his claim to seriousness for ever. M. Rodin, in a very noble way, showed that thought is a kind of physical effort; a kind of athletics—we have known that ever since Jacob wrestled with the angel—and represented his thinker as a man of Herculean strength, with ridged and knotted muscles. Mr. Shaw is less muscular, but as he is stripped for the purpose of thinking, we are left with very much the same impression. His head is held on his hand. He is going through an effort. At least that, seriously, is our impression; but you never can tell. All Mr. Coburn's work is excellent.

THE prize-winners in the Tabloid "metol-quinol" competition have been announced by Messrs. Burroughs, Wellcome, as follows:—1st (£5 5s.), F. W. Beken, Blenheim House, Cowes, Isle of Wight; 2nd (£3 3s.), Edward R. Bull, 53, Bovill Road, Forest Hill, S.E.; 3rd (£2 2s.), E. T. Holding, Innisfail, Marryat Road, Wimbledon; Three prizes of £1 1s., Herbert A. Game, 17, Pembridge Place, Bayswater, W.; William Maclean, 69, Clifton Park Avenue, Belfast; James Walker, Grange Mount, Cloughton, Birkenhead. In Wellcome's Photographic Exposure Record and Diary Competition the prizes go to William Maclean, 69, Clifton Park Avenue, Belfast, (£3 3s.); S. G. Kimber, Oakdene, Highfield, Southampton, (£2 2s.); E. S. Maples, The Lawn, Hopton, Mirfield, (£1 1s.). A similar competition for the best negatives produced with "Tabloid" metol-quinol developer closes November 26.

CLASSES in photography and process work will be held in the Acton and Chiswick Polytechnic, Bath Road, Bedford Park, W.

PHOTOGRAPHIC Classes at the Birkbeck College.—From the prospectus for the forthcoming session we see that, as hitherto, classes in photography will be held by Mr. E. Senior on Friday evenings. There is a lecture at 7.30, followed by an hour's practical class from 8 to 9.30. The fees for the first are 10s. from September to May, for the latter 8s. per term of twelve weeks.

LANCASHIRE and Cheshire Photographic Union.—Though dating from only January 1st this year, the Lancashire and Cheshire Photographic Union already embraces forty-one societies, nearly every large centre in the two counties being included. The president is Dr. C. Thurstan Holland, of Manchester, the hon. treasurer and business secretary being Mr. W. Tansley, of Liverpool, the founder and organiser of the union. The union's first combined outing was held recently, many representatives of societies as far north as Barrow-in-Furness, as far east as Accrington, and from various Cheshire towns, assembling at Liverpool.



## THE COST OF MANUFACTURING IN THE PHOTOGRAPHIC STUDIO.

An address bearing the above title was delivered by Mr. F. Dandas Todd before the meeting of the Convention of the Photographic Association of America, assembled at Niagara Falls. The figures given by the author are, of course, quite inapplicable to Great Britain but the method and suggestions of estimating cost of production are so eminently such as require to be seriously studied by those in business in this country that we here reprint a very large portion of Mr. Todd's address, withholding only those portions which, for personal and other reasons, were fitting only before the audience gathered at Niagara Falls.—Eds., B.J.P.

It may safely be said that the average photographer does not really know why he is in business. I know what I am talking about, because for several years I have frequently asked individual men why they were photographers and what they were in business for, and only once or twice have I been told by the man I spoke to that he was in business for the money he could make out of it. The others informed me that they became photographers because they liked it, or thought they would, because they drifted into it, and so on. The men I find who realise that they are in business for profit make a pretty fair living out of their calling, but the majority of professional photographers, not only in this country but the world over, in my estimation get very inadequate returns for their services. The reason is not far to seek. The big money to-day is to be found in the highly organised machine industries, where the various operations are largely mechanical. Combinations of capital eliminate competition and insure much higher dividends. The worker has seen the benefit of combination and in turn has increased his income to a more limited extent by the organisation of trades unions.

Professional photography in the world to-day occupies a rather unique position. A photographer's studio cannot be called a factory, nor in the strict sense of the word can it be called a profession, neither is it a business where a man buys and sells commodities. I can call it nothing but an occupation. Being outside of what an eminent professor calls the machine process, it can claim no scheme of organisation, and as a consequence each studio proprietor really blunders along with his affairs in a very haphazard manner. You will observe I am dealing very gently with the photographer as an individual; in fact, I am trying to show that his peculiar lack of business ability is due to the business he is in and not to any failings that are characteristic of the individual. His business up to now has called for antagonism between individuals, and he has suffered not only in his pocket but in his mind as a consequence. I am glad to see a feeling developing among many men that ultimately it will be found more profitable to co-operate than to compete, if it be possible to devise a workable plan.

### The Things Which Make up Cost of Production.

When a photographer estimates that a dozen cabinets cost him about a dollar he is thinking only of the material he will consume, and is not counting one cent for his own and employees' labour, nor for general expenses. But labour is a commodity which is bought and sold like plates, paper and card stock, and therefore must be considered as part of the cost. In the same way rent and taxes and such expenses must be paid for out of the business, must be earned by the business, and, therefore, must be calculated as a part of the cost of every individual print that is turned out of the photographer's studio. Recently, a plumber friend of mine told me that in figuring on a job he counted himself as being worth \$6 a day, then he added not only the cost of the material, the use of the wagon, the shop rent and similar expenses, but in addition he charged for the time he spent in estimating what he would do the job for. This is business sense and shows why plumbers make money.

I once asked an optician friend of mine how he arrived at the selling price of a pair of spectacles. The cost of the material is rather low, and he knew that I knew to a cent just what he paid for it. His answer was very brief: "I consider myself to be worth \$2,000 a year, and I allot a fair proportion of that sum upon every pair of spectacles that I sell to a customer." This was business sense.

An optician in a country town of less than 2,000 people, you will see, considers that his services to his community are worth \$2,000 a year. I wonder how much a photographer living in the same town would consider his services worth. I think he would be very modest and

be very thankful if he got a thousand. But I hold that at ninety per cent. of photographers in this country should earn with difficulty \$1,000 a year, but I am sorry to say I don't believe half of them earn that much. However, for the sake of argument I am going to assume that a photographer should get \$1,000 a year out of his business, and then I will proceed to take an average of what I see if we cannot find out the cost of manufacturing the print that this photographer sells.

### The Unpaid Wife.

Since all money that goes out of the business must be earned by the business we will have to consider every cent that is spent being an expense. Therefore, in figuring out cost, we will have to allow for the following items: First, and most important in my estimation, labour, which is supplied principally by the proprietor; comes material, rent, heat, taxes and insurance, postages, new apparatus, studio repairs and general waste. Last of all, hired labour if such be employed. Many photographers are assisted by their wives in the studio, and their services must not be considered as value nothing, but must be allowed for at regular market rates. Photographers seem to think that they are as badly off as preachers in this respect. You know that when a congregation hires a preacher at \$15 per week, if the congregation can scrape it together, this congregation ordinarily expects to get the services of the preacher's wife at the same time for nothing. I have always considered the preacher's wife being pretty rough on the preacher's wife, and rather small potatoes for the congregation, and you can just guess what I think of a neighbour who gets his wife's services in the studio day after day and figures them as worth nothing at all.

### Cost of Materials.

Having learned what expenses must be charged in estimating the cost of work, my next business will be to find some system where we can arrive at a fair approximation of the correct answer.

I have tackled this problem from two ends. In the first place I figured up the cost of all the material that enters into the making of a dozen cabinets in an ordinary studio. Here it is:

Four plates and developer.....	\$0.31
Proofs .....	.08
Envelopes and circulars.....	.02
Retouching one negative.....	.35
Paper for fifteen prints.....	.23
Toning chemicals.....	.10
Mounts for thirteen prints.....	.25
Tissue enclosures.....	.05
Total .....	\$1.40

If we deduct the cost of retouching the material used costs \$1.40 and I wish to draw your attention particularly to the fact that allowance is here made for re-sittings and only for a small waste of material, both of which cost a great deal more than the average photographer ever suspects. About ten years ago many of you remember that I tackled this very same problem, and at that time I found the cost of the material used in a dozen cabinets amounted to 60 cents. This means an increase of cost of 66 per cent. At first blush this increase is startling, and I find it is due to more plates being used for each sitter, more expensive toning chemicals, more expensive mounts, and in the use of enclosures for the finished prints.

### Expense for Labour, Rent, &c.

The cost of material you will thus see is a fluctuating expense and depends practically on the amount of business done. If there are orders for pictures then there will be no expense incurred for material. It is different, however, with the other expenses such as rent, salaries

which must be met day by day whether sitters come or not, if the photographer is to stay in business. I have had much correspondence with many photographers for nearly a year trying to discover what these constant or overhead expenses really amount to, but it is very difficult to secure exact figures. Even when I had found them, then came the problem how to apportion them among the various departments. For instance, the studio may be roughly divided into reception room, operating room, and printing room, and in order to secure a fair estimate of the cost of each department we must charge against them a fair proportion of the rent, heat, taxes, repairs, salaries, etc. To make matters more complicated, in the majority of studios an assistant rarely gives his services to only one department. The printer may also be the retoucher, or he may assist the operator, while the latter and the reception room lady divide the retouching between them. To unravel such a complicated problem one would require to get a statement from a rather large establishment where each assistant is confined to only one kind of work, and from such figures one could arrive at the data on a percentage basis. I will give you what figures I have secured, and then show you the conclusions I have arrived at, and then it will be for you to say whether or not my estimates are approximately correct.

Out of all the figures provided me by various photographers, I have compiled the following schedule of overhead expenses for an ordinary gallery employing a printer and having the retouching done outside.

Rent .....	\$250.00
Heat .....	50.00
Taxes and insurance.....	15.00
Postage .....	35.00
New accessories, studio repairs, and general waste...	250.00
Assistant .....	500.00
Owner's salary.....	1,000.00
Total .....	\$2,100.00

Now don't you see that every day in the week, including Sundays, whether sitters come in or not, this photographer has got to find \$6.00. If it has not come in over the desk that day he has got to dig into his pockets and find some cash that came in the day before or the week before, but find it he must if he wants to stay in business. If he has only one sitter at \$3.00 his dozen pictures that day cost him \$6.00 plus material and retouching, or \$7.14 in all. If he had five sitters at \$3.00 his pictures in all cost him \$7.00 for material and retouching, and \$6.00 for general expenses, or a total of \$13.00. Total receipts being \$15.00, he would have a profitable day's business, but I am afraid the surplus, \$2.00, might be swallowed up next day if it rained, so we must judge photography by the year. Having got some figures to go upon we can now do a little calculation as to how many sitters must patronise the gallery to make it a paying proposition. It all depends on the price. Some men offer cabinets at \$3.00 per dozen, and we find that at this price at least 1,300 sittings must be made, thus :

Receipts, 1,300 at \$3.00.....	\$3,900.00
Overhead expenses.....	\$2,100.00
1,300 at \$1.40.....	1,820.00
Total .....	\$5,920.00

At \$4.00 a dozen, eight hundred sittings will be enough, at \$5.00 about 650, at \$2.50 there must be two thousand sittings, and I am informed that more help and more space would be needed with more than two thousand sittings, so the limit, I think, has been reached when we consider cabinets at \$2.50 per dozen. Right here I want to point out that it is evident that there is a dead loss in the ordinary gallery in making a cheap line of cabinets at \$2.00 or even \$2.50 a dozen.

The Photographer's Public,

I have shown how many sitters must patronise a photographer at various prices in order that he make an income of \$1,000 a year. But is it possible to get a sufficient number of patrons to enter the average gallery? To me that is a most important question, yet I find it absolutely neglected. Let us see the possibilities. Photographers are fairly numerous in this country; in fact, there is generally one to every 3,500 or 4,000 people. Such evidence as I can secure indicates that only about 15 per cent. of the population are photographed in

any one year, or, in other words, the average photographer makes from 600 to 700 sittings annually. I have discussed the question with all grades of photographers, with men who get \$3.00 a dozen to those who get \$15.00 a dozen, and find the result is generally the same.

Here let me give figures from a country photographer doing all his own work except retouching.

Total cash received.....	\$2,188.76
Total stock used.....	\$768.72
General expenses, including retouching.....	518.93
	1,197.65
Net income of owner.....	\$991.11

He made 450 sittings at from \$2 to \$10 per dozen. The cost of material per dozen was \$1.40, including retouching it was \$1.85. As his income was a fair one in my estimation his cabinets evidently cost him \$4.85 per dozen. His cheap work was clearly made at a loss. A very important point arises here. Any photographer who is making only a fair living out of his business can readily see that his work costs him just what he gets for it; if he makes more than \$1,000 per year it is costing him less than he gets for it, but if his income is less than \$1,000 a year, then his work costs him more than he gets for it. I am still assuming \$1,000 a year as a fair income for the average photographer.

Many men tell me that they have figured out that if they could increase the number of sitters to a certain amount per day they could make money at a certain price. For instance, one man said that with 20 sitters a day he could make big money at \$2 per dozen. He was in a town of 35,000, with only seven photographers, so he had a chance to try the idea. At the end of three months he found he could not draw 20 sitters a day by any kind of scheme, and wanted to sell out on account of his health. I suspected the seat of his ailment lay largely in his pocket.

A Business with Three Assistants.

One very successful photographer employing three assistants gave me the following figures :—

Rent .....	\$780.00
Heat and light.....	250.00
Taxes .....	75.00
Insurance .....	100.00
New accessories and repairs.....	150.00
Postage .....	75.00
Help .....	2,800.00
General waste.....	300.00
Repairs .....	100.00
Material .....	2,415.00
Total .....	\$7,045.00
Own salary.....	1,500.00
	\$8,545.00

He made 2,300 sittings, so a dozen cabinets cost him \$3.71, while the material alone cost \$1.05 a dozen, which you will notice is the amount to a cent that I estimated at the beginning of my talk.

It seems to me that this photographer's figures really give us the minimum cost of a dozen cabinets. He gets \$5.00 a dozen, so you see he is not using high-priced material nor paying extravagant salaries. I fancy few men could run their business more economically so until I get more light I am going to assume that \$3.71 per dozen is about as cheap as it is possible for a dozen cabinets to be made.

Distribution of Expense Charges.

I have told you that I have tried very hard to get figures that would enable me to apportion the expense to the different departments of a studio. We all know there is the reception room, skylight and printing room. Given the expenses of each department one should be able to learn just what percentage should be allotted to each. I will try what I can do, but cannot guarantee more than an approximation, simply because no one can give me the necessary figures.

The reception room is the finest part of the studio. It is generally large, well furnished, and in the best location. I think myself at



least half the rent of the premises should be charged against this one room, while most of the repairs and general waste are incurred right here. The other half of rent, taxes and similar expenses may be evenly divided between the operating and printing rooms. I have had to guess at the division of the salary among the employees. I allow the reception lady almost \$12 a week, the printer \$20. I assume the retoucher devotes part of his time to assisting the operator, so give him a salary of \$25 a week, and charge one-third against the operating-room, and the balance for retouching. I allowed, you will remember, \$1,500 a year to the owner. I charge the operating room with \$1,000 of this, and divide the balance among the other departments for superintendence.

This table shows my results:—

	Reception Room.	Oper. Room.	One Retouching.	Printing Room.	Total.
	Dols.	Dols.	Dols.	Dols.	Dols.
Rent.....	380-00	195-00		195-00	780-00
Heat and Light .....	125-00	62-50		62-50	250-00
Taxes.....	37-50	18-75		18-75	75-00
Insurance .....	50-00	25-00		25-00	100-00
New Accessories and Repairs ..	75-00	37-50		37-50	150-00
Postage .....	75-00				75-00
Help .....	600-00	400-00	800-00	1,000-00	2,800-00
General Waste .....	150-00	75-00		75-00	300-00
Repairs on Studio .....	50-00	25-00		25-00	100-00
Material .....	45-00	73-00		1,656-00	2,415-00
Management .....	250-00	1,000-00	125-00	125-00	1,500-00
	1,518 50	2,551 75	925-00	3,219 75	8,545 00
Cost of Each Sitting .....	0 8037	1 09	4021	1 8999	
Total, 2,300 .....		1 10	40	1 40	3 71
Percentage .....	21 8	29 6	10 8	37 7	99 9

If the retoucher is considered as helping the printer in his spare time instead of the operator, we will have to deduct 18 cents from the one department and charge against the other. This would reduce the expense in the operating room to 92 cents and make the cost of a dozen prints \$1.56, that is, 13 cents each. The actual result is this:

Each sitting seemingly costs the reception room 81 cents, the operating room \$1.10, the retouching room 40 cents, and the printing \$1.40. Now this is on the basis of cabinets costing \$3.71 per dozen if they cost more each department must be charged more, then I have worked out the percentage figures thus:—Reception room, 21.8; operating room, 29.6; retouching, 10.8; printing, 37.7.

These figures, I think, are rather interesting, and I will supplement by the percentage figures that refer to material. Total material is a little over 28 per cent., plates and development little over 8 per cent., paper, mounts, and toning chemicals, 16 per cent.; stationery expenses, 2 per cent.

A resitting takes up the time of the reception lady as well as of the operator, so both must be charged; therefore a resitting costs \$1.92. A duplicate order costs \$1.40 in the printing room, but I add the reception room lady's time the total cost will be at least \$3. Remember all these figures are on a specially low basis, and, therefore, most of you here must figure at least 10 to 20 per cent. higher.

Let me conclude by pointing to the immensity of the photographic business. There are in this country 16,000 photographers in business as near as I can learn. We have seen that the stock for sitting costs a little over one dollar, so the photographers of the country buy every year about ten million dollars' worth of plates, paper, mounts, and chemicals. That is an enormous business, and no wonder that many photographers spend much time figuring how to save a little on their stock bills. And yet I often think that energy is being wasted in a wrong channel, for even if they save 10 per cent. it would amount to the average man to less than several dollars a year. I am of opinion that the real point for the photographer to worry over is how to get a higher selling price. I honestly of opinion that a fair price for a dozen cabinets of ordinary style should be at least \$6.00, and it is up to you as business men to endeavour to get it. I am afraid you will never get it fighting it out, and sooner or later you will have to organise as all other occupations are doing, and strive to co-operate rather than to compete.

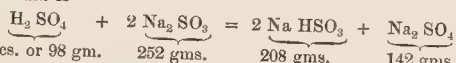
F. DUNDAS TORR

## FOREIGN NOTES AND NEWS.

### Sulphites and Bisulphites.

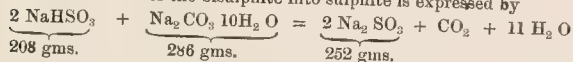
Now that the use of bisulphite of soda has been prominently brought to the front by the recent work of MM. Lumiere and Seyewetz, the following note by M. Lecorney may be useful:—

To convert sulphite into bisulphite by the aid of sulphuric acid the formula is



53 ccs. or 98 gm.      252 gms.      208 gms.      142 gms.

The conversion of the bisulphite into sulphite is expressed by



208 gms.      286 gms.      252 gms.

The following table shows the various transformations taking as base one or other of these substances.

The 40 per cent. solution of bisulphite corresponds to the commercial solution:—

Sodium Bisulphite Cryst.		Sodium Carbonate Cryst.		Sodium Sulphite Anhydrous.	Sulphuric Acid Pure.	
Crystals.	40% Sol.	Crystals.	20% Sol.		Ccs.	Drops.
208 gms.	520 ccs.	286 gms.	1430 ccs.	252 gms.	53 ccs.	1378
1	2.5	1.38	6.87	1.21	0.255	6
0.40	1.0	0.55	2.74	0.46	0.101	3
0.73	1.82	1.0	5.67	0.88	0.184	5
0.15	0.36	0.20	1.0	0.13	0.037	1
0.22	0.26	1.13	5.0	1.0	0.21	5
3.92	9.81	5.40	27.0	4.75	1.0	26
0.16	0.38	0.21	1.03	0.13	0.04	1

This table shows, for example, that if to 1 gm. of anhydrous sulphite, 0.21 ccs. of pure sulphuric acid be added, 0.82 gm. crystallised bisulphite or 2.06 ccs. of bisulphite will be obtained; convert this into sulphite 1.13 gm. of crystallised sodium carbonate 5.67 ccs. of a 20 per cent. solution are required.

Other acids may be used; thus for 100 gms. of anhydrous sulphite may be used

Hydrochloric acid	...	24.13 ccs. or 28.96 gms.
Citric acid	...	55.55 gms.
Acetic acid	...	44.9 ccs.

with which 82.54 gms. of bisulphite will be obtained.

The above are the theoretical quantities for absolutely pure chemicals. Allowances must of course be made if they are not pure. It must not be forgotten too, that the secondary products, such as the sulphate, chloride, citrate, &c. are formed according to the acid used.

FRAUD on a Carlisle Photographer.—At Carlisle Police Court last week, Sophia Begley, no fixed address, was charged with obtaining £2 10s. by false pretences from Mr. F. W. Tassell, Devonshire Street. The Chief Constable said prisoner called upon Mr. Tassell on October 28th last year and offered to sell him two water-colour pictures which she said were painted by De Wint, the celebrated artist, whose name was upon them. She gave the name of Mrs. Jefferson, and said she had had the pictures for many years. Mr. Tassell gave her £2 10s. for the pictures, but when he sent them away to be examined it was found that they were forgeries. The magistrates sent her to prison for one month in the second division.

Fig. 20.—Showing conventional form of dots, depth, diameter, and side action of 110-line engravings, Figs. 9, 10, and 11, from Table F. The clear spaces are not diagonal, consequently the relation of depth to clear space is greater than if the diagonal distance was used.

The element of uncertainty found in etching practice is largely



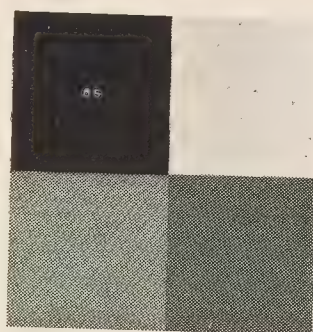


Fig. 21.

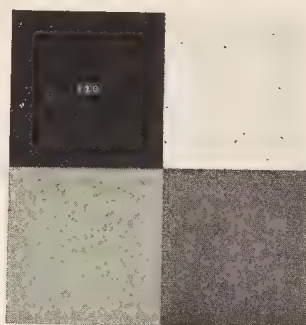


Fig. 22.



Fig. 23.

The numbers indicate the lines per inch. They are ordinary etches. It will be noticed how much nearer to white the coarsest screen runs in comparison to the finest lines, because the smallest black dots (•) bears a smaller relation to unit area and the ratio of the two unit areas to each other is in favour of the coarser lines. The data relating to these special test engravings are given in Table K.

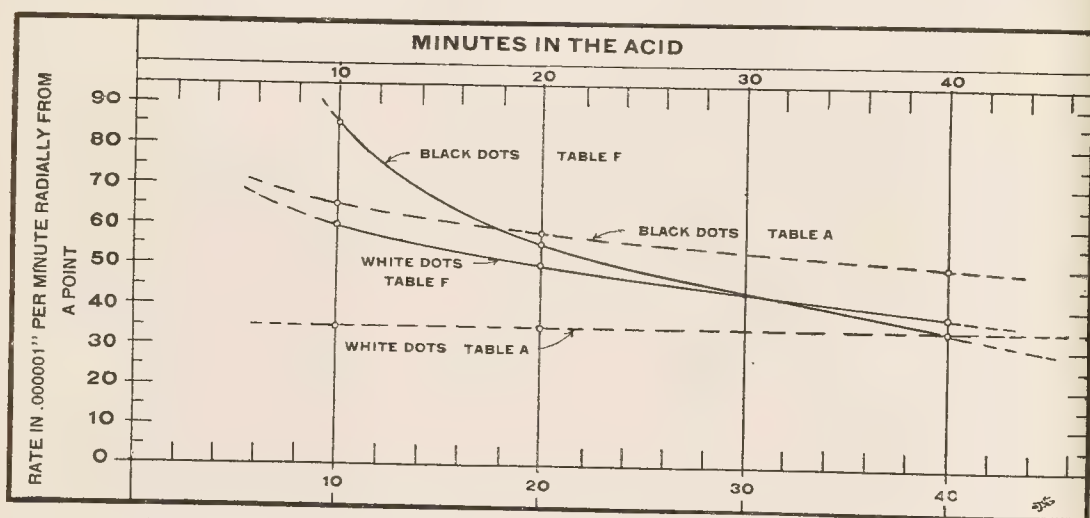


Fig. 24.—Etching rates at 110 lines per inch, from Tables A and F, and Figures 2, 9, 10 and 11.

due to a lack of precautions, which, if taken, would avoid the "making over" of many pieces of work, give the etcher greater control and confidence over, and in, his medium, and thereby eliminate the unsatisfactory quibbling between the clerical and practical departments of the business. What the operator and etcher require to know is that specific causes under like conditions produce identical results. No amount of specious reasoning will alter this inexorable law, and the sooner its scope is learned the better for the trade and all concerned.

It now remains to more exhaustively investigate the law or second or periodic acceleration, and it is hoped to also present numerous photo-microscopic enlargements produced in a novel manner so as to admit of easy and definite comparisons. The relation of half-tones and wood engraving printing qualities will also be made the subject of further treatment, as well as the co-relation of mechanical engraving methods as applied to specialised uses. The relation of specific gravity of the etching medium to temperature and the effect of etching rates will also be taken up in due time. N. S. AMSTUTZ.

**BURNLEY Camera Club Exhibition.**—The prospectus of the forthcoming exhibition is now published, and is obtainable from the secretary, Mr. Fred Whitaker, Mechanics' Institute, Burnley. The judges will be Alex. Keighley and Frank M. Sutcliffe, who will award eleven solid silver vases and thirteen electro-plate goblets. The Burnley Camera Club have made a point in past years of purchasing pictures for their permanent collection, and the practice is one which will doubtless be repeated at the forthcoming show, entries for which should arrive not later than November 10, 1906, the exhibits themselves following on November 13.

**THE Leeds Photographic Society** has made arrangements for a series of one-man shows in the Municipal Art Galleries during the winter months, commencing October 1. The first of the series will be a selection from the works of Mr. Alex. Keighley, and the promises of support from well-known workers leave little doubt that the high standard of the first exhibits will be maintained.

**The Photochrom Company.**—We are asked to announce that the successor of Mr. E. L. White, whose retirement from the managing directorship of the Photochrom Company we announced last week, is Mr. F. M. Lambert.

## THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

We give in "Ex Cathedra" a few impressions of the fifty-first exhibition of the Royal Photographic Society, which opened yesterday at the New Gallery, Regent Street. A detailed review of the photographs must be deferred to next week. Meanwhile we may congratulate the Selecting and Hanging Committee on the result of their labours. The west room (devoted to the pictorial section) never looked brighter than it does this year, and the scheme of decoration is one which contains its own recommendation in the fact that it sets off the frames and their contents, but that it is difficult to recollect of what it is itself composed.

In the technical section the only medal goes to Mr. C. Welborne Piper for a set of models of light-pencils showing various effects of aberration. Colour photography is not represented so largely as was anticipated, but the pictorial sections and technical sections both include one or two examples of three-colour photographic printing.

The Selecting and Hanging Committee (pictorial section) are: W. R. Bland; Furley Lewis; G. A. Storey, A.R.A.; W. T. Greatbatch; J. C. S. Mummery, A.R.I.B.A.; and B. Gay Wilkinson.

The Judges and Selecting Committee (scientific and technical section) are: T. Bolas, F.I.C., F.C.S.; Douglas English, B.A.; Sir J. W. Swan, M.A., F.R.S.; Chapman Jones, F.I.C., F.C.S.; E. Sanger Shepherd; E. J. Wall; and Major-General J. Waterhouse, I.A.

We may remind our readers of the lecture arrangements at the New Gallery during the next seven days: To-morrow (Saturday) Mr. W. Farren lectures on "Wild-bird Life with the Camera." On Monday the lecturer is Mr. Henry W. Bennett, and his subject

"Five Centuries of Church Building in England." Thursday's lecture will be "Homeward Across the World—Burma, India, Egypt, and Italy," by Mr. A. H. Dunning.

The members of the society dined together at the Holborn Restaurant on Tuesday evening. Owing to the indisposition of the president (Major-General Waterhouse), Mr. J. C. S. Mummery occupied the chair. About sixty covers were laid, among those present being Messrs. J. H. Sinclair, H. C. Zerffi, S. H. Fry, H. Snowden Ward, C. F. Inston, H. Holcroft, E. T. Butler, Leslie Clift, George E. Brown, C. E. K. Mees, Arthur Payne, James Brown, F. J. Mortimer, Dr. Lindsay Johnson, C. H. Oakden, T. K. Grant, P. L. Thornton, E. D. Hoppé, Charles Houghton, and others.

There were only two toasts down on the programme—that of the "Royal Photographic Society" and the "Visitors." In proposing the "Royal Photographic Society," Mr. Mummery expressed the regret which he with many others felt at the absence through indisposition of General Waterhouse. He congratulated the society on the exhibition which had been brought together in the New Gallery, and he regretted that the other members of the Selecting and Hanging Committee were not present that evening to receive the thanks of the members. Mr. John H. Gear, in proposing the toast of the "Visitors," coupled with it the name of Mr. Alvin Langdon Coburn, who, in briefly responding, said that he was satisfied that the present rivalry of the two London exhibitions constituted the best possible conditions. An excellent musical and dramatic programme was rendered by Messrs. Churcher and Strugnell.

The conversazione of the society was held at the New Gallery, Regent Street, on Wednesday evening. A large gathering of members and their friends filled the spacious rooms.

### FORTHCOMING EXHIBITIONS.

September 14 to October 27: The Photographic Salon.—Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.

September 20 to October 27: Royal Photographic Society.—Sec., J. McIntosh, 66, Russell Square, Bloomsbury, London, W.C.

October 6 to 13: Bristol Photographic Club.—Sec., J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.

October 17 to 20: Rotherham Photographic Society.—Sec., H. C. Hemmingway, Tooker Road, Rotherham.

October 24 to November 14.—West of England Exhibition (Photographic Section). Entries close October 1. Sec., A. D. Breeze, 41, Union Street, Plymouth.

October 31: Watford Camera Club.—Sec., E. H. Jackson, 100, High Street, Watford.

October 31–November 1.—Watford Camera Club. Last day for entries, October 25. Secretary, Edwin H. Jackson, 5, Lower Derby Road, Watford.

November 7 to 8: Bedford Camera Club.—Sec., W. H. Hodge, 58, Beaconsfield Street, Bedford.

November 7–10.—Motherwell Camera Club. Entries close October 25. Exhibits must be sent by November 2. Secretary, Jas. Dunlop, Myrtlebank, Motherwell, N.B.

November 7 to 10: Hackney Photographic Society.—Sec., Walter Selie, 70, Paragon Road, Hackney.

November 14 to 17: Rugby Photographic Society.—Sec., R. H. Myers, 13 Bridget Street, Rugby.

November 15 to 27: Burnley Camera Club. Entries close November 10.—Sec., Fred Whitaker, Mechanics' Institution, Burnley.

November 16 to 21: Southsea Amateur Photographic Society.—Hon. Sec., F. S. Hoyte, "Lismore," Stafford Road, Southsea.

November 20: Sefton Park Photographic Society.—Sec., A. W. Parr, 34, London Grove, Liverpool, S.

November 27 to 30: Hove Camera Club.—Sec., W. H. Bone, 32, Sackville Road, Hove.

December 6 to 8: South Manchester Photographic Society. Entries close November 21.—Secs., J. H. Haywood and M. W. Thompson, 43, Lapwing Lane, West Didsbury.

December 11 to 15: Southampton Camera Club.—Sec., S. G. Kimber, "Oakdene," Highfield, Southampton.

1907.

February 13–15.—Northern Tasmanian Camera Club. Last day for entries, December 31, 1906. Secretary, F. Styant-Browne, 112, Brisbane Street, Launceston, Tasmania.

February 23 to March 2: Birmingham Photographic Society.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 11 to 14: Cripplegate Photographic Society.—Sec., J. B. Parnham, "Chagford," Old Church Road, Chingford.

February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge, Norwich.

March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.

April 29 to May 14: Photographic Society of Ireland.—Sec., R. Benson, 35, Molesworth Street, Dublin.

WILLIAM H. MACHEN, a photographic plate-maker, giving his address as Courtney Street, Kennington, was charged at the West London Court with causing to be received by Henry Carvell Beaven, photogravure printer, of Shaftesbury Road, Hammersmith, a letter threatening to murder him. Prisoner stated that he was not well when he wrote the letter. The magistrate remanded him.

PHOTOGRAPHING the Drowned.—At the inquest last week on an unknown man found on Clacton beach, the coroner, Dr. Harrison, said he had discontinued having photographs taken of drowned persons, as they were not reliable for identification.

THE prospectus of the exhibition of the Bristol Photographic Club has now been issued, and is obtainable from Mr. J. S. Guthrie, 23, Berkeley Square, Clifton, Bristol.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been received from September 3 to September 8:—

**COLOUR PHOTOGRAPHY.**—No. 19,652. Selective taking screens for colour photography at one operation. Clare Livingstone Finlay, 22, Marchmont Street, Russell Square, London, W.C.

**PRINTING FRAMES.**—No. 19,943. Improved printing frame. Thomas Richard Proctor and Houghtons, Limited, 88, High Holborn, London, W.C.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**FLEXIBLE DARK SLIDES.**—No. 19,165, 1905. The invention relates to dark slides, in which the shutter—like a paper bag in form—envelopes the support of the photographic sensitive surface or its carrier, but with its open end being received into a collar so as to be closed, and in whose production flexible materials are employed, either for the shutter (English patent No. 1,109, of 1901), for the collar, or for both. In dark slides of this

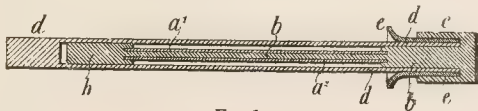


Fig. 1.

kind the open end of the shutter or of the collar or both may present slight irregularities, rendering the introduction of the shutter into the collar difficult when closing the dark slide after loading or after exposure. In the present invention an insertion piece is fitted to the collar. Figs. 1 and 2 show a double dark slide of the suggested pattern. The two supports,  $a^1 a^2$ ,

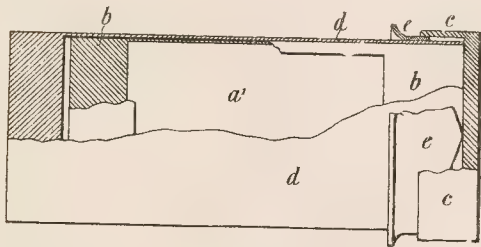


Fig. 2.

of the sensitive surfaces are accommodated in a carrier,  $b$ , the main body of the dark slide, which is turned back at one end to form the collar,  $c$ . From the opposite end, after housing the supports of the sensitive surfaces, the shutter,  $d$ , has been pushed home over the carrier,  $b$ , and into the collar,  $c$ . To assure the entry of the shutter into the collar, the insertion piece,  $e$ , whose two tongues are connected together to form an embrasure, has been inserted over the carrier,  $b$ , and into the collar,  $c$ . After the dark slide has been closed, the insertion piece is withdrawn from it. It is, perhaps, more suitable to give the insertion piece,  $e$ , a permanent position by fixing it upon a standard and to introduce, before closing the dark slide with the shutter, the carrier between the tongues of the insertion piece until the collar surrounds them. Richard Schüttauf, Carl-Zeiss-Strasse, Jena, Germany.

**CINEMATOGRAPHS.**—No. 12,072, 1906. The invention consists in

the eccentric connection of two shafts, a main shaft and secondary shaft, by means of arms, cranks, or, generally speaking, by any radii, one of which, belonging to the main shaft which may rotate uniformly, presses the other radius, fixed upon the secondary shaft; the ratio of the lengths of the radii increasing and diminishing alternately during the rotation of the secondary shaft receiving a velocity which is also continuous, but variable, which it communicates to a connecting rod or similar part serving to displace the cinematograph band directly by means of claws or by the intermediary of a supplementary device of any appropriate kind, interposed between the connecting rod and the band, in such a manner that the connecting rod traverses the path more speedily in one direction than in the opposite direction. Casimir de Proszynski, Rue André Dumont, Liege, France.

**PRINTING FROM RELIEF PRINTS.**—No. 996, 1906. This invention relates to a method of printing from surfaces wherein the picture stands in relief, and is based on the fact that if the parts of the surface which are in relief and the parts not in relief are of different material, a suitable printing medium may be affected differently by these two parts, so that when, after application of the medium, an imprint is made, only one of the parts is printed because the medium has disappeared from or been altered by, the other part. For instance, the parts in relief and those not in relief may affect differently the speed of evaporation of the printing medium. The material of which the relief consists may hinder the evaporation or otherwise retain the printing medium, while the latter evaporates from the parts not in relief. Thus, a gelatine relief on a glass plate may be used as the printing surface. If this is uniformly treated with a suitable printing medium, during the evaporation of the latter a residue will be retained by the gelatine and can be imprinted on a suitable surface to form a picture since the parts not in relief will not have retained any printing medium, and therefore will not be imprinted. When the differential effect of the relief and the non-relief is upon the rate of evaporation, the printing medium may be any suitable substance which is sufficiently volatile. A solution of hydrogen peroxide in ether or the like, formaldehyde, ammonia, formic acid, acetic acid may be mentioned as suitable. In what follows the printing process will be described as it may be conducted with an ethereal solution of hydrogen peroxide: The picture is a gelatine relief, prepared photographically or otherwise, which for simplicity's sake may be supposed to be a line picture which may rest on glass or on some other support from the surface of which hydrogen peroxide evaporates completely, the parts of the support between the lines of the picture being bare. If such a picture be flooded with an ethereal solution of hydrogen peroxide, the gelatine will absorb the hydrogen peroxide and retain it. The gelatine absorbs hydrogen peroxide in proportion to its mass, and if one waits until the peroxide has evaporated from the glass and then imprints the picture on a surface of gelatine paper, satin paper, or textile fabric, the lines will be reproduced on the surface in imprinted hydrogen peroxide, and the latent image thus produced may be developed in known manner. If the picture is not merely a line picture but possesses half-tones, the different parts of it absorb the peroxide in proportion to their depth of tone so that the half-tones are reproduced in the imprinted picture. To prepare a printing surface of this kind, a picture wherein the material in relief is of a non-catalytic nature, such as a chromated gelatine relief, like a developed pigment picture, is treated in known manner, so that the relief is transferred to a surface which is capable of uniformly decomposing the printing medium catalytically. Where the latter is hydrogen peroxide, printing must be effected immediately after the printing surface has been treated with the peroxide, because the catalytic surface will speedily decompose the hydrogen peroxide which diffuses through the material in relief. A. G. Bloxam, for the Neue Photographische Gesellschaft, Siemens Strasse, Steglitz, Berlin.

**PNEUMATIC RELEASE.**—No. 17,127, 1905. The object of the invention is to provide a uniform air compression for use with a time value, permitting of longer exposures. On a cylinder,  $a$ , of metal or other suitable material, we form at one end a nozzle,

b, for attaching a connecting tube, c, the opposite end being provided with a screwed cap, d, containing a central opening to receive a piston-rod, e, which projects slightly through and is furnished with a knob or head, f, for the purpose hereinafter described. To the end of the rod, e, that lies within the cylinder is fixed a piston, g, of any suitable form or material which shall be airtight in its passage. In the normal position the said piston is pressed into contact with the nozzle end of

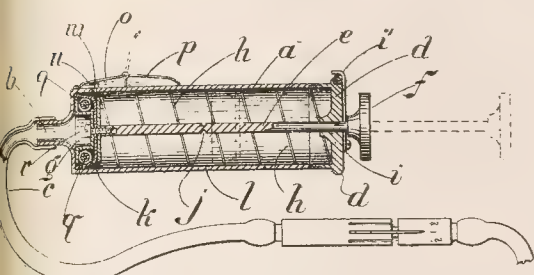


Fig. 1.

the cylinder by means of a spiral spring, h, which at the other extremity abuts against the inner surface of the screwed cap, d. In this position the aforesaid rod is driven home so that the head, f, only projects beyond the orifice in the screwed cap. To prepare the device for use the rod is withdrawn against the tension of the spring to its full extent, as shown by dotted lines, by means of the head, f, when a spring operated detent, i (more clearly shown in Fig. 2), pivotted on the screwed cap, engages in an annular channel, j, formed at a suitable position on the piston-rod, to retain it in the set position until ready for expo-

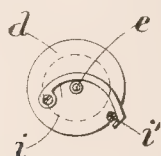


Fig. 2.

sure. The cup leather flange, k (which we at present adopt), on the piston, g, allows of this part of the process being readily effected, as it offers very slight resistance to the displacement of the contained air when moving in the backward direction, but forms airtight contact with the interior surface of cylinder, when forced by the spring, h, in the opposite direction, by the aid of an endless spiral spring, q, held in an annular channel of the piston boss, r. The act of pressing the detent away from the piston-rod, by means of the turned-down lip, i<sup>1</sup>, allows the piston spring, h, to come into play, thus driving the air contained in cylinder through the connecting tube, c, and inflating the teat as explained in the foregoing in respect to the compression of a rubber ball. By this plan a constant volume of air at a uniform pressure is brought into use at each time of operating, and when a time valve is used, uniform conditions and results are ensured. Houghtons, Limited, 88 and 89, High Holborn, London, W.C., and Alfred Sidney Spratt, Tudor Road, Hackney, London, N.E.

An Umbrella Photograph Album.—According to the "Drapers' Record" the umbrella handle is to be turned to new uses. Many new designs are to appear on the market, and one striking creation in silver is a handle in the form of an onion top, with spring lid opening at each side, which contains six miniature photographs.

## New Books.

"Les Procédés d'Art en Photographie." By R. Demachy and C. Puyo. Paris: The "Photo-Club." 12 francs.

This handsome volume, announced some months ago in our pages as to appear under the auspices of the Photo-Club de Paris, has now been issued. It is of quarto (11 x 9 inches) size, and a beautiful production, both as regards its typography and the inclusion of forty-one supplemental plates, each one of which is appropriately mounted on a matt paper and illustrates some part or other of the authors' writing. The aim of the book is clearly conveyed by the title. It is to give an account of those processes involved in the making of the negative and the print which can be of service to the photographer whose interest in his subject is that of a pictorialist. M. Demachy and Major Puyo, true artists that they are, do not seek to talk art, or art principles, or to impart to the photographer a sense of composition, of chiaroscuro, or the other elements which make the artist. These, we believe they would say, are not to be taught, and to talk and write about them is so much waste of time. M. Demachy, as we have read his writings, has persistently set his face against making easy the acquirement by the pictorially-minded photographer of any ready-made form or fashion of art. He has had plenty to say of tools and processes and media, but he has earned our respect by holding aloof from any temptation to create followers, or to establish a type of pictorial photography along particular lines. And we are glad to see that he, with M. Puyo, does not swerve from this course in the present volume. Save for the introductory chapter on "Interpretation," wherein the authors explain the licence they would claim for photography as a means of pictorial expression, the volume is devoted to the technics of the subject. And the subject matter is exactly what we should expect from MM. Demachy and Puyo; which we take to be the same thing as saying that it is precisely that which all those who have seen the works of these leaders of French pictorial photography will desire to study. In other words, the authors write only of those processes which for the past ten years they have used in their own artistic work with almost daily regularity. Needless to say, gum-bichromate figures largely in the list of processes; indeed, with the exception of platinotype, which the authors dismiss altogether—too summarily we think, all the methods described are those for obtaining a pigment image. The majority of those are the *depuillement* processes—there is no English equivalent for the French word used to signify the "development" of a picture by washing away the superfluous pigment—but the authors come at the close to processes such as Mr. Rawlins' oil, in which the control is obtained by adding pigment, not by washing it away. Altogether, the chapters include: Gum bichromate, single, multiple, and multi-colour, commercial gum papers—Artigue, Fresson, "B.F. Rapide," and "Aristique"—other commercial pigment papers—Farinaud, Hochheimer (chromatype), Deux Epées, and Auto-pastel. We have also the authors' experience of gelatine-ozotype—M. Demachy is punctilious in specifying colloids—gum-ozotype; and, lastly, the oil process of Mr. Rawlins. We have nothing but the highest praise for the volume as a whole. Though the text is French, the illustrations should reward any purchaser of it who wishes to study the works of MM. Demachy and Puyo, by whom most of the reproductions are supplied. In a few cases the interest of these is enhanced by the reproduction on the same page of a print direct from the negative, showing the direction in which control in the gum print or on the negative has been undertaken.

A third edition of Dr. Eder's great treatise on photography, the well-known "Ausführliches Handbuch der Photographie," is just commencing its appearance from the publishing house of W. Knapp, Halle, a/S., Germany. Hitherto separate parts of the "Handbuch" have always been obtainable, but a further concession is being made in the issue of the third edition by the publication of the complete book in fortnightly parts, each at the price of one mark (1s.). The first of these, "Lieferungen," as the parts are called, commences the first volume, viz., that dealing with the history of photography. It runs to seventy pages, and contains a supplemental plate of the



panoramic Daguerreotype taken of Paris by Lerebours and Secretan in 1850. We congratulate the publishers on thus placing the volume at the disposal of those of limited means. The sum of sixpence a week for this classic work ought certainly not be so large as to prevent anyone able to read its contents from purchasing it.

THE *Annuaire Général et International de la Photographie* has to be welcomed once more on the appearance of its fifteenth issue. Under the editorship of M. Roger Aubry, it preserves its accustomed arrangement and exhibits no signs of diminished bulk. Following a very French frontispiece, there is a "revue" illustrated with photographs from the studio of M. Paul Boyer in Paris. The review of technical progress during the past year occupies a large part of the volume, and is followed by some contributions from French writers, among which is a posthumous article by M. Vidal on methods of pinatype printing. The usual collection of tables and formulæ and a very full directory of the members of French photographic societies conclude the volume, which is published by MM. Plon-Nourrit and Co., 8, Rue Garancière, Paris, at the price of 5fr. Mention should be made of the numerous illustrations in the text, and as supplements they include the work of MM. Demachy, Puyo, Dubreuil, and other leading exponents of pictorial photography in France.

## New Apparatus, &c.

"Solar" and "Combinar" Anastigmats. Made by C. Reichert, Bennongasse 24/26, Vienna, Austria.

We have received from the firm of C. Reichert, Vienna, two new objectives for examination, the "Combinar" and the "Solar." The "Combinar" is described as a rapid universal objective, adapted for all kinds of work. It is a symmetrical anastigmatic doublet of focal length, 180 mms. (7in.), and aperture of  $f/6.3$ , made up of two similar anastigmat single lenses, each of 312 mm. ( $12\frac{1}{2}$ in.) focal length and aperture  $f/12.5$ . It is claimed that these single lenses will cover plates the length of which is equal to the focal length. The doublet appears to cover a half-plate most excellently at full aperture, and to give a very flat image field with only a quite slight negligible trace of astigmatism. The single lenses behave equally well on the same plate, and the whole combination strikes us as a most useful one for a half-plate camera, while it is obviously serviceable as a wide angle lens for much larger work. The "Solar" is an anastigmat of 180 mm. (7in.) focal length and aperture  $f/5.8$ , made up of two similar single combinations that can be used at small apertures for landscape work. These single lenses are not corrected for astigmatism, as is the case in the "Combinar." The doublet covers a half-plate well, but though its astigmatic corrections are good they do not seem to be of quite the same high order as in the "Combinar." The trace of astigmatism left shows the cross-shaped focus of a point of light, which fact denotes that the astigmatism is nearly pure, and practically the only "spherical" defect left. The apertures of these lenses are marked on the unfamiliar Goetz system, with numbers that represent exposure ratios. This marking by itself seems to us to be inadvisable, as the average purchaser does not understand it. The series of apertures marked 6, 12, 24, etc., corresponds very approximately with the usual series  $f/8$ ,  $f/11$ ,  $f/16$ , etc., while those marked 4, 8, 16 correspond with  $f/6.3$ ,  $f/9$ ,  $f/12.5$ . The "Combinar" would be improved by the addition of a second scale, to be used with the single combinations, and in both cases reference numbers should be employed.

LIVERPOOL Amateur Photographic Association.—The concluding exhibition of the series which has been a feature of the Association's activity during the few months opens on Monday next, in the shape of seventy-one photographs by F. K. Glazebrook. It remains open at Eberle Street until September 25.

MESSRS. SANGERS, the London agents of the well-known Walls-grove photographic series of chemicals, are now removed to large building in Euston Road, W.C.

## New Materials.

"Takis" Self-developing Paper. Sold by the Lumière N.A. Comp. 4, Bloomsbury Street, New Oxford Street, London, W.C.

In this new paper the Lumière firm have produced a distinct novelty in the materials at the disposal of the photographer. Apparently the paper is a variety of P.O.P., with the substances for development of a faintly printed image incorporated in the emulsion. Water serves to dissolve these chemicals and bring about the intensity of the print. At any rate, the behaviour of the print during the operations suggests a form of physical development, such as we have been familiar with in its application to P.O.P. The tones obtained after development in the water are warm in colour, but are tonable in the combined toning and fixing bath, without previous treatment in the platinum bath. The tones obtained in this way are quite satisfactory and equal to what can be obtained on ordinary printing-out paper. The instructions for the use of the paper are as follows:—The paper is exposed in the printing frame to daylight until the image is clearly visible. The exposure may vary within wide limits. The print may be quite faint, the image being only barely visible, but is better to expose a little more fully, say for about five minutes. The print is placed in a dish containing about  $3\frac{1}{2}$  ozs. of clean water for a print 7 x 5 inches. After it has been wetted about half of the water is thrown away and the development continued with the remainder. The print shows gains in intensity, and when it attains sufficient strength is washed for a short time in clean water and then transferred either to platinum toning bath, for black tones, or direct to the combined bath, for purplish black tones. Simple fixation of the developed print in hypo will leave it with a good sepia tone. In range of gradation the paper, as we have found it, is certainly of very good quality. We may not be convinced that the form of manipulation necessitated by the paper is that which is destined to become popular, but the new paper is a step further in the direction of substituting the organised skill of the manufacturer for the manipulation of the user, and it is a step which appears to us to have been taken with the care and experience which we associate with the great firm of Lyons.

## CATALOGUES AND TRADE NOTICES.

THE Imperial Dry-Plate Company, Limited, send us a leaflet explaining the use of the "Imperial" orthochrome light filters, not supplied to work with the two brands of "Imperial" orthochromatic plates. The leaflet, we presume, will be sent to anyone who applies for it.

A CATALOGUE of optical appliances employed in photo-mechanics work has been issued by the firm of Carl Zeiss, Jena. It describes the lenses of the Zeiss manufacture specially adapted for process work—viz., the Series V. Protar, Series VIII. Apochromat Tessar, and Apochromat Planar. The firm is also a maker of high-class reversing prisms and mirrors and focussing magnifiers, and can undertake the complete optical equipment of the photo-engraver's establishment. The list, which should certainly be of service to the process man, showing him the design of the Zeiss instruments, may be obtained from the firm's London house in Margaret Street, Regent Street, W.

KEIGHLEY PHOTOGRAPHIC ASSOCIATION.—The annual meeting of the Keighley and District Photographic Association was held on September 11, at the Keighley Technical Institute, Mr. W. Robertshaw (president) in the chair. Mr. N. Barrett submitted the seventeenth annual report, which recorded a successful year, the membership having increased from 76 to 84, and the balance in hand from £3 0s. 5½d. to £5 1s. 4d., in spite of considerable special expenditure. Mr. Robertshaw was re-elected president, Mr. Walter Mitchell hon. treasurer, Messrs. F. Mahony and H. E. Haggas co-secretaries, and Mr. Cyril Smith librarian.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
	Chelsea and District Photo. Soc.	Outing to Wimbledon Common.
	Aberdeen Photo. Art Club.....	Outing to Milltimber.
	Aberdeen Photographic Assn.	Outing to Bishop's Loch.
	Coventry Photo. Club.	Outing to Brandon.
	Bowes Pk. and Dis. Ph. Soc.	Outing to the Inns of Court.
	North Middlesex Photo. Soc. ....	Outing to Hampstead Heath.
	Luton Camera Club .....	"Carbon, Platinotype, and Page-Croft Pigment Paper."
	South London Photo. Society ..	"A Developing Competition." C. Churchill, F.R.P.S.
	Southampton Camera Club .....	"Gedona." Messrs. J. J. Griffin & Sons.
	Hackney Photographic Society	"Street Photography." Wm. Rawlings.
	Manchester Amat. Photo. Soc.	"Lantern Slide Making." Mr. J. D. Berwick.
	Leeds Camera Club.....	Lectures by Members.
	North Middlesex Photo. Soc. ....	"Promide Toning," also Lantern Show.
	London and Prov. Photo. Assn.	"J. H. Avery." "Madeira Up to Date." A. L. Henderson.

### PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A meeting of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, September 14. Present:—Messrs. F. A. Bridge, Alfred Ellis, S.H. Fry, Martin Jacolette, A. Mackie, Edgar Scamell, Lang Sims, and Wollons Willson. Mr. Martin Jacolette, president, was in the chair. Correspondence was read between the Hon. Secretary and the Hon. Secretary of the Artistic Copyright Society in reference to a proposed conference between representatives of the two organisations on the subject of the treatment of photographers' copyright in the Bill to be brought before Parliament by the A.C.S.

A letter was read from the Secretary of the Actors' Association thanking the Committee of the P.P.A. for the consideration given to the questions put by the Actors' Association on the subject of the treatment of members of their profession with regard to copyright in photographs and for the replies thereto. The Hon. Secretary made a report of the business of the Association and its progress during the recess. The fourth number of the "P.P.A. Circular" had been issued to members, and had given rise to some correspondence with members, particularly with regard to certain trading firms, about whom information had been asked. The exhibition of members' work, arranged to be held at the office of THE BRITISH JOURNAL OF PHOTOGRAPHY, had received a sufficient number of entries to ensure an interesting exhibition. The account with the Fine Art and General Insurance Company showed that the company had to pay the Association about £9 for commission, being 5 per cent. on the premiums of the special policies issued to members. New members had been admitted to the number of 53 since the issue of the "Handbook," practically three and a half months. The applications for advice, etc., had been of about the usual number for the period embraced, but were of a more serious nature than usual, and showed that members were beginning to appreciate the usefulness of taking an independent opinion upon matters where their interests might lead to a prejudiced view of the case. Three cases of disputed accounts had been dealt with. In one a satisfactory settlement was arranged. In another, one of the parties refused to negotiate; and in the third case a writ was issued before the Association had opportunity to intervene. In this case a settlement might have been arranged if the member had brought the case to the notice of the Hon. Secretary earlier. Four cases of infringement of members' copyright had been dealt with. In all of them a reasonable amount of compensation had been obtained without recourse to law proceedings.

The question of an allowance to the Hon. Secretary for clerical assistance, etc., was then discussed and an arrangement come to.

## Commercial & Legal Intelligence.

PHOTOGRAPHIC Materials, Ltd. (Westminster).—Issue on 21st August of a £184 15s. 4d. 6 per cent. debenture, part of a series created 24th April, 1906, to secure £25,000, charged on the plant, machinery and stock at Scot's Bridge Mill, Rickmansworth, certain patents and copyrights, and the company's undertaking and property, present and future, including uncalled capital. No trustees. Total amount previously issued of same series, £2,800.

THE Canvassing Business.—At the City of London Court last week, Mr. J. T. Jacobs, 80, Cranbrook Street, Bethnal Green, sued Messrs. A. and G. Taylor, photographers, 153, Regent Street, for the return of 7s., money which he had paid to them. The plaintiff said that a collector from the defendants called upon him, and he agreed to have one large photograph and six small ones. For them he was to pay 35s. by instalments of one shilling per week. He had paid seven instalments, and then the collector did not call again. As the defendants had neglected to carry out the terms of the arrangement, he asked for the return of his money. The defendants' representative said that the plaintiff had not called for a sitting. They were ready to give it to him at any time. They would then execute the order, and send a collector weekly for the instalments. The Assistant Registrar adjourned the case for the photograph to be taken.

TWELVE Months for Mr. John Burns's Champion.—At the Clerkenwell Sessions last week, George Lawrence, labourer, pleaded guilty to stealing a handbag and umbrella from the photographic studio of Guy Rawlings, at Chichester House, Chancery Lane. The prisoner is the man who obtained some notoriety as Mr. John Burns's champion, having claimed to have interfered on behalf of the right hon. gentleman when he visited a lodging house in Drury Lane recently. A police constable produced the list of the prisoner's previous convictions (a terrible record), dating back forty-three years, and including one term of five and three terms of ten years' penal servitude for a variety of offences. Lawrence was ordered twelve months' hard labour.

## News and Notes.

"LE PENSEUR."—It is rumoured, no doubt erroneously, that a quotation should have accompanied the picture of "Le Penseur" in the Photographic Salon; but that it was inadvertently omitted from the catalogue. The figure is represented as carrying out the philosophic command, "Know Thyself," and the quotation ran:—"All the world's a stage. What am I? Am I a 'super' man, a ballet man, or just a 'walking gentleman'? I'm not quite Shaw." It has been hinted also that the model employed for this work has thought of doing a statuery "turn" at the London Pavilion with La Milo, but is a little dubious of passing the censorship of Mr. Stead so triumphantly as that lady did. It is more likely therefore that he will take the advice of Miss Corelli as to the advisability of using the photograph as a frontispiece to a new book of plays now in preparation—that is, when he is assured of his position in copy-right matters.

INSTRUCTION in Optics.—The prospectus of classes at the Northampton Institute reaches us from the secretary of that institution, who kindly draws our attention to the lectures and laboratory practice in optics in the department presided over by Mr. S. D. Chalmers, M.A. The course of Wednesday evening lectures includes seven evenings devoted to photographic apparatus, according to the following syllabus:—Construction of Cameras. Details of adjustments; simple landscape lenses; importance of stop as regards illumination and correction of defects. Nature of defects, their influence on image; symmetrical objectives, modern forms. Effect of light on photographic plates—orthochromatic plates and screens; requirements of colour photography, the testing of photographic lenses. Stops, shutters, construction, and testing. Telephoto-



tography. Stereoscopic apparatus. In the laboratory arrangements are provided for proving and studying the fundamental laws of optics, and for making the simpler scientific and commercial optical tests. Photometers of various kinds are available, and optical benches enabling the focal lengths of mirrors and of spherical or cylindrical lenses to be tested by various methods. The students are also practically instructed in testing plane and curved surfaces by the spherometer and optical methods, in centering lenses and lens combinations. They also have opportunities of making simple tests on telescopes, photographic lenses, projection lanterns, and microscopes. The senior optical laboratory has been specially equipped for the testing of photographic apparatus, telescopes and microscopes, as well as materials and portions of optical apparatus. Its equipment includes special apparatus for testing telescope objectives and eye-pieces, the Beck Photographic Lens-testing bench; a Zeiss microscope with apochromatic and other objectives; the Abbe spectrometer. Special apparatus for measurement of curvatures and refractive index of lenses. Facilities are also given for the testing of surveying instruments, a 5-inch Transit theodolite and a 14-inch level being available. A well-fitted dark room is annexed to this laboratory.

**A CINEMATOGRAF Fire.**—About noon on Monday last the residents of the Haymarket were alarmed by a serious fire in an off street, known as James Street, on the premises of the Cinematograph Film Company, Limited. The building is numbered 15b, and in addition to the company already mentioned there were, as tenants, the Crown Art Co., Ltd. The house was comprised of two storeys, and was wedged in between much larger buildings, with contents of an inflammable description. The narrowness of the street caused those on the opposite side, as well as the occupants in the adjoining houses, to become greatly alarmed. The fire was caused by the ignition of a film, and, according to an eye-witness, "it flew through the house fully ablaze, as though it had been shot out of a gun." Within a short space of time the premises were on fire from the ground floor to the roof. The building, despite all efforts, was completely gutted, but the damage is covered by insurance. A telephone standard situate on the roof of the building, and bearing a large number of wires, was so damaged as to seriously interfere with telephone communications. A rough estimate of the damage is set down at £10,000.

**FREAK Photograph.**—The "Dublin Evening Herald" reproduces a freak photograph, in which a man is represented standing by the side of a table on which rests his own head, his trunk being seen in the background. The author of the photograph writes:—"The picture is the result of a triple exposure on the same negative. To take the photograph I fastened a strip of black cloth to the rear of the studio for a background, and placed a stand in front of it. Then I lowered the camera until its top was level with the stand of the table. Getting the stand in focus, I had an assistant kneel back of the table, with his chin resting on the surface. Then I placed a piece of black cloth, to correspond with the background, between him and the legs at the back of the stand. This cloth was fastened to the stand to keep the body from being seen through the legs of the table, and corresponds with the background, also of black cloth. Thus I made ready for my first exposure. Next I had my assistant, whose head is seen on the table, stand at the left, and I covered his head with a black handkerchief, exactly corresponding in colour with the black background. Thus the face was hidden, and the man's body appeared with the head cut off. So the second exposure was made. Then I had the assistant remove his coat and stand to the right of the table with a knife in his hand, to make it appear that he had cut off his own head. This completed the third exposure, all on one plate.

**THE Photographic Convention.**—The local committee making the arrangements in connection with the Photographic Convention of the United Kingdom, to be held next summer at Hereford, took place at Clarence House, West Street, on Friday last. Mr. Alfred Watkins presided. The hon. secretary (Mr. W. T. Carless), having explained in detail in reference to the question of finances, it was decided that a subscription list be formed, and that a circular be drawn up with that object. It was suggested that, though there

had been a great demand for hotel accommodation at Hereford summer, there would probably be no difficulty in arranging accommodation at the hotels and boarding-houses for the visit to the convention. The question of excursions during the week referred to and discussed at some length, boating, driving, and way outings having been suggested. Mr. Watkin (president), Carless, Mr. W. Cecil Gethen, Mr. A. C. Edwards, jun.; and W. P. Pritchard were appointed a sub-committee to make the necessary inquiries, etc., and report to a subsequent meeting of committee. It was decided to ask Mr. Wilfrid Groom to allow name to be added to the committee.

**HACKNEY Exhibition.**—The annual exhibition of the Hackney Society will be held on Nov. 7, 8, 9, and 10, at the King's Hall, Hackney Baths, London, N.E. There will be six open classes, awards of silver and bronze plaques. The judges are Messrs. Henry W. Bennett, W. Greatbatch, and Furlay Lewis. Exhibitions will be collected without charge from the Salon and Royal Photographic Society's Exhibition. Conveyance from Hackney is offered by the Southern Exhibitions to all exhibits entered for South Hove, and Southampton. Entry forms for these exhibitions may be obtained from Mr. F. S. Hoyte, "Lismore," Stafford Road, Southsea. All exhibits must be sent to the King's Hall, Hackney Baths, London, N.E., not earlier than Friday, November 2, or later than Monday, November 5. Mr. Walter Selfe, the secretary, of Paragon Road, Hackney, will send the prospectus.

**MUNICIPAL Photographs.**—Once again the vexed question of providing a set of photographic views of Cardiff and the surrounding district came before the Parliamentary committee on Tuesday last week, and it is a striking commentary on a public body's way of negotiating in a little matter of this kind that, although competition was opened about three months ago, the city council just as far off the attainment of the object in view as when the thing was first mooted. There was a curious blunder committed the initial stages of the "enterprise" by asking Cardiff photographers to compete for a small prize of £5, which would not be enough cover the expense attached to the production of a really good set, say nothing of recompense for the work and trouble involved. The prize of £5 was awarded to a certain photographer, but his set was not brought into use, so that nothing was gained by the award of this first prize of £5 and a second prize of £3. The next development was a recommendation that a sum of £25 should be given Mr. W. Jenkins for a set of photographic views which were submitted to a meeting of the Parliamentary committee about a month ago, and which were considered to be of excellent quality and great artistic value. The committee recommended the council to pay Mr. Jenkins this sum of money, but the council considered the professional photographers in the city were not properly treated, and that they should be given the opportunity of competing for this sum of £25, and they passed a resolution accordingly. In the interval between the meeting of the Parliamentary committee and the council meeting, however, Mr. Jenkins had proceeded with the preparation of his set of views on the strength of the Parliamentary committee's recommendation. And now arises the question, "What is to pay Mr. Jenkins for the work he has already put in?" This was the main point in a letter read from Mr. Jenkins at another meeting of the Parliamentary committee. Another letter, signed by Messrs. J. O. Long, A. Freke, H. J. B. Wills, and A. Lawrenson (Messrs. Taylors), in which they sought the right to compete for this prize of £25, was read. Mr. Lewis Morgan suggested, as a way out of the difficulty, that they should find out how far Mr. Jenkins had gone, and to what extent he should be compensated. The majority, however, were in favour of inviting Mr. Jenkins to compete for the £25, and that is how the matter stands.

**WHERE Cameras are Dangerous.**—The American Consul at Trieste warns visitors to Montenegro that the authorities of that country have issued an order that no aliens, single or in groups, carrying weapons will be allowed to travel in the principality without danger of being arrested and transported to Cetinje. Foreigners carrying cameras without a written permission will be prosecuted, even if they take only snapshots of the scenery.

## Correspondence.

\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* We do not undertake responsibility for the opinions expressed by our correspondents.

### COLOUR-PRINTING IN ENGLAND AND ABROAD.

To the Editors.

Gentlemen,—It is impossible to feel hurt or vexed with the mild and courteous dissent expressed by Mr. Whatsname in a communication to which you have justly granted the treatment of an article. I neither do I think his dissent damaging to the position I took in my original article. On the contrary, my one and constant ejaculation, when reading Mr. Whatsname's article, was "Exactly." Mr. Whatsname says, "All that Mr. Tilney says has been said many times before about France." I am not an idiot, then, in the etymological meaning of the word. Mr. Whatsname further says, "It is quite true that competent art direction is desirable in photo-engraving," a noble sentiment which embodies my whole point. After admitting what has been said many times about France and begging for the inclusion of Germany in the argument, Mr. Whatsname proceeds to excuse England on the score of speed of delivery and "rush"; but I did not say that England could not find an excuse. So long as the malefaction is admitted I do not bother about the excuse—another name for cause. I state the lamentable fact. The point is, can English firms turn out work as good as the best foreign firms in even double the time the latter would take?

Mr. Whatsname says further, "Does he (that's me) think the Germans are not experimenting with filters (I think they are, for all they're worth), as well as using the 'art' direction (I claimed that they were), because if so, he is mistaken; though I can assure him they are still doing more fine-etching than we are in England, and, if their results excel, it is due to the patient care with which this part of the work is executed." (Exactly!)

It would be tedious to go through all Mr. Whatsname's points, but I could do so and prove how he plays into my hands every time. Mr. Whatsname dilates upon the "unfortunate" habit of money-making; of the turning out of work for greater profit; dares me to testify to the better temperament of the German for colour reproduction; and finally drops into grave social questions, such as ill-timacy, where I confess I am out of my depth.

Mr. Whatsname's conclusions is a desire to "meet" me; but once, for me, he has neither a local habitation nor a name, I do not know how I can oblige him, apart from the fact that I am unused either to firearms or to jiu-jitsu.—Yours, etc.,  
F. C. TILNEY.

### THE WORD "AEROGRAPH."

To the Editors.

Gentlemen,—I was very much surprised on looking down "The Birmingham Daily Mail" to notice a paragraph on Marconi's invention headed "Aerography." It is the first time I have heard of wireless telegraphy being called aerography. It would be interesting to know what is the correct term for the photographer "aerograph."—Yours truly,  
J. SQUIRES.

The Regent Studios, 125, Gt. Lister Street, Birmingham.  
September 1, 1906.

[The word "aerograph" for wireless telegraphy is, of course, a bad misnomer, for the operations are in no way dependent on the air, and can hardly be called writing. Its inappropriateness was pointed out at a lecture delivered at the Society of Arts last winter, by Mr. A. L. Burdick, and if our correspondent will turn to our issue of January 19 of this year, he will see a reference to the very point which he raises.—Eds., B.J.P.]

## Answers to Correspondents.

\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.

\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

Wilkinson & Co., 1, Royal Arcade, The Walk, Norwich. Five Photographs of Edwards' Sand Pits, Norwich.

W. A. Culeshaw, 119, High Street, West, Sunderland. Photograph of the Sunderland Association Football Team, Season 1906-7.

Bell & Peterson, Humbert Street, Jarrow-on-Tyne, Durham. Photograph of the Jarrow Congo Cycling Club Fire Brigade.

W. E. Dixon, 131, Midland Road, Bedford. Photograph of the American Ambassador with the Harvard Crew.

A. E. Kirk, Claremont Drive, Timperley, Cheshire. Photograph of an Old Print of Old Victoria Street, Manchester.

STEREO TRANSPARENCY PLATE.—The European Blair Company have ceased to manufacture their "Premier" Lantern Plate (rapid chloride). Is there any similar plate in the market stereo size (6½ x 3½)? If so, please say where it can be obtained.—J. J. M. P.

B. J. Edwards and Co.'s "Krystal," John J. Griffin and Sons' "Gaslight," and Paget Prize Plate Co.'s "Gravura" are all made in this size. So also are the Blue Label lantern plates of Austin Edwards.

STUDIO QUERY.—Will you kindly favour me by answering the following? I have taken a shop; the size of yard is only 25ft. by 11ft., so I am thinking of having a 12 x 9 studio erected, as I may have trouble with the surveyor to get one any larger; so, as it is small, kindly let me know how best to have it lighted so as to get as much light as possible. Would only require to operate from one end. Could I have glass start 2ft. from door, and carry on to 4ft. from end, so as to give me 6ft. of glaze?—PYRO.

The studio will be exceedingly short for any kind of portraiture, and we should have thought it would scarcely be worth building for professional purposes. We would suggest that you have a door in the end of the studio, so that the camera at times can be put out in the yard so as to get greater distance between lens and sitter. As we have no idea of the aspect of the studio, or its surroundings, we cannot advise about the lighting. But we should say have 7ft. of glass instead of 6ft., as it is easy in so small a place to stop out any light that may not be required.

BACKGROUNDS, ETC.—I should esteem it a favour if you would kindly answer the following: 1. Name and address of firm who supply canvas of sufficient size to make backgrounds. 2. Are aniline dyes the right thing to use for tinting photographs (such as the Leviathan colour outfit).—A. E. G.

1. What is generally used for backgrounds is unbleached sheeting. It may be had at the large upholstery warehouses or drapers' establishments up to eight feet wide, if not wider.

2. Yes, they are largely used (see reply to "Miniature.") 3. The lens has not quite the rapidity of a portrait lens, but it is quite rapid enough, and an excellent lens for portraiture and groups.

FLASHLIGHT.—I have noticed in your answers to correspondents



that the amount of powder you advise as necessary in flashlight work is in all cases a third (and sometimes less) than I have been in the habit of using. Will you kindly advise me where I am wrong? I use Ross Homocentric and Ross Zeiss protars at  $f/11$ , and — plates and weak pyro-soda developer, and yet for a group of eighty people arranged in group formation I have to use 3oz. of — powder, and then the resulting negative is under-exposed. I always use a short focus lens, so as to bring the light as near as possible to the objects being photographed. Will you kindly tell me: 1. Are there faster or more suitable plates than above? 2. Is there a more suitable developer? 3. Does flashlight powder become less actinic and more explosive with damp or age? 4. How to store the powder and keep it fresh?—FLASHLIGHT.

1. Certainly. Such brands as the Zenith or Monarch of the Ilford Company, the Flashlight of the Imperial Company, to name two only. 2. Pyro-ammonia would be better, or metol or rodinal. 3. Damp powder does not burn so quickly, and we should say that more must be used. The explosive properties would not be increased by damp, but rather decreased. If kept dry, age alone will not affect the powder within a reasonable time, say six months. 4. In a glass-stopped bottle. We do not think you will find much difference between the leading powders in this respect.

H. E. C.—Of course, the passage is a mistake, for "at an angle of 45 deg." These blunders of hurried writers in the lay Press are not infrequent.

EMPLOYMENT IN FRANCE.—I should like to get employment in a photographic studio in France. Can you advise me how to procure same? Also, can you tell me of a French trade journal? What is your opinion of the profession in that country? Also the usual salary.—IOAN.

Several publications (periodicals) can be used to find a situation, such as the "Photo Revue" (Ch. Mendel, 118, Rue d'Assas, Paris); "La Revue de Photographie" (44, Rue des Mathurins, Paris). As a rule, situations do not abound, and go generally to the fittest. There are, as in England, good, bad, and indifferent operators to be found, and the wages vary accordingly, from four or five pounds a month up to twenty; but we think this last figure very rare indeed. If you can correspond with a first class firm dealing with photographers, and can show good work, it would be better than advertising.

S. BARNARD.—The correct principle is to drive warm air through the cupboard, not to draw it. We have returned sketch with suggestion on back. Unless your shelves completely fill the cupboard, so that no air can pass except over the surface of plates, it will be sucked up the sides, and you will practically have stagnant air over the centre of the plates, and therefore unequal drying marks.

S. PORTER.—We are sorry we cannot say. Why not address a letter to the secretary of the Nottingham Camera Club?

A. N.—We have not the volume by us, but if we recollect rightly the dodge consists merely in giving two exposures, one on the bottle and one on the person, the same plate being used for both. Certainly, it will work.

A. T. (Walthamstow).—1. The photographs prove the difficulty of obtaining the eye fully open in the photograph. One of the prints seems fairly good, but the other is evidently not well defined. We think you would get better results on orthochromatic plates exposed through a screen. 2. It is possible you may register the postcard as a design, but if you cannot do so, it will be best to obtain provisional protection at the Patent Office. In the former case you will apply personally at Stationers' Hall, Ludgate Hill, E.C. In the latter you had better write to the Comptroller, 25, Southampton Buildings, for particulars of the cost, etc., of the patent.

BIO-BIO.—We cannot say. You had better write to one or two of the French and German photographic papers, the addresses of which you will see in the "Almanac."

UNEXECUTED ORDER.—Shall be obliged if you will inform me on the following matter: Some time ago (six months) I gave a man a picture to paint in oils. It was promised in four days, but we have not received it up to to-day; it has been promised

every day for months past, but we cannot get it, and lost trade, through it. Have I any ground for action damages.—STUDIO.

You can sue the man in the county court for the value of the picture you sent to be coloured. If you sued for damages should doubt if you would receive much, if anything.

VARIOUS.—I am an old wet-plate man, so you must excuse apparent childishness of my queries. 1. I want to take m and postcards by gaslight, and my space is limited. What lens shall I require ( $f/4$ ), and what the shortest dist between lens and sitter for three-quarter length? 2. Can advise me as to best lamp and number of burners? 3. Where to get accessories, such as motor-cars, railway carriage, etc.—W. R. KING.

1. If you wish to take full-size postcard portraits, you require a lens of about 8 $\frac{1}{2}$  in. focus; this will, for a quarter length portrait, require a distance of somewhere 11 ft. between camera and sitter. For midgets, of course, If you do not want to fill the postcard, a 6 in. focus lens suffice, and that will require a shorter distance. 2. The Company, 205, Oxford Street, supply a gas-lamp for purpose; write them for a prospectus. 3. Such houses Marion's, Fallowfield's, and Houghton's.

COPYING.—I have a photograph of two heads in a circle 2 $\frac{1}{2}$  in diameter which I want to enlarge to 9 $\frac{1}{2}$  inches diameter. I have got a good negative by daylight, but the paper n show terribly, and the girls look as if they had got me. I have tried copying with two 100-c.p. electric incandescent lamps (one on each side), but get the same effect. Is there way of getting over this other than re-touching, which is almost impossible? The original is printed on self-toned paper.—BEE.

If you had sent us the print we would have advised better. We should advise you to get as even an illumination as possible, and expose more fully than you have done, so the plate develops quickly. If this is ineffective, we can suggest making a print from the enlarged negative, and have this worked up.

COLOURED MINIATURES.—I shall feel extremely obliged if you give me any information as to how enclosed miniature is produced and coloured. (1) What paper are they printed on? (2) Is coloured? If you look through photograph against a strong light you will see the colouring is simply a daub, which I think must be put on from the back. The method of attaching celluloid I find is stated in Journal of the 31st ult.—MINIATURE.

We published a short article on the subject on April 6. The prints are made on gelatine P.O.P. (2) The colours aniline dyes, and are applied to the front of the print with brush. Three only are used—red, blue, and yellow—and effects obtained by admixture, either beforehand, as red and yellow to form the flesh tint, or whilst being applied.

SUBSCRIBER.—(1) Too cheap. (2) Certainly, the lady's face is somewhat blurred. We should wish for rather better definition of the lady's face, but we think the lack of distinct features might be remedied by retouching. We are of your opinion that such low-priced work is bad enough to leave alone.

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## SUMMARY.

The Cameron Exhibition at the "B.J." Offices closes to-morrow week, October 6.

The following Thursday, October 11, a "Single Picture" Exhibition, by members of the Professional Photographers' Association, will open. It will be the first exhibition held in this country at which professional photographers voluntarily combine to show each other the class of work being turned out from their studios.

Keeping properties of developers. Mr. Henry W. Bennett contests our views expressed some weeks ago that sulphite in the same solution with carbonate speedily spoils. (P. 765.) We discuss our own and Mr. Bennett's views. (P. 762.)

Messrs. C. E. K. Mees and S. H. Wratten have determined the properties of the new yellow dye for light-filters. (P. 765.)

Herr E. Valenta has examined a number of printing colours for permanence. (P. 770.)

A Tokio correspondent points out the need of a swinging lens on reflex cameras intended for press photography. (P. 777.)

Royal Photographic Society's Exhibition. A review of the pictorial section appears on page 767.

Lenses for studio work. An article for the beginner in professional photography appears on page 764.

A recent estimate places the money spent in pictorial postcards annually in the United Kingdom at £3,600,000. (P. 762.)

We give the arithmetical rule for finding the proper separation for stereoscopic negatives. (P. 761.)

The photographic trade has fallen off somewhat in Germany, according to the latest returns. (P. 761.)

## EX CATHEDRA.

### Photographic Manufactures in Germany.

An interesting statement as to the present condition of the manufacturing trade in Germany is given by "Die Photographische Industrie," a German trade paper. From this it appears that five of the principal photographic paper manufacturers showed in 1905 a profit of £97,125, as against £108,435 in 1904, or a reduction of £11,310. Only one firm showed an increased profit—viz., £7,237. This shrinkage in profits is stated to be due to the cutting of prices. Three dry-plate makers show a profit of £14,011 in 1905, as against £15,652 in 1904, or a decrease of £1,641. The German trade is advised to push their manufactures more in export, and also to combine to reduce the price-cutting. The loss in the export trade is particularly noticeable, also in camera-making, though here the figures are somewhat incomplete. There is one feature which has been particularly noticeable during the past twelve months in the German photographic journals, and that is the energy with which some of our English plate and paper makers are pushing their wares there, and it should afford some gratification to our patriotic sense that British plates are able to find a market in the face of the German tariff.

### Rule for Mounting Stereoscopic Views.

Stereoscopic slides cannot give a true stereoscopic effect unless they are observed under the same conditions of convergency as those which prevailed when the exposures were made, and the true effect cannot be secured unless the views are mounted with the proper degree of separation and observed from the proper distance. If the two negatives are on one plate, as is usual in most cases, and are produced with lenses a known distance apart, it is quite easy to ascertain the proper mounting separation for the positives. The complete rule for a lenticular stereoscope is as follows:—Add the separation between the two lenses (centre to centre) to the distance separating the eyes of the observer, and then deduct the distance between any two corresponding points on the two negatives. The result is the proper separation of the same two points in the positive prints. If the points selected are distant points, their separation on the negatives will be equal to the lens separation, and the two distances will therefore cancel each other. It is then only necessary to mount the positives so that two corresponding distant points are separated by a distance equal to that between the eyes. If there are no distant points in the view the complete rule must be applied, and if all the objects are very near, it is especially important



that the rule should be strictly observed. If a prismatic stereoscope is to be used, the width of one prism should be added to the positive separation as found by the rule. This addition is exactly correct if the prisms are half-lenses properly centred in front of the eyes, and, though these conditions are seldom fulfilled, the correction is generally true enough for all practical purposes. With very near objects and widely separated lenses the proper separation for the positives is sometimes so small that the prints have to be trimmed down to absurdly small dimensions. Further, the negative images come very near the ends of the plate. To avoid these effects the separation of the lenses must be reduced, and the adjustment is best made by trial on the focussing screen, for if each of the two negative images is fairly well centred in its own half of the plate, a convenient mounting separation will generally be secured.

\* \* \*

#### Postcards in 1905-6.

The recently issued report of the Postmaster-General for the official year which closed on the last day of March last records some interesting figures with regard to the transmission of postcards through the post. The number of postcards delivered in the United Kingdom during the above period was 800 million 300 thousand, an advance of fifty-five million on the previous year, or an increase of nine per cent. This figure works out to 18.5 postcards per individual per annum. Assuming, as has been estimated, that three-quarters of the postcards are of the picture variety, we obtain an idea of the present volume of the home trade in these articles. Those who predict that the postcard craze is on the wane will perhaps point to the fall in the increase this year. Three years ago, when the postcard business leapt into existence, the increase in the postal cards transmitted was 25.5 per cent.; the following year it was 19.7 per cent. Still, the 9 per cent. of this year is considerably above the average increase for the years previous to the introduction of the pictorial cards, and shows that the custom of sending these missives is still upon the increase. The constant new issue of cards proves that the trade is one which permits of stock being very rapidly disposed of, and there need be no pessimistic feelings as to a consumption which represents over £1,200,000 spent in postage alone. Assuming that the average price of cards sold is 1½d., the amount expended in the retail purchase of cards is £3,600,000.

#### The Use of Sulphite of Soda.

In an article on another page, Mr. Bennett criticises a note that appeared in our issue of June 15 upon the question of the keeping powers of soda sulphite in conjunction with an alkali. Unfortunately, he seems to have misunderstood our note, and, in consequence, his criticism is somewhat misdirected. We certainly said nothing about retardation of development due to the conversion of sulphite into sulphate, or did we suggest that sulphate would assist in the production of stain. On the contrary, we stated that effects produced could not be accounted for by the oxidation of the sulphite into the sulphate, which is a very stable compound. We doubt if the sulphate has any positive effect of consequence, and the only result of its addition to the developer that we are acquainted with is a lightening of the colour of the solution. Mr. Bennett has surely confused the issues. The sulphite is a restrainer, an excess will retard development to a most inconvenient extent, and hinder the attainment of density. If sulphite becomes partially oxidised to sulphate it exercises less restraint and also is less effective as a stain preventer, and these changes may lead to curiously deceptive results. If, for example, we have a pyro stock solution that is gradually losing its reducing power, and an alkali solution containing sulphite that is gradually losing its restraining power, the two in combination will for a long time apparently exercise the same power or rapidity of development while the staining properties will gradually increase. We have noted such effects repeatedly, and, further, in the course of our experiments, we have found that a saturated compound solution of sulphite and carbonate (only two months old) acted in precisely the same way as a fresh solution of carbonate alone. This amply proves that sulphite practically disappears in the alkaline solution after a fairly short time.

\* \* \*

#### Stainless Negatives.

Mr. Bennett's idea of a stainless negative evidently differs from ours. In the latter part of his article he refers to the composition of a developer not being favourable to the production of a black tone, which idea is just the one that we endeavoured to combat in our former note. The brown-coloured image he refers to is not a necessary consequence of using pyro which, with properly devised formulae, gives as black an image as metol or any of the new developers, and does so without the aid of an acid or any other special kind of fixing bath. Such images cannot well be obtained with formulae in which the sulphite and carbonate

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES.

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the ALMANAC will be maintained in general, but in a number of

particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—The attention of advertisers is specially directed to the announcement that the entire edition of the ALMANAC (25,000 copies) will again be placed in the hands of dealers and the trade on December 1, and is to be well in advance of the Christmas publishing season. The co-operation of advertisers to that end will be esteemed by the publishers.

together, on account of the rapid deterioration of the sulphite, but they are very easily produced if the sulphite is not properly preserved. The whole secret of stain prevention is the presence in the developer at the time of use of a sufficient quantity of sulphite, and this condition is not secured if the sulphite deteriorates in the stock solutions. It has already been pointed out by Messrs. Lumière and Seyewetz that sulphite keeps better in conjunction with pyro than in solution, and our experiments have proved most conclusively that it deteriorates very rapidly in conjunction with an alkali. In these circumstances it is obvious that the pyro bottle is the proper place for the sulphite, and experiment shows that if this simple alteration is made in the formulae we obtain black images instead of brown ones. Also we find another effect. The sulphite not only prevents its stain-preventing properties, but also its restraining powers, hence such non-staining developers are slower in their action than the ordinary developers that give brown images. These latter developers, when used, consume much less sulphite than was put into them, and the rapid action, coupled with the brown stain, enables us to use weak developers containing two grains of pyro per ounce. If the stain is obviated and the sulphite retains its restraining power, four grains of pyro become necessary, but there is no loss from the economical point of view, for these non-staining developers can be used for many plates in succession. For example, we quite recently exposed twenty-four plates in one lot of developer, treated four plates at a time, and increasing the time of development by one minute for each successive batch. In the sixth batch the developer was cloudy, which is not that fresh is required, but up to that time it was perfectly clear and clean, and gave admirable results with no trace of stain in any instance.

\* \* \*

ervation  
pyro.

This is quite a separate matter from that of stain prevention, which is dependent on the preservation of the sulphite.

Mr. Bennett, we pinned our faith for many years to sodium metabisulphite, but we finally abandoned it on account of the waste of pyro involved. Occasionally we have experiences similar to Mr. Bennett's, but on the whole found it was quite unsafe to trust a solution that was more than three months or so old. Often we found half-bottles had almost completely lost all power of development; hence the beginning of our experiments. We have all tended to indicate, though not exactly to say, that free sulphurous acid is deleterious in some way or other, but not very clear. For several years past we have used a sulphuric acid preservative that has proved perfectly satisfactory in every way. This is simply sodium sulphite, rendered neutral to litmus by the addition of one quarter of an ounce of potassium metabisulphite, and this solution has proved to have two valuable properties. As a pyro preservative it does all we can wish, while as a sulphite preservative it keeps admirably. However stale it may be, it always makes a good amidol developer, and this is by no means a bad test for the preservation of sulphite. It should be observed that a pyro stock solution made with this preservative is not yellow, as described by Mr. Bennett. It turns yellow as it deteriorates (of course, no solution will keep for ever), but it will remain pink for many months. Our tests are fairly severe in respect of the qualities, as they involve exposure in half-filled glass flasks to strong diffused daylight, in a south-facing room for at least three months. Our previous tests with sodium metabisulphite were mild in comparison, as only dark blue solutions were used, and the solutions were kept most rigorously

ously in a dark cupboard and never exposed to anything but gaslight.

\* \* \*

#### A Non-Staining Pyro Developer.

The following is an example of a non-staining developer that we can recommend so far as our experiments have gone:—(a) Soda sulphite, 2 ozs.; potassium metabisulphite,  $\frac{1}{2}$  oz.; pyro of pyrax, 160 grs.; water to 20 ozs. (b) Soda carbonate, 4 ozs.; water to 20 ozs. Use equal parts of each. Solution (a) contains the minimum amount of sulphite necessary to prevent stain and give black images. We have lately reduced it to this minimum to avoid the restraining effect, which is fairly powerful. Previously we used one-fifth more of the two first ingredients in (a) and one-third the quantity of carbonate, and with this formula had the following curious and very unexpected experience. We were experimenting with a two-grain developer, i.e., we used one part of (a) with one part of (b) and two parts of water. This gave a weak image in five minutes, and we were trying the effect of varying the proportions. One part (a) with two of (b) and one of water was tried, and this gave a very slight increase of density. Two parts (a) with one of (b) and one of water was then used, but it gave no sign of an image in ten minutes. Thinking some mistake had occurred, we tried again with the same result. Fixation showed two faint and almost imperceptible ghosts of images, so in both cases the developer acted, though the excess of sulphite (even when combined with an excess of pyro) restrained it too powerfully. This is ample proof of the restraining power of sulphite. It is most convenient to keep a stock of the neutralised sulphite solution on hand, dissolving, say, 4 ozs. of sulphite and 1 oz. of metabisulphite in 40 ozs. of water. With 10 ozs. of this solution the pyro solution (a) can be made up at short notice. Twelve ounces of the sulphite stock gives the stronger (a) solution mentioned above. The one we have recommended has the advantage that it is more rapid in its action. It can be made up in double strength, but we are inclined to think that weak solutions keep best, and therefore do not recommend concentration.

\* \* \*

#### The Swung Lens in Press Photography.

The letter from a Tokio correspondent which we publish on another page raises a much debated point in hand camera construction. Mr. Ponting records his satisfaction with a swing movement of the lens of his reflex camera, in fact, he asserts that a large proportion of his success in dealing with scenes in the Orient is solely due to his ability to tilt the lens downward upon his subject. The reason of this will, of course, be clear to anyone who will draw a diagram of the path of the rays of light from the lens to the plate. He will see that the foreground immediately below the camera comes to a sharp focus at the upper part of the plate while, at the same time, the distance is sharply rendered on the middle and lower portion of the plate. In other words, the case—which we can well believe is a very frequent one in press photography—is one which makes a virtue of the movement. In general, opticians will demur to the camera maker providing a movement which permits the photographer wilfully to disturb the lens from its position of "squareness" with the plate, that is to say, the lens should be at right angles to the plate and not tilted at an angle. But that is, after all, a purely academic objection and presupposes that the subject before the camera lies all in one plane, that is to say, at equal distances from the camera lens. An ounce of Mr. Ponting's practice—that



of an expert worker—is worth a ton of theory, and it may be hoped that the swing movement which is not usually provided on high-class cameras intended for illustrative photography may be added. Possibly the spherical lens mount of Mr. Goole which we noticed a week or two ago will solve the difficulty, or it may be that Mr. A. L. Adams, who recently applied for patent protection for a “swinging lens,” has something of the kind up his sleeve which we shall see later embodied in one or other of his well known cameras.

### LENSES FOR STUDIO WORK.

“THE best lens for studio work” is a matter on which our advice is often asked in the “Answers” column. In the inquiries it is often mentioned that the studio is a very short one. These queries, as may be surmised, usually come from novices who are about to enter into the profession and know little or nothing about the optics of photography. Presumably their knowledge of professional portraiture is equally slight, or they would not erect the short studios that many have done. Some beginners seem to be under the impression that if they have a building with plenty of light in it, no matter how short it may be, that it will do for a photographic studio. Even last week we replied to a correspondent who proposes to build a studio that is only twelve feet long. What sort of perspective he expects to get in his pictures it is a little difficult to conjecture. It is for such as these the present article is penned.

If the whole profession throughout the kingdom were canvassed as to the lenses used for studio work it would be found that portrait lenses of the Petzval type—which were introduced more than sixty years ago—were more largely employed than all the other forms of lenses put together. This, we believe, is the present condition of things, notwithstanding the vast improvements that have been made in optical glasses during the past decade, improvements which have placed in the optician's hands the means of constructing instruments that seemed an impossibility twenty years ago. In face of these advances some surprise may be felt that the old Petzval lens is still so largely employed. The chief reason is its rapidity over all other forms—no mean consideration in portraiture. Petzval lenses having an aperture of nearly  $f/2$  are made by leading opticians. They were first introduced in the wet collodion days to meet the requirements of photographers in taking portraits of restless children, and for use in dull weather. They are, with this aperture, as a matter of course, somewhat costly. The price of the largest made in this country, which is from eight to nine inches focus, and for pictures of the carte size, is something like five-and-twenty pounds. With the present rapid dry plates there is little necessity for these exceptionally quick instruments. We see, however, from its recently issued catalogue, that an American house is making a specialty of these lenses up to fourteen-and-half inches focus, the price for this size being 500 dollars, equal to £100 English.

The most popular lenses at the present time for cabinet and carte portraits is what are styled by the various makers as “extra rapid portrait,” or “B.” lenses. They have an approximate aperture of  $f/3$ . The one most generally employed for the former size is from eleven to twelve inches focus and requires about eighteen or nineteen feet between camera and sitter. A lens of shorter focus than this is made for cabinet pictures, which requires only about twelve or thirteen feet between camera and sitter, but the makers, in their catalogues, do not recommend it if the length of the studio will admit of

the longer focus one being employed, as, with that, perspective is obtained in the pictures, by reason of greater distance from the sitter. The next most general lens in the studio is what is usually called the ordinary “portrait lens,” which has an aperture of  $f/4$ . It comes the “group or universal series,” sometimes “D.” lenses, which possess an aperture of  $f/6$ . These lenses are all of the Petzval type. Lenses of the rectilinear (R.R.) type are sometimes used in the studio, though, of course, they are very slow as compared with those of the foregoing, as their aperture is but  $f/8$ .

With regard to the relative rapidities of the above lenses, avoid going into decimals round figures are quoted, and will be near enough for practical purposes—supposing the most rapid,  $f/2.2$ , requires one second for exposure, given light, the  $f/3$  will require two seconds, the  $f/4$  three seconds, the  $f/6$  eight seconds, and the R.R.,  $f/8$ , sixteen seconds. Thus the R.R. will necessitate sixteen times exposure of the most rapid of the Petzval lenses. This it will be seen that the R.R. is not well suited for studio purposes except in a very good light.

There is another point in connection with lenses for studio that requires consideration, namely, what is known as “depth of focus.” The larger the aperture of a lens in proportion to its focal length the less depth of focus it gives—no matter what its form may be. Therefore, to obtain this the aperture must be reduced, and that, it goes without saying, at once makes the instrument slower in action. For example, if the  $f/2.2$  be stopped down to  $f/3$  it practically be no more rapid in action than the  $f/2.2$  worked at its full opening, neither will it have any greater depth of focus. Again, the  $f/3$ , if stopped down to  $f/4$ , will be no quicker than the ordinary portrait lens of  $f/4$  aperture, while the depth of focus will be the same in both, and so on with the other lenses.

The Petzval type of lens is an excellent one for the purposes for which it is employed, by reason of its large aperture and the fine definition it yields over a large field. But it has many defects as compared with lenses of more modern invention, such as the anastigmats. In the first instance, the field is very round, and though it can be flattened this can only be done at the expense of sharpness. In the best lenses of this type the makers have minimised these defects by a compromise between the two, and have thus been able to give us, as nearly as they can, what is required in practical portraiture. There is another defect in the Petzval lens, namely, the lack of illumination; the light falls off very much towards the margin of the picture, and it is for that reason that the form of lens has but a small field in proportion to its length, as compared with the modern anastigmats. These have not as yet been made of the same rapidity as the old Petzval lens.

Anastigmats of about seven and a half inches focus will cover the half-plate with their full opening of  $f/4$ , a little less are now being made. These would well cover the cabinet size; then the distance required between camera and lens for full length would be somewhere about ten feet. But we do not care to recommend such short focus lenses for portraiture. It has been generally recognised that in order to obtain the most pleasing perspective in portraiture the focus of the lens should be at least double the largest dimension of the picture. Therefore, a lens of the above focus is only suited for carte pictures, although it will cover the half-plate size. We had intended to have said something on the subject of short-focus lenses for portraiture, but want of space will not permit in this article. I shall probably deal with the question on some future occasion.

# FILTER YELLOW K.

The introduction of a new yellow dye by Meister, Lucius, and ... is an event worthy of notice. The yellow dyes at present in existence are mostly unsatisfactory, either in

The curves shown in Fig. 1 correspond to solutions of strength 1:4,000 and 1:16,000 c.m. It is easily seen from these that the absorption is gradual, and suitable for orthochromatic

ABSORPTION CURVE.

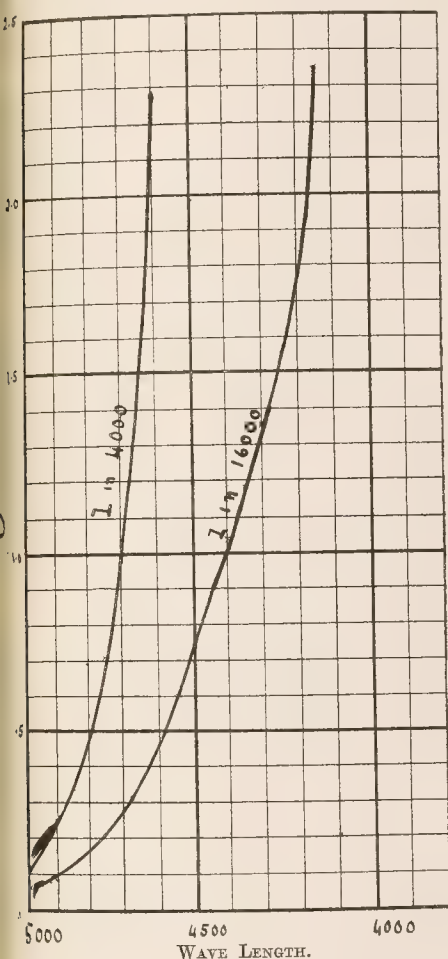


Fig. 1.

permanence or insolubility, the best being Flavazine T., or tartrazine, which, however, when used in dilute solution, permits the extreme ultra-violet to pass. There are two dyes at present which are greatly needed, the one a dye with absorption similar to tartrazine, i.e., gradual absorption, but which cuts out the whole of the ultra-violet; the other a dye with exceedingly sharp absorption, so that in very dilute solution it will cut out the ultra-violet without appreciably affecting the visible violet—dye with an absorption like potassium bichromate solution, for example. Filter yellow K. perfectly corresponds to the first of these dyes.

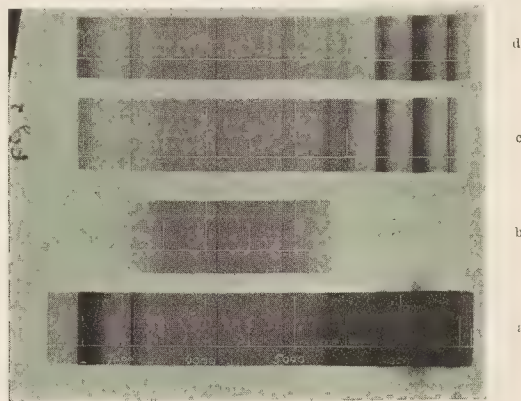


Fig. 2.

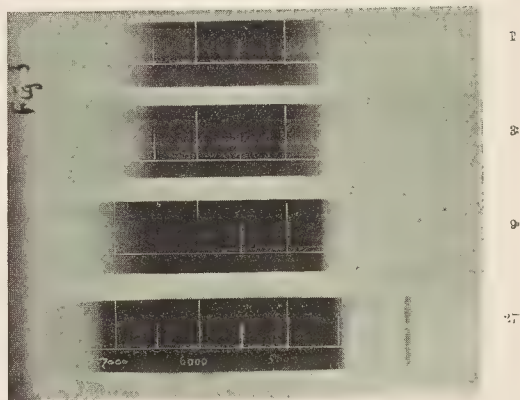


Fig. 3.

screens. Fig. 2 shows the spectrum of the enclosed arc photographed

(a) without a filter;  
(b) through filter yellow K. 1:4,000;  
(c) through filter yellow K. 1:16,000;  
(d) through tartrazine of such a strength that visually it is identical with (b). Fig. 3 shows the absorption of 1:4,000 filter yellow K. with differing exposures. The dye is very easily soluble in water, and mixes well with gelatine. As regards permanence, tests on this point have proved satisfactory.

C. E. KENNETH MEES.

S. H. WRATTEN.

R.P.S. LECTURES.—Sir William Abney has exchanged the date of his lecture with Mr. F. J. Mortimer. Sir William's lecture will now be given on Thursday, October 25, and Mr. Mortimer's on Thursday, October 18.

OZOBROME.—The Ozotype Company advise us that they are now fully booked for engagements for demonstrations of Ozobrome, and that it is impossible for Mr. Manley to undertake any more this season.



## THE STABILITY OF PYRO AND SODA DEVELOPING SOLUTIONS.

IN THE BRITISH JOURNAL OF PHOTOGRAPHY recently, there appeared a note on the subject of keeping a combined solution of sodium carbonate and sulphite. My experience, and the conclusions based on that experience, have been very different from those of the writer of the note in question. And, as it is of the greatest importance that there should be no misunderstanding in regard to the stability of developing solutions, my conclusions and the reasons for those conclusions are here given for consideration.

In the note referred to, many plate makers were criticised for giving in their developing formulæ a solution containing both sodium sulphite and sodium carbonate. The practice of keeping these two salts in solution together was condemned, the reason given being that such a solution was not stable, that the sulphite gradually changed into sulphate and retarded development and produced stained negatives. It was stated that such a solution would produce stainless negatives when freshly mixed, but if kept dirty and stained negatives would result.

For those who are continually developing a large number of plates the question possesses but little interest, they do not require to keep their solutions for any length of time; but for those whose work is intermittent or comparatively small in quantity, it is of the greatest importance that they should be in a position to assure the stability of solutions that may be required at any moment.

It has been my practice for a long time to keep a combined solution of sodium carbonate and sodium sulphite for developing, and many experiments have been made in regard to various methods of mixing the solutions, their stability and their efficacy for developing. My work is not extensive, solutions are frequently left for weeks without being required, but it is important that a solution should not only be ready for use whenever required, but also that there should be no variation in the quality, character or colour of the negatives produced. This has prompted me from time to time to test the relative merits of various methods of mixing both pyro and alkaline solutions; their developing qualities when freshly mixed and their power of retaining those qualities unimpaired.

The pyro solution consists of half an ounce of potassium metabisulphite, a quarter of an ounce of potassium bromide, and one ounce of pyro dissolved in sufficient water to make nine ounces and one drachm. Ten minims contain one grain of pyro. This method of keeping pyro in solution is the most simple and the most satisfactory that has been introduced. If properly mixed and stored its keeping properties appear to be unlimited; the working qualities will always be the same as if freshly prepared. In order to determine this point a severe test was made. A two-ounce bottle was partly filled with pyro solution and several small quantities were taken for developing from time to time. When the quantity was reduced to about five or six drachms the bottle was put away and left for nearly two years. The solution was then used for developing one of two duplicate plates, the other being developed with a solution that had only been mixed about an hour. The same alkaline solution was used for each plate. The development was carefully timed so that the treatment should be identical, and after fixing the two plates were exactly similar in gradation, density, colour and general quality.

Pyro will retain its qualities unimpaired in an acid sulphite solution, but not in any other form. Acid alone is useless, and a neutral or alkaline sulphite equally so. Potassium metabisulphite contains a large proportion of sulphurous acid, and

this acid sulphite forms a better preservative than any sulphite to which an acid has to be added. To obtain the greatest stability of the pyro solution it is imperative that the sulphite be thoroughly dissolved in the water before the pyro is added. The water may be made warm to facilitate the solution of the metabisulphite, though this should scarcely be necessary but it is very important that it should be quite cool before the pyro is added. When the pyro is dissolved the solution should be filtered, and it will then be very clear and a pale yellow colour. However long a time it may be kept it should retain this clear limpid character, and also remain the same colour.

The alkaline solution used in conjunction with the pyro solution previously given has consisted of equal quantities of sodium sulphite and sodium carbonate dissolved in water to make a twenty per cent. solution. The actual strength is simply a matter of convenience and facility in mixing the working solution for developing. With this alkaline solution there is no deterioration in quality or colour in the negatives, however long it may be kept. Nor is there any restraining or retarding effect visible as there would be if any appreciable proportion of sodium sulphate were present. In addition to its retarding effect sulphate is certainly a staining element. But in using this alkaline solution there has never been any staining tendency apparent, a change has very frequently been made from an old to a fresh solution when developing a series of exposures with no difference being visible in the negatives.

It is, however, very important that a reasonable degree of purity should be secured in the chemicals used. Several plate makers in the formulæ given for developing their plates specify "washing soda" for making the alkaline solution. The use of this form of sodium carbonate leads inevitably to staining, of inferior quality in the resultant negatives. Washing soda, though nominally sodium carbonate, contains a very large proportion of impurity, principally sodium sulphate, and should consequently never be used for developing solutions. Although the result produced by such a salt might be predicted with certainty by reason of its known character and impurities, the verification of the predicted result by means of an experimental test is always more satisfactory.

From a quantity of washing soda some clean, clear and good crystals were selected, free from powdery deposit on the surface or any apparent defect. With these a solution was made, of equal weight of good sulphite being added. The same proportion of this carbonate was added to the normal pyro solution, and would be taken of the ordinary carbonate for developing a correctly exposed plate. The resulting negatives were inferior in every respect. Development was more prolonged, and the plates were dirty and badly stained.

In describing the plates as being stained, it is necessary to discriminate between a negative that is brown in consequence of the composition of the developer not being favourable to the production of a pure black tone, and one that is really stained. In the former case, though the image may be very brown, the colour the shadows or clear portions may be fairly clear; in the case of a plate that is stained by reason of a decomposed developer, as in the case under consideration, it is the gelatin film that is stained. The image may be brown, but the clear portions of the plate will be a strong yellow.

Although this stained and defective quality has always resulted from the employment of such an inferior compound as washing soda, it has never resulted from the use of a combined

tion of good crystal sodium carbonate and sodium sulphite. The retention of the good qualities of such a solution would indicate that the deterioration only results when sulphate or other impurities are present when a solution is used.

Although a solution of sodium sulphite alone will not retain quality, yet other work than development has demonstrated that in the combined sulphite and carbonate solution the qualities of both sulphite and carbonate are fully retained. The negatives were bleached in mercuric bromide for intensification. After the usual washing one was treated with a freshly prepared solution of sodium sulphite; one with a similar solution had been mixed three or four days; and one with a combined solution of sodium carbonate and sodium sulphite had been mixed at least ten days. This was the usual developing solution containing equal quantities of the two salts. The three solutions applied to the bleached plates were approximately equal in strength of sulphite. The plates treated with the combined sulphite and carbonate and with the freshly mixed sulphite solutions respectively were identical in colour gradation and general quality after blackening. The operation proceeded normally, and no difference was perceptible at any stage.

The plate treated with the sulphite solution that had been mixed a few days previously would not blacken in the sulphate solution, and though the strength was increased by adding more from the stock solution the result was the same. The sulphite was quite inert so far as blackening the bleached plate was concerned; it had entirely lost its power. The action of the combined solution formed a marked contrast. It was apparent that however little stability a plain solution of sodium sulphite might possess the combined solution would retain the qualities of the sulphite quite as fully as those of the carbonate. And a long experience with the pyro and soda developer has confirmed the opinion that this applies equally to the developing qualities of the mixed solution.

A solution of pyro appears to be very stable if combined with an acid sulphite, and a solution of sodium carbonate in combination with sodium sulphite equally so. These two used together for developing produce negatives of good technical quality and free from stain. It is, however, an essential qualification that materials of good quality be used, otherwise the solutions contain the elements of instability when mixed, and can only produce negatives that are stained and defective.

HENRY W. BENNETT, F.R.P.S.

## THE EXHIBITION OF THE ROYAL PHOTOGRAPHIC SOCIETY.

It is by no means an easy matter to review the show of the Royal Society: the critic's feelings are kept too placid there. An atmosphere of good behaviour, and even punctiliousness, pervades the place, leaving no loop-hole for the righteous indignation, the pettiness, and the satirical scorn which the purple patches of the Salon usually excite. These emotions add picturesqueness to a picture. One prop of the Linked Ring has quite recently admitted that perhaps there has been too much of the kind of thing that gives rise to these emotions; but if that gentleman has thoughts of leaving his house in order he should be disadvised; firstly, because there is not room for two exemplary photographic exhibitions in London, and secondly, because the administrative policy of the Linked Ring is to be proved the right one by the same gentleman's testimony to the present keen bay tree condition of the Salon, artistically and financially viewed. Therefore are we in favour of leaving things alone to develop along their respective lines. That "Royal" is developing is very apparent this year. Pictorial photography has never before been pushed so far towards that ideal, attainable or not, at which point it will establish unshakeable claims to be ranked among the fine arts. In pure decorative art, however, the Salon has, so far, gone furthest.

### Some Striking Portraits.

Reference has already been made to the portrait of "Alvin Coburn, Esq. (at the R.P.S.)." Mr. F. J. Mortimer is the author of this highly characteristic work. It is extremely difficult to get away from Mr. Coburn—if one wants to—in the two galleries this year. He appears twice at both as subject matter; and though, being a good "link," he does not exhibit here, he takes good that negation at the other place. Mr. Mortimer has taken him off delightfully. He stands invested with an air that is at once "sufficiently quaint and amusing." Boots and hat are blazing black, his trousers have a knife-edge crease, there is even a crease in the cut of his coat; Nash or Brummel could not have done with more of the *bon ton* upon a cane. There is but one anachronism about him, and that is his collar, which, alas! is a Victorian. The perfect pink of a gentlemanly showman, he stands before his own pictures, fearlessly proud to be identified with them. He is all in all at the Salon, and he is alpha and omega at the Royal, where his numbers are the first and the last in the pictorial row. Mr. E. O. Hoppé sends the last, certainly a good thing, and of a similar aspect; but it is too premeditated to possess the "go" of Mr. Mortimer's snapshot, and that premeditation has resulted

in the lugubrious look upon the sitter's face that has already been pointed out.

Several excellent portraits come from Mr. Furley Lewis, the best of which is, perhaps, that of "Hubert Carter." The unrestfulness of "Alessandro Moretti" spoils our pleasure in a fine work. The sitter, presumably a sculptor, holds a modelling-tool like a weapon in his clenched hand and has the alert watchfulness of a Nihilist. He seems to be crouching for a spring. The small bust in his hand might be for identification of his victim. Hence, we do not think it a happy portrait. Mr. W. D. Brodham's "Politician" is a work of much distinction; and the "Portrait of an Artist," by Mr. S. Holden (New York), is likewise worthy of note. We regret to find Mr. Dudley Hoyt (New York), who made a stir in past years, now represented by one work only, and that a "Portrait," a little lacking in the strong and masculine qualities he once displayed. It is very taking, nevertheless, and represents a lady dressed in a way that reminds us of Sophia and the Tom Jones circle.

Sig. Sciutto's portrait of a lady and gentleman standing ought to be mentioned for its strong and personal treatment: they look a most notable pair. But for personality, the head of Professor Brander Matthews will prove arresting, especially to those interested in spelling reform. This is by Mr. Pirie Macdonald (New York), who also sends "Louis Windmuller" a first-rate character study of an elderly smiling gentleman. "Louis Grier, Esq.," is by Mr. Walter Thomas, who is to be congratulated upon it. Two very distinguished *ritratti* come in the name of Sig. Ornano, from Genoa. The finest is something more than a portrait, however, for it depicts a young lady seated on a couch and leaning her head against its cushions with a sad introspective air that would be worthy of a more ambitious title. The delicacy and refinement of this beautiful little study will appeal to everybody.

The same worker sends "La Catena di Tristezza," a procession of three dolorous mediæval maidens. It is a flat and gloomy picture; but perhaps the title holds reason for that fact. A deeper and more mysterious picture forms an illustration to one of the plays of M. Maeterlinck. The atmosphere of tragedy surrounding the details of this is so thick that only the initiated can pick anything out of it. The somewhat ambitious "Suppliant" of Mr. S. Elwin Neame would make a more successful appeal were it not for its title. There is little that is supplicatory in the convolutions of limb and drapery of this handsome figure. It has a sense of style, and promises well for Mr. Neame. Leighton and Dorothy Deane seem to have been his inspiration. Two genre subjects by Mr. Hoppé,



to whom, by the way, both exhibitions are not a little indebted, merit attention because of their unsophisticated intent to be artistic without being unphotographic. These are "Visitors" and "Critic." The right-hand visitor is not free enough from self-consciousness to make a good model—a fault that practice cures; and the critic similarly seems herself apprehensive of criticism. Mr. T. Lee Syms does well in his two subjects, and particularly well in "Who Is It?" a lady upon a staircase, where a light effect has been handled in a masterly way.

### The Forbidden Duplicates.

With dashing temerity, Mr. E. T. Holding, and perhaps half a dozen others, have flouted the ukase of the Linked Ring by sending here duplicates of their Salon prints. We must conclude that after all then there was not "ample time" between the opening of each exhibition to prevent this previous disobedience. We ourselves think it desirable that these replicas should have some variation. A modification in treatment, for instance, would be educational: say a gum print at one place and a platinum at the other. At present, the only variation in duplicate exhibits seems to be in the spelling of the sender's name in the catalogue. Even that breaks the monotony.

### Babes and Sucklings.

Mr. Holding continues to do finer and finer work. We have already spoken in praise of his "Childhood." The demure and slightly vexed little "Kathleen" is a most taking study of young life, wherein the management of the child's hands is particularly praiseworthy. So is the fact that a very happy chance grouping of the girls who walk "On the Dunes" and who "compose" into such an agreeable shape, has not escaped the photographer's attention. It is in such little evidences of quiet artistic alertness that Mr. Holding's work promises so much for the future. His very reticence of manner implies wealth of matter. In "The Nation's Pictures" the posing of the youngsters and their own commendable control of their expressions make up the chief merit of the work. But is it not almost time that children had a rest from playing upon the floor in front of a camera? They have been at it some years now. Mr. L. Fleckenstein's little girl, a head and bust "Portrait," is a wondrous piece of lighting, and eloquent of the same infantile traits as is Mr. Holding's "Kathleen." As to "The Pet Angora," whilst we admit the charm of the turn of the cat's head, and its interrogative and apprehensive expression, we think it too furry in texture, and do not see that the lady who nurses the animal need have been made furry at all by Mr. Fleckenstein. M. Pierre Dubreuil occupies himself entirely with children this year. His "Petite Hollandaise" and "Four o'clock" are both nice works, the latter having an excellent light effect not free from traces of the "clumsy hand of man." Standing at a bath-room door is a little maiden with a wonderful outward curving line of leg, playing with "Le Bilboquet," and a sleeping babe upon its mother's knee is treated with exceptional daintiness in "Mother and Child." Mrs. C. Keene (Cape Town) has a similar subject nicely treated also. From Miss Towgood come two delightful little pieces. One is sweet and sunny, showing a young mother, or elder sister, seated at a window with a child who writes "The Letter" on a low stool. The other, "La Laveuse," is a capital study of an old woman, full of humorous character: she amuses a child as she washes. Admirers of Mr. Inston's work will be pleased with his "I don't want to play in your garden." They will find several other deserving child studies which we must leave unnoticed.

### Garrone and Duhrkoop.

We come now to the work of Sig. Garrone, which makes a finer show here than at the Salon. His delightful and sunny "In Domo Quies" is a peasant interior reminding one of Van Ostad. It is pleasing at a glance, and grows upon one; looks well at a distance, and repays scrutiny. "The Dente Canino" is one of the high window series of which we spoke when reviewing the Salon. This time a little boy, whose breeches are quaintly tucked into his boots, sits open-mouthed upon the lap of his mother, who makes a dental examination. In "Raggio di Sole" an older boy stands up in the window corner enjoying the rays of the sun. Sig. Garrone sets a good example to many. His fine, straightforward prints are neither murky nor washed-out; but at once rich and brilliant. In this

respect they resembled those of Herr Duhrkoop, who is well represented in this gallery. His now familiar sofa scene is here, under the doubtful name of "Twilight"—it seems to be broad daylight through the doors. The "Story Book" shows two girls reading. The little sorrowful in their bearing and expression; but the instinct with style. "In the Kitchen" and "In the Exhibition" will both win admirers; perhaps the latter particularly. It sends a lady examining a folio that rests upon a very "new" stool. The subject is of a kind favoured upon the Continent, wit, ladies in outdoor up-to-date dress with interior background. "After the Theatre," a lady at half-length, has a charming air regards us, in passing, with a sidelong inclination of the head.

### Figures Clothed.

Mrs. Barton has some good heads, as well as her early "St. Catherine," with which we have previously dealt. We wonder whether Miss K. Bingham ever saw the "Darker Drink" distinguished American a few years ago, or whether her work is an unconscious coincidence. "Watching and Waiting," by C. A. Morgan, is marked in our catalogue as a good thing. "The Gringo Came" exhibits the fact that a slight defect, such as a trifling cast in an eye, may add something like a further fascination to a face that is already beautiful. This charming head Miss Hana Robinson (California).

Miss Jeanne E. Bennett (Baltimore) (who is Mrs. a Salon), has a large number of pictures here; but we should be glad of fewer just a thought more distinguished. The all good, but only one can be called excellent, perhaps, and is "Listening to the Lark." Mr. Cavendish Morton is, as stylish and strong. Especially do these qualities belong to "Child," a work of fine arrangement and masterly treatment. His "Profile," a "Gibson Girl," is clever, too, in its way. We thought that the Dutch craze had burnt itself out; but Mr. Morton revives it in "Brothers" and "Brothers and Sisters." The being the more quaint and the less like a poster, we prefer it. The two girls with their little brothers all in a row are both good and pretty. Miss Hanscom's (California) pair of poetical stars are unequal in merit. "Go from Me" is by far the finer. The dark, but has quality and feeling. The other, "I Love Thee," misses fire, its pose being a little unhappy. Much nicer in respect is "The Ring," by Mr. J. Kauffman (Adelaide). This single figure in profile of a lady who contemplates a ring upon her finger. The beauty of the sitter, in pose and features, secures success of this. As a picture, it is without the charm of the autumn "Winter Mist," a landscape print of delightful greys, where the peasant woman is washing clothes.

### Figures Unclothed.

Messrs. E. B. Vignoles and P. S. Greig share between them honours of "Whither?" a very naked variety of the nude, giving the figure of a young man who seems uncomfortable and out of place upon some rocks. "A Study in Pose," by Mr. Berli Jackson, is a little too reminiscent of "strong" men. Male figure for some unknown reason, do not lend themselves to graceful play. "The Study," sent by Herr D. Feledi (Budapest) is pleasing in its lines, although the head is commonplace. On whole, the essays in the nude from Miss B. Johnson please us. They are very tastefully used as accessories to landscape. "Visions" is quite in the style of M. Le Begue, with its charming little figure contemplating its own reflection in a stream. "Springtime," on the other hand, has the Puyo feeling. Here the play of a musical nymph in a romantic sylvan glade is artistically managed, and is quite in accordance with valued traditions. A nude boy, by Miss Bennett, does not rise beyond "The Study" merely claims to be.

### Landscape.

A happy selection with very pleasant colour and quality made out Mr. R. S. Kaufman's "Waterway" as a thing not to be missed. Near to this may be seen a misty picture by Mr. Underhill, where a sea-serpent seems to lay its sinuous tail over a quay side. A more pleasing selection is Mr. Oscar Hardee's "Bruges Canal," a covetable print, less hackneyed than his "Ostend Harbour." Mr. L. J. Steele sends two noteworthy Oriental subjects, the finer being "The Garden of Allah." This impressive work depicts a lone

camel-ride upon a desert over which the last rays of sunset stream. Another pair of good things come from Mr. W. J. Clutterbuck, and the most distinguished of these is "Grandpère," in reality a glittering landscape. We like very much Mr. Hector Maclean's "Reticence of Nightfall," and we could say the same of the well-considered works of Mr. J. Gale, if it were not that he spoils his good compositions by sousing them in a brown sauce which robs them of light. In this matter his "Upper Pool, London," is least open to objection. The stately compositions of Mr. J. H. Gear and Mr. Greatbatch lose charm for us from the same cause.

Were it not that "Twilight's Contemplative Hour," by Mr. H. Stuart, is somewhat sharp in its contrasts, it would take its place in the highest rank of homely landscape shown in these galleries. Four pictures, by another Mr. Stuart (Charles F.), are attracting considerable attention; deservedly so, as we think. Those that please us best are "Summer's Noontide," a river and trees well composed, and "Evening," a fine open view with lengthening shadows and a capital effect of light in the sky. The light in the sky and water of Mr. Harold Moore's "Gravesend Reach" is likewise the cause of great success. In his "Winter Oats" he gives us no sky at all, a distinct disadvantage to a subject that everyone must associate with skies and open air. A similar indiscretion has been committed by Mr. Porterfield (Buffalo), whose "Sunrise on a Misty Morn" is printed in blue, a choice which cuts off all pictorial help from mental associations. It is otherwise unexceptionable.

Mr. Mummery's two works will uphold his reputation well. The general favourite seems to be "Evening in Winter," a solemn and sweet river scene with fine trees and a good effect; but we are not sure whether there are not more artistic qualities still in the more free feeling of "The Dike Gate." A very delightful view of "Old Shoreham," backed by a splendid sky, ought to do much for the reputation of Mr. Colebrook. The print is beautifully mounted too. His "Water Meadows" is only a trifle less interesting. Mr. W. Rawlings's work, good as it is, does not seem to surpass previous efforts of his. We are most taken with "The Wayside Inn"—our weakness, perhaps—and its sun and thunder aspect. In the beautiful and dreamy "Venice" we feel that Mr. Alfred Marshall has permitted too much foreground, if water can make foreground. The horizon must have been low to his eyes, if the photographer was in a small boat. Perhaps the most romantic landscape in the show is the remarkable "Nebeltag," sent from Graz by Dr. Ledenig. It shows a pool glimmering through the naked stems of thin trees, the whole being softened and veiled in the vaporous beams of a sinking sun of a foggy day. Other romantic things come from Vienna, sent by Herr Pichler. We have already referred to "Der Wachter," which our printers preferred to call "Der Waihter" after the catalogue than follow our correction. In "Sonnenaufgang" we have an impressive ceremony in which many models have played their parts. Its only fault to us is the forcing of the light upon the

principal figure, for this has the taint of staginess. "Arkadien" is a stately landscape filled with tall trees which might be great aspens. Beneath the shade of these five boys (satyrs?) dance in a ring. The whole thing is much in the style of the best modern German painting. In fact, "San Vigilio" is Boecklin's stupendous "Totteninsel" over again. The title of "Sonnenfunken" is thoroughly well carried out in the sparkling sunbeams that patch and bejewel the walls and vines of an Italian garden, where some people are lounging. Mr. J. M. Whitehead has been fortunate this year. His "Nightfall on the Moor" is, perhaps, the best of his works. There are few things here more beautifully true to nature, and it is perfectly composed. Mr. S. E. Wall's "November" is full of feeling; but we fear he has let his roadway come a little too dark for a November evening. A subject of river and barges has been well managed in Mr. E. Warner's hands, and another shipping subject, "The Port—Dawn," is true to the effect claimed in its title, as observant early risers will bear out. We must commend the light and graceful "Pool at Oxshott," by Mr. William Stevenson, and "The Medway at Rochester," by Mr. Piddington. The latter is a capital subject, brightly treated in gum. "Mid Ocean" is, as its title implies, one of a new series by Mr. Mortimer. Hitherto his reputation has rested upon wave studies from the shore, but now he is amongst them, and gives well the broad, hazy, and somewhat monotonous light that envelopes all upon mid-ocean.

Why has Mr. Bushe-Fox scrawled the title of "Winter Sunshine" across his first-class print?

The same material is used both by Mr. H. Symes in "Ebbing Tide" and by Mr. C. J. Reade in "Reflections." The work is good in either case; but "Reflection" has the better selection. Snow, such as Eickemeyer has given us, and not less beautiful, appears in Mr. Sykes's "Winter." Mr. Batkin gets a good deal of broad style into his cart and street corner composition, which he calls (with a bent for novelty) "Sunshine and Shade."

#### Colour.

There are a few attempts at colour, but we are disposed to think that they are not greatly successful. In Dr. Ledenig's "Blühende Baume" the colour certainly only hardens lines already hard, and is entirely without beauty or gradation. Much the same applies to Herr Feledi's "Fischer's Arcade," where the colour has only a cheapening effect. In the "Danish Landscape," signed T. Möller, it is distinctly unpleasant. The pigment in these cases is arrived at by gum printing, which, like lithography, must be complex in method to be good. Against this we must say that where it is mechanically arrived at, as in the case of "Mr. Cavenish Morton's "Child of Egypt" and Mr. William Gill's "Strawberries," is undoubtedly more satisfying and more true, though perhaps not so "distinguished."

[The review of the professional section of the exhibition will appear next week.]

## THE PHOTOGRAPHIC SALON.

### CONCLUDING NOTICE.

#### Noteworthy Landscapes.

Two receding planes of Mr. J. P. Hodgins's cypress avenue almost make a picture of it; but to call it "Landscape" is to give it a misnomer. Mr. Archibald Cochrane's "Lane in Brittany" is, on the other hand, a landscape so highly pictorial as not quite to avoid the charge of conventionality. Its cloud—a leading feature—particularly betrays studio anxieties. Mr. Ward Muir's landscapes are more unsophisticated, but have less of the same pictorial feeling which, after all, is not a common gift. We do not care for his "Winter," for we refuse to receive white paper for snow. "The Pageant of the Sky," however, appeals to us as a fine example of photographic landscape proper, selected and carried through with evident appreciation of the beauties of Nature. Its fine cloud and the low horizon evidence the fact that Mr. Muir knows what he wants and gets it. Similar praise is due to Mr. J. M. Whitehead for his very romantic work "From the Cloudland." How different is the aimless and affected "Nuit Imminente, Etude Japonaise" of Mr. E. O. Hoppe! The same gentleman's "Adagio" would be a first-rate little character

study were the old musician of our grandfathers' time, playing more and posing less. Another highly pictorial landscape is "Wash," by Mr. W. J. Clutterbuck. It consists of sheep, shepherds, and trees beautifully composed and making a fine design according to the principles of early British artists, of which principles photographers remain too much in ignorance. Mr. Clutterbuck has also a marine subject of fine design, called "In the Trades," wherein a barge and its sail are disposed upon the most attractive lines. Of Mr. J. Dudley-Johnston's pictures we like "An Impression—The River Medlock," because, at any rate, it is impressive; and his "In Normandy," because it has the rare and undefinable quality of an etching.

#### Interportraiture.

Mr. Reginald Craigie takes the likeness of Mr. Coburn; Baron A. de Meyer does the same; Mr. Frederick Hollyer takes Mr. Horsley Hinton; Mrs. Käsebieber takes Mr. Alfred Stieglitz; and so they go on, a happy family, forging the indestructible links of a ring of friendship. As portraiture, all these works are distinctly good; but as



likenesses they are a little baffling. But the recipients of these pretty courtesies do not look their respective gift horses in the mouth. Yet, to an outsider, it is not easy to recognise Mr. Coburn without a head covering. Baron de Meyer must have appreciated this fact when he rightly elected to give us the coat, etc., which in this case makes the man. The early Victorian glamour that surrounds his subject has had one drawback, however, for the Baron. It has called up association with certain time-honoured civic functionaries whose livery has survived the date of its inception, and the result is that the Baron's Mr. Coburn looks like a turncock. Mr. Craigie's version has a touch of it, too, for it resembles those exemplary middle-aged artisans which in our youth used to point the morals and adorn the tales of "The British Workman." We positively did not know Mr. Horsley Hinton from Mr. Hollyer's presentment, and remarking on this fact to the sitter himself, we were answered that perhaps we were not in the habit of seeing him in frock coat and "top" hat. So it is evident that the dictum of Bob Acres about clothes continues to hold strongly in these days.

### A Designer of First Rank.

With delight, pure and unalloyed, we contemplate the very distinguished designs of Mr. F. Benedict Herzog. His "Barye-Sculpture" gives complete satisfaction in the arrangement of its lines and the display of its light and shade. Anything more purely decorative than this work (except his other) it is difficult to imagine in the domain of photography. The draperies of the figure leaning out to the statuette of a lion—one of the masterpieces of the French animal sculptor, Barye—are disposed with grace, and treated with loving respect to the traditions of decorative art. The same applies to his second work, "Alas, poor Yorick!" which is of higher ambition, and entailed greater risk and difficulty. The titles are not happily chosen in either case. There is nothing at all of Yorick, except his dry skull, in a composition of three ladies—Ophelia and two waiting women. The real title and explanation is found in the quotation, tastefully lettered beneath the print:—"Now get you to my lady's chamber, and tell her, let her paint an inch thick, to this favour she must come." What we see in the expressions of these three handsome women is the effect of this scrap of cruel philosophy upon their minds. The posing and acting of the three superlatively clever models who sat for this work reflects the highest possible praise upon them and the designer alike. Both these prints are small in size, but colossal in style and beauty. To the really artistic visitor they will be the real sensation, making him draw in the breath, whereas at the calculated sensation he will but snort it out.

### Architectural Triumphs.

In the field of architecture pictorially presented, this exhibition is remarkably strong. The finest group of all is, perhaps, Mr. Arthur Marshall's "Venetian Pearl," a view of the Maria della Salute bathed in the transfiguring vapours of a sunny mist. His "Precious Stones" is good, too, but not quite so pictorial. Mr. Frederick H. Evans delights us in his usual way by using sunshine

as an illuminant of dark, put precious, corners rather than as a to add mystery. Mr. Marshall's method is synthetical; Mr. Evans analytical. His pictures, with their unconventional points of view taken at Mont St. Michel, Chartres, and in homely Norfolk, things to live with and pore over. A hasty glance does not reveal their charms. In Mr. S. G. Kimber's "Relic of the Past" and "Cathedral Passage" we have keen sensations of the distance depth of architectural vistas and cavernous places. A view "Lombard Street," by Mr. Eustace Calland, is truly pictorial artistic. The best of Mr. Alex. Keighley's works is, in our opinion "The Bridge," a fine snapshot of peasant women walking over Italian town bridge, mischievous boys on the flagstones in the corn and sails peeping over the cornice. His "Calle del Duca Chioggia" is a good subject, with decorative and pictorial claim but it is rather monotonous in its tones. Germane to this sub is the splendid and humorous "Truants," by Mr. P. G. R. Wright wherein two urchins are being marched away by a peasant woman in the sunlit street of some Continental town.

Shipping and the overwhelming structures of steel and iron in port of Liverpool and New York make up Mr. A. L. Coburn's contribution. We think he might exercise a little more rigorous selection in his works for exhibition. It does not follow that because he has done many fine things that any and every snapshot out the thousands he has taken are good enough for enlargement and display. At any rate "The Prow" should have been eliminated. We see nothing at all to recommend it. The reflection of rigging "Spider Webs" makes an entertaining subject; but only to those who have not had years of that sort of thing in photographs. Like "The Rudder" the best, because it makes some claims for composition, and shows a pleasing filtration of light into the recesses of a world of ironwork. The whole of this group of pictures, however, is aggressive, with awkward, hard lines and staring black patches and we feel sure that in a year or two Mr. Coburn will turn from better work to these with something like guilty feelings. The waterside piece that M. P. Dubreuil sends, called "Le Cygne," is quaint and good; but there is much that is only silly in "Pierrot Sleeping." We like better Miss E. Spencer's "In the Garden," which has grace of line at least. Mr. E. T. Holden's "Childhood" is very pretty and deserving of notice.

Amongst the exhibitors who have been allowed a quite disproportionate amount of space is Herr Heinrich Kühn. We say so, not because his work is of insufficient excellence, but because it is all so similar in style that one or two examples would adequately represent it. We cannot mention any one particularly fine among his eight: they are all fine, though a little "precious" for preciosity sake; yet rich in tone, strong in conception, and sane in execution. Of Baron de Meyer's half-dozen we prefer the beautiful "M. Francis Koehler"; and of Mrs. Käsebieber's five, the "Josephine" decidedly, because of its charm and quality.

We ought not to conclude without a word of appreciation for the fine and true qualities of light in "Late Afternoon," a choice landscape, by Mr. Charles Job.

## ON THE STABILITY OF VARIOUS ANILINE DYES AND THEIR BEHAVIOUR AS PRINTING INKS.

A Paper in the "Chemiker Zeitung."

SUPPLEMENTING my previously published work on this subject (see Eder and Valenta Beiträge zur Photochemie und Spectralanalyse; (V. Teil, Vienna, 1904) I have, during the current year, examined a number of dyes made by the Farbwerke vorm Meister, Lucius and Bruning of Höchst, the Badische Anilin und Soda-Fabrik of Ludwigshafen, and L. Cassella and Co., of Frankfort, and intended for making colour lakes. Whilst in previous years the aniline dyes mostly used for making lake colours gave brilliant hues, which were by no means stable to light, the efforts of the large firms are now to prepare dyes suitable for making lakes which shall not only be brilliant, but also stable to light, and answer in other respects to the requirements of the lithographer, the collotype worker, and the half-tone printer. These products are met with commercially under various names as

lakes, which are not very stable to light, but which are dazzling in brilliancy.

It is in any case of great interest to the inkmaker, as well as the printer, to know what are the qualities of the various dyes as printing inks, and, above all, to know their behaviour under the action of light and air and their printing powers. As regards the stability of a printing ink to light, it is interesting to know how it behaves in various thicknesses, as there are many colours of excellent shade and printing power, which, printed in thick films, are very stable to light; whilst in thin films are completely altered or bleached with the same exposure. The result of using such colour in an ink is that by exposure to light the pictures present a totally different appearance, as the delicate half-tones and middle tints at

leached or otherwise altered, whilst the deep tints remain the same.

### Making the Printing Plates.

In the process previously used (loc. cit) by me for testing the covering power and stability of the printing inks, only deeply printed surfaces were exposed. In order, however, to test the finer parts of the process was altered, so that instead of one single deeply printed surface, four films of varying thickness were exposed. To make these colour films a copper plate was used, on which were four squares with 8cm. sides etched to various depths. These squares, when printed on a sheet of paper, gave four different thicknesses of colour of varying intensity. The ratio of the colours was measured by a colorimeter, and the ratios found were 100:80:50:10. The strongest film (I.) corresponds to the deep tones, the middle films (II. and III.) correspond to the middle tones, and the thinnest film (IV.) to the most delicate tints of a picture. This printing plate, when printed in a copper-plate printing press, gave a chart which enabled one to study the action of light on the colour of the inks by covering the half of each square with black paper. The dyes, which were so generously provided by the above-named firms, were prepared as colour lakes, mostly according to the formulae worked out by the said firm, and with the minimum of varnish rubbed up into inks. With these inks pulls were obtained on paper, free from wood pulp, and these were simultaneously exposed with the standard colour, alizarine red lake, to

the action of sunlight, half of each individual square being protected by black paper. After the lapse of forty-eight or fifty-six days the tests were removed from the printing frames, and the loss in colour estimated by a colorimeter, and compared with the standard colour, which was taken as = 1000. The colorimeter used was Wolf's, which was fitted with a Zummer-Brodhun prism, as in my previous experiments. I found this to be more accurate than the one fitted by the makers.

### The Method of Testing.

The method of testing was as follows:—Under the left tube of the colorimeter, filled with water, was placed the unexposed square of colour; under the right tube was placed a piece of white unprinted copper-plate paper. The right tube was then filled with a solution of a dye which exactly corresponded, as regards colour, with the printing ink to be tested, and then by running it out or the addition of concentrated dye solution, the two fields were matched as regards intensity and colour. Finally, if necessary, it was filled with water up to the 100 division; in place of the unexposed colour square the exposed square was placed under the left tube and the solution run out of the right tube till absolute equality in colour intensity was obtained. The number of divisions corresponding to the liquid run out gives the loss in colour, caused by the exposure, direct in percentages. The results obtained are given in the following table:—

### Red Dyes.

Dye.	Precipitation.	Ratio of Varnish Colour.	Loss of Colour.		Stability to Light—Alizarine Red Lake = 1,000		Remarks.
			Per Cent.		I.	IV.	
Alizarinrot..... Bluish in parts. B.A.S.F.	Maker's formula .....	2:3 2:3	1 2	IV. 12	1,000 1,000	1,000 1,000	The standard colour lake. The other dyes were exposed with this to sunlight, some for 48 and others 56 days.
1. Pigmentscharlach 3B ..... Azo dye. M.L. and B. Ger. Pat. 141,357—24.10.1902.	Baryta lake on alumina hydrate according to maker's formula	1:3	2.5	16	1,000	875	Brilliant pure red, prints well and evenly. Is very stable, the delicate half-tones withstand the action of sunlight well, and only become slightly bluer. Exposure, 56 days.
2. Pigmentscharlach G. .... Azo dye. M.L. and B.	Like No. 131 .....	2:3	7	65	357	215	Behaves like No. 131 as regards printing, but is less stable. The whites with both sorts are clean. Exposure, 56 days.
3. Echterorange O. .... Azo dye. M.L. and B. Ger. Pat. 129,538—7.8.1901.	Baryta lake on alumina hydrate .....	1:3	7	40	357	300	Brilliant orange red, prints well and bleaches evenly without change of tint. Good stability. The whites remain clean. Exposure, 56 days.
4. Permanentrot 6 B. .... Azo dye. A.G.F.A.	Baryta lake on alumina hydrate and barium sulphate	2:3	9	82	277	170	Bluish red, prints well, bleaches equally in light. Good stability in the deep and middle tones. The lake requires very careful rubbing up with the varnish. The whites are only slightly tinted. Exposure, 56 days.
5. Autolrot BGE ..... B.A.S.F.	Mixed direct with alumina hydrate paste 5 p.c., 1:3	2:3	12	Over 100	208	—	Yellowish red, prints brilliantly, but in thin films, the delicate half-tones, not very stable. Whites somewhat tinted. Exposure, 56 days.
6. Baumwollscharlach extra ..... Azo dye. B.A.S.F.	Dye 6, water 1,000, aluminium sulphate 100, chalk 52, with Turkish red oil 30; precipitation with barium chloride solution (100:500)	1:3	12	60	208	223	Very pure fiery red, prints well and suffers no important change of tint in light. Whites clean. Exposure, 56 days.
7. Permanentrot 4 B. .... Azo dye. A.G.F.A.	Baryta lake on barium sulphate and alumina hydrate, according to maker's formula	1:3	20	98	125	143	Yellowish red of great brilliancy, prints well, gives pure whites, and in bleaching the tint hardly alters. Exposure, 56 days.
8. Lackrot P. .... Azo dye. M.L. and B. Ger. Pat. 128,456.	Baryta lake on alumina hydrate, according to maker's formula	1:3	20	44	125	313	Fiery yellowish red, prints very well, bleaches evenly and slowly. The delicate half-tones are stable. The lake only alters slightly in tint. The whites keep clean. Exposure, 56 days.
9. Autolrot BL ..... Azo dye. B.A.S.F.	As No. 135 .....	1:3	20	Over 100	125	—	The fiery lake prints well, the whites keep clean, but the delicate half-tones are very fugitive. Exposure, 56 days.
10. Astazinrot B ..... Azo dye. B.A.S.F.	Baryta lake on alumina hydrate, according to maker's formula	2:3	30	80	83	175	Yellowish brilliant red, prints well. The whites keep clean. Can be varnished. Exposure, 56 days.
11. Pigmentrot G. .... Azo dye. M.L. and B.	Barium sulphate and alumina hydrate	1:3	30	Over 100	83	—	Yellowish red, the lake requires very division by long rubbing with the varnish if it is to print well. The whites keep clean. Exposure, 56 days.



## Red Dyes.—Continued.

No.	Dye.	Precipitation.	Ratio of Varnish Colour.	Loss of Colour. Per Cent.	Stability to Light-Alizarine Red Lake = 1,000.	Remarks.
142.	Pigmentrot B. Azo dye. M.L. and B.	As No. 141	1 : 3	I. 30 IV. Over 100	I. 83 IV. —	Bluish red. The lake behaves like N Exposure, 56 days.
143.	Brilliant Lackrot B. Paste. Azo dye. M.L. & B.	Dye 100, H <sub>2</sub> O <sub>900</sub> , Turkish red oil 10 (diluted with water to 100), 70 Ba Cl <sub>2</sub> 10 p.c. sol. After boiling 900 alumina hydrate (10 p.c.) added	2 : 3	48 Over 100	52 —	Yellowish red, prints well. The colour comes bluer in light, it is less stable than the delicate half-tones. The colour requires very fine rubbing with the varnish. Exposure, 56 days.
144.	Astazinrot G extra B.A.S.F.	Baryta lake on alumina hydrate...	1 : 1	52 84	48 168	Yellowish red, prints well. Whites clean. No important change of colour in bright light. The dye is not very satisfactory. Exposure, 56 days.
145.	Pigmentbordeaux N. Azo dye. M.L. and B.	On baryta according to maker's formula	1 : 3	66 Over 100	38 —	Violet red, prints very well. The colour changes in light, particularly in the deep tones, and becomes yellowish. Exposure, 56 days.
146.	Antolrot BLP. In paste 20 per cent. B.A.S.F.	As No. 137	1 : 1	67 Over 100	38 —	Bordeaux red colour lake, prints well. Rubbed up finely with varnish. The delicate half-tones bleach fairly quickly. Middle tones become yellowish. Exposure, 56 days.
147.	Eosinsäure L (new) B.A.S.F.	Lead lake. The dye was dissolved in soda solution, precipitated with H <sub>2</sub> SO <sub>4</sub> , the necessary quantity of sugar of lead solution added and boiled for 1 hour	2 : 3	70 Over 100	36 —	Extraordinarily brilliant bluish red, prints very well, gives pure whites, and is more stable than the ordinary rosine lakes. The deep tints the prints show more reflection. Exposure, 56 days.
148.	Permanentorange Azo dye. A.G.F.A.	Baryta lake as No. 134	1 : 3	70 Over 100	36 —	Brilliant good printing orange red. There is some loss of brilliancy in the deep tones in light, the delicate tints bleach fairly quickly. The whites are slightly tinted. Exposure, 56 days.
149.	Pigmentorange R. Azo dye. M.L. and B.	As for No. 145	1 : 3	75 92	27 130	Brilliant orange red, prints well and even if rubbed up very fine with the varnish. Whites clean. Exposure, 45 days.
150.	Azo dye from Nitro-aniline-sulphonic acid and $\beta$ -naphthol. B.A.S.F.	Baryta lake on alumina hydrate, according to maker's formula	1 : 2	78 Over 100	32 —	Orange red lake, prints well. Whites clean. The colour alters in light, especially the half tones and becomes yellowish. Exposure, 56 days.
151.	Litholrot G G. B.A.S.F.	The dye paste was mixed with nine times the quantity of alumina hydrate (4 p.c.)	2 : 3	84 Over 100	29 —	Bright yellowish red, prints well. The colour in the deep tones becomes yellowish in light. The delicate tints bleach fairly quickly. Exposure, 56 days.
152.	Litholrot G G. B.A.S.F.	As with 151, only there was also 20 p.c. of the weight of the paste of BaCl <sub>2</sub> added	2 : 3	84 Over 100	29 —	Behaviour as No. 151. Whites clean. Exposure, 56 days.
153.	Litholrot R. B.A.S.F.	As No. 152	2 : 3	90 Over 100	27 —	Bright bluish red, prints well. The colour becomes yellower in light. The whites were fairly clean. Exposure, 56 days.
154.	Brilliantcarmin L. B.A.S.F.	Baryta lake on barium sulphate.	2 : 3	92 Over 100	27 —	Fiery red, prints well. The colour alters in light and becomes yellower. The whites are fairly tinted. Exposure, 56 days.
155.	Lackrot C. Azo dye in paste. M.L. and B.	Baryta lake on alumina hydrate.	1 : 1	93 Over 100	27 —	Fiery yellowish red, prints well, is however very fugitive as regards the middle and delicate half-tones. Whites fairly tinted. Exposure, 56 days.
156.	Litholrot R. B.A.S.F.	As No. 153, but instead of BaCl <sub>2</sub> sugar of lead solution was added	2 : 3	94 Over 100	26 —	Very fiery red, bluish, the colour does not change in light, but the middle and lighter tones bleach. Exposure, 56 days.
157.	Litholrot R. B.A.S.F.	As No. 153 but CaCl <sub>2</sub> used instead of BaCl <sub>2</sub>	2 : 3	95 Over 100	26 —	Behaves like 156, but the colour alters in light and becomes yellower. Whites pure. Exposure, 56 days.
158.	Pigmentpurpur A. Azo dye. M.L. and B.	As No. 149	1 : 3	95 Over 100	26 —	Brilliant deep bluish red, prints well, is very fugitive. The half-tones bleach completely. Whites slightly tinted. Exposure, 56 days.
159.	Litholrot R. B.A.S.F.	Dye mixed with ten times the quantity alumina hydrate paste (4 p.c.)	1 : 3	96 Over 100	26 —	Fiery bluish red, prints well, is however very fugitive. The middle and delicate half-tones bleach quickly. The deep tones keep better, the colour alters slightly bleaching. Exposure, 56 days.
Yellow Dyes.						
160.	Alizarinengelb 5 G. B.A.S.F.	As alumina lake and then boiled with addition of Turkish red oil	1 : 3	2 50	1,000 240	Rather brownish yellow. The middle tones III. and IV. are purer; the colour becomes browner in light. Prints well. Whites clean. Exposure, 48 days.
161.	Pigmentechtgelb G. Azo dye. M.L. and B.	Baryta lake on alumina hydrate	1 : 3	2 49	1,000 245	Brilliant yellow, the brightest tones almost citron yellow, middle pure golden yellow. Prints very well. The colour does not change in light. Probably suitable for three colour work. Exposure, 48 days.

## Yellow Dyes.—Continued.

No.	Dye.	Precipitation.	Ratio of Varnish Colour.	Loss of Colour.		Stability to Light—Alizarine Red Lake = 1,000.		Remarks.
				I.	IV.	I.	IV.	
162.	Pigmentechtgelb R. Azo dye. M.L. and B.	As No. 149	2 : 3	18	45	125	230	Rather dull yellow. Prints well. The colour changes slightly in light, becoming browner. Whites pure. Exposure, 48 days.
163.	Pigmentchromgelb L. Azo dye. M.L. and B.	As No. 149	2 : 3	18	66	111	182	Somewhat brownish yellow. In light the colour does not alter. Prints well. Whites pure. Exposure, 48 days.
164.	Pigmentchlorin G G. M.L. and B.	As No. 149	1 : 3	20	50	100	240	Brilliant, slightly greenish yellow. Turns browner in light. Prints well. Whites clean. Exposure, 48 days.
165.	Flavazin 3 GL. M.L. and B.	Baryta lake on alumina hydrate	1 : 3	35	60	57	200	Golden yellow, prints well. Whites clean. The colour only alters slightly in light. Exposure, 48 days.
166.	Flavazin 3 GL. M.L. and B.	Alumina tin lake on alumina hydrate	1 : 3	52	75	38	160	Brownish yellow. Exposure, 48 days.

## Blue and Violet Dyes.

167.	Indanthren S. B.A.S.F.	Dye rubbed up direct with alumina paste	2 : 3	0	0	Over 2,000	Over 12,000	Tegethoff blue, prints very well, and does not alter in light. The printing ink is of extraordinary great stability to light. Exposure, 48 days.
168.	Alkaliblau For printing ink. B.A.S.F.	Rubbed up direct with the varnish	2 : 3	7	51	286	148	The blue dye is intended as an addition to black inks to make them bluer. Rubbed up by itself with varnish it gives tinted whites. Exposure, 48 days.
169.	Oxaminblau G N. B.A.S.F.	Rubbed up with alumina hydrate paste and Cu SO <sub>4</sub> added	2 : 3	7	57	286	210	Greyish blue colour, prints well, alters slightly in light (darker in the deep tones). Exposure, 48 days.
170.	Lanacylviolet 3 B. Cassella.	Baryta lake on alumina hydrate and baryta according to maker's formula	1 : 3	14	46	143	260	Fiery violet, prints well, becomes slightly redder in light. Exposure, 48 days.
171.	Oxaminpferblau R R. Azo dye. B.A.S.F.	As No. 169	2 : 3	16	43	125	300	Blue violet colour, becomes redder in the light. Exposure, 48 days.
172.	Immediatreinblau conc. Sulfin dye Cassella	Baryta lake on alumina hydrate and baryta According to maker's formula	1 : 3	50	64	40	183	Beautiful fiery blue (ultramarine), prints well. The colour changes in light and becomes grey blue. Exposure, 48 days.
173.	Viktoriblau G N. B.A.S.F.	With Tamarin and tartar emetic on alumina hydrate	1 : 3	86	Over 100	23	—	Pure very fiery blue, prints well, is fugitive, and the colour alters. Exposure, 48 days.
174.	Säureviolet P W. B.A.S.F.	Baryta lake on barium sulphate	1 : 30	90	Over 100	22	—	Fiery blue (Kaiser blue), rather fugitive, bleaches quickly with change of colour. Exposure, 48 days.

## Green Dyes.

175.	Lichtgrün S L. B.A.S.F.	Baryta lake on barium sulphate	1 : 3	92	Over 100	22	—	Fiery green, the colour alters quickly in light, and is especially fugitive in the half-tones. Exposure, 48 days.
176.	Lackgrün B W. B.A.S.F.	Baryta lake on alumina hydrate	1 : 3	95	Over 100	21	—	Brilliant blueish green, but the colour changes quickly, and completely bleaches in the half-tones. Exposure, 48 days.

As regards the preparation of the colour lakes in the above table, it should be noted that most of the dyes were precipitated as baryta and alumina lakes, some with lime or tin salt. Dyes, such as pigmentchlorin GG, pigmentchromgelb, pigmentorange, pigmentrot, and pigmentbordeaux, which do not contain any salt-forming group, were mixed, like litholrot, with water and the medium, with or without the addition of salts Ba Cl<sub>2</sub> Ca Cl<sub>2</sub>, etc.). Viktoriblau was precipitated with tannin and tartar emetic in the usual way.

As will be seen from the above table, there is a fairly large percentage amongst the dyes tested, which are sufficiently stable to light to satisfy the requirements of a good printing ink. Individual dyes even give strikingly stable colour lakes, such as pigmentschlarlach 3B of the firm Farbwerke Meister, Lucius, and Bruning. This dye, which is prepared by diazotising o-amidobenzoic acid and coupled with  $\beta$ -naphthol-3-6-disulphonic acid only gives pure red lakes of considerable stability to light in the deep as well as the delicate tints if the carboxyl group takes part in the lake formation, whilst with subsequent treatment of the dye solution mixed with alumina paste or aluminium sulphate with barium chloride, yellowish lakes of little stability are formed. It is also an interesting fact that pigmentschlarlach G (o-amidobenzoic acid, diazotised +  $\beta$ -naphthol-5-sulphonic acid) gives very good yellowish lakes, but which are still less stable. Of the three red dyes, permanentrot 6B, 4B,

and permanentorange, the first gives a blueish red lake of good stability, which gives good varnishing brilliant printing inks for artistic work. A dye which gives a very fiery red colour lake, which could be used with advantage for the printing of advertisements, is "Baumwollschlarlach extra," made by the Bardische Anilin und Soda-Fabrik, and it is, like the previous one, an azo-dye (amidoazabenzol +  $\beta$ -naphtholdisulphonic acid. "Eosinsäure I neu," made by the same firm, is also worth notice, as if precipitated as prescribed by the makers, gives an extraordinarily fiery blueish colour lake, which is not, indeed, very stable, but is considered more so than the other eosine lakes previously tested by me. Of the yellow dyes, alizarinegelb lake and the pigmentechtgelb G are very stable. The latter dye ( $\beta$ -sulphobenzoic acid diazotised + phenylmethylpyrazolon) gives, when precipitated, according to the maker's directions, a more stable product than pigmentechtgelb R (2-Toluidine-5-sulphonic acid diazotised + phenylmethylpyrazolon). It is well known that Indanthreublau is one of the most light stable dyes that we have. To make the lake Indanthreu S is rubbed up as fine as possible with the necessary medium. Unfortunately, it is not possible to obtain a fiery blue; in order to obtain a brilliant printing ink the dye should be precipitated from its solution on the medium. My experiments in this direction induce one to hope for this, and further results will be given.

E. VALENTA.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between September 10 and 15:—

**CAMERAS.**—No. 20,142. Improvements in photographic cameras.

Fabrik Photographische Apparate auf Aktien vorm R. Huettig and Sohn, Germany.

**PRINTING FRAME.**—No. 20,174. Improved photographic printing

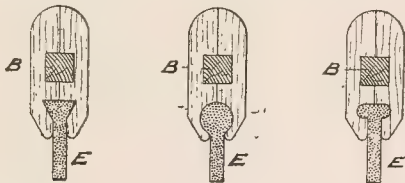
frame for bromides or gaslight cut papers and postcards. Joseph Arthur Wilby, 11, Strawberry Lane, Armley, Leeds.

**GUN-FORM CAMERAS.**—No. 20,350. Improvements in gun-form photographic cameras. Emma Ella Crankshaw, 9, Tempest Hay, Liverpool.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 3d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**SQUEEGEES.**—No. 14,863, 1906. The invention consists in a new form of squeegee, which is constructed with handle with dovetail or other enlarged groove having rounded edges and a rubber blade with beaded edge of corresponding shape, but larger dimensions. The latter is inserted in the groove by stretching out the rubber until of less size and then sliding the handle



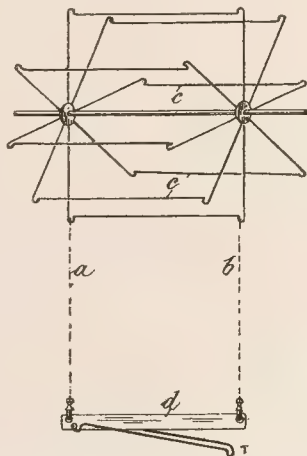
over it, the blade securing itself, unaided by glue or screws, on assuming its normal condition. Three suggested forms of the squeegee are shown. E is the rubber strip and B a strengthening piece. The handle may be made in one piece. The Thornton-Pickard Manufacturing Co., Limited, Altrincham, George Arthur Pickard and Frank Slinger.

**FILM AND PLATE CHANGERS AND DEVELOPERS.**—No. 17,553, 1905.

The specification describes mechanism for the transference (in daylight) of plates or films from an exposing chamber in the camera to a chamber for development and fixation on the spot or for subsequent development in a dark-room. The apparatus may be adapted to any construction of camera. If of the magazine pattern the carriers or sheaths must be open at one edge or side, and in the top part or side of the camera facing the open edges of the carriers is a slot so adjusted as regards position that this slot exactly corresponds with the position of one carrier, preferably that carrier standing up foremost in the camera, or opposite the lens, the slot being provided with a door or shutter opened or closed on the inside. The slot may be disposed laterally on the front, rear, or in the side in case it is desirable or only possible to transfer the plate together with its carrier after it has fallen. The plate receptacle may be connected or disconnected with the slot by means of a sliding piece, or spring attachment, so that a plate may be passed to or from the camera. William Fraser Claughton Kelly, 22, Winchendon Road, Fulham, and John Arthur Bentham, 51, Claverton Street, London.

**WINDING PAPER ROLLS.**—No. 4,697, 1906. The invention is intended to apply to photographic rotary printing machines, and relates to the securing of the paper web to the winding reel. In place of a ribbon attached to the cross-bars of the reel and to a lever clamp which grips the end of the paper, two lateral cords, a, b, or like flexible means, are employed, connected to the ends

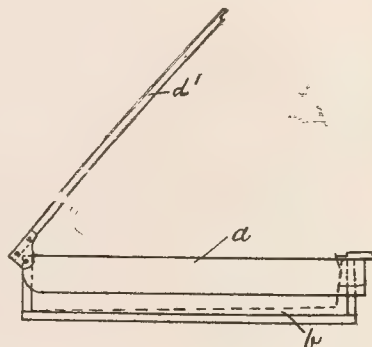
of one of the cross-bars, c, of the reel, the clamping-bar, d, to two clips, e f. This latter connection is detachable, with hooks, or similar means, being used to connect the gripping means to the cords. By this arrangement, in case of need,



gripping means may be detached from the paper web, and drawn out laterally, and then fixed to the two ends of the web which is to be further wound up. George Bluen, 130, Leipzigerstrasse, Berlin.

**NUMBERING NEGATIVES.**—No. 20,787. The invention is an apparatus for numbering a negative at the time of exposure, and unknown to the sitter, and consists in arranging a carrier for consecutively numbered cards, in such a way that on a plate being exposed the carrier moves the number up against the plate, that the respective number is produced on the plate when developed. Howard Cumming Hitchmough and Harry Charles Moore, 101 and 103, Dale Street, Liverpool.

**STORAGE BOX.**—No. 20,204, 1905. The box is intended for the storage of sensitive paper and plates, and is constructed, as shown in the figure, so that the upper case a forms the lid of the lower



case b, there being a double hinge permitting the lid d of a to be raised on the case-form lid of b. Charles Edward Dodsley, 47, Shrewsbury Road, Oxtou, Birkenhead.

The following complete specification is open to public inspection before acceptance, under the Patents Act, 1901:—

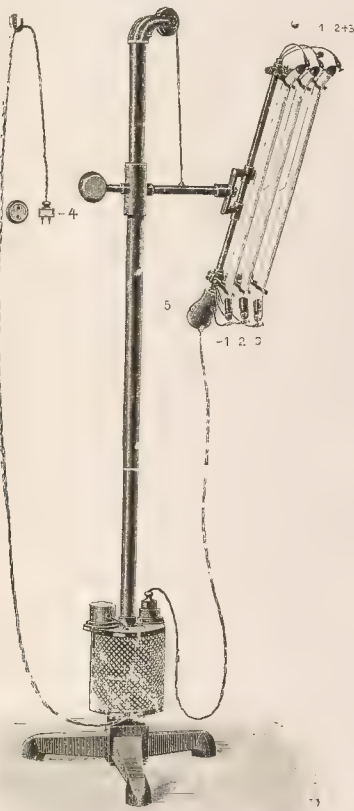
**PHOTOGRAPHY.**—No. 14,072, 1906. Ippers.

**WORTHING Camera Club.**—The second annual open exhibition of the above club is fixed for February 25, 26, 27, and 28, 1907. Entries close on Saturday, February 16. The secretary is Edmund F. I. Crouch, 11, South Street, Worthing.

## New Apparatus, &c.

**Mercury-Vapour Lamps.** Made by Schott and Genossen, Jena. Sold by Isenthal and Co., 85, Mortimer Street, London, W.

The introduction of the mercury vapour lamp last year attracted a good deal of attention at the time, and photographers were fully informed of its possibilities by the series of articles from the pen of Mr. William Gamble, which appeared in our columns, and are quoted in an abridged form in the current *ALMANAC*. From America, the country of the first manufacture of the lamp, came the first records of its behaviour in the photographic studio, and that clever photographer in New York, Mr. Pirie Macdonald, was among the first to



give it his unqualified approval and to affirm its capability to respond to all the needs of a photographer having his studio in the heart of a great city. Since that time considerable experiment has been made in the construction of the lamps, and as one result thereof we have the issue of a new lamp of this type from the celebrated glass works of Schott and Genossen, at Jena, the factory, as most of our readers know, which supplies the raw materials to the optical firm of Carl Zeiss. The new mercury-vapour lamp is the outcome in the first instance of the application by the Schott firm of the new glass recently invented by them, and transparent to ultra-violet light. The mercury light being extremely rich in these rays, it is naturally desirable to transmit as large a proportion of them as possible, even though at present the lenses of ordinary photographic objectives are not transparent to a large proportion of these ultra-violet rays. However, the property of the new material of the tubes will be appreciated in process work—for which the lamps are, of course, suitable—much as certain new lenses, e.g., the "Actinolux," of Messrs. Y. Watson and Sons, transmit the ultra-violet rays. However, our

present interest is in the capabilities of the lamps for ordinary professional portraiture, and of that we are able to speak in very high terms. The most suitable equipment for a studio is a battery of three tubes, either 18 or 26 inches, supported on a standard which, with other mechanical accessories, is made in the Schott factory, and thus obtains the guarantee of first-class workmanship. Four of the 18-inch lamps can be worked off a 220-volt circuit (direct current) at a consumption of current of from  $2\frac{1}{2}$  to 3 ampères. The mounting of the lamps is such that they can be separated or withdrawn from each other as may be desired, thus permitting the photographer to diffuse or concentrate his light source in a precise manner and with the certainty of repeating the conditions at any future time. The price of the "L" pattern standard, as shown in the figure, is £8 10s. for two or three lamps, the lamps themselves costing from £1 to £1 5s. each. The whole construction of the outfit is workmanlike in the extreme, and the complete apparatus occupies but little space in a studio and is not in any way an unsightly erection. A special type of lamp standard is supplied, to which several ordinary incandescent lamps are attached, in order to counteract the characteristic effect of the mercury light. This they do quite effectually by providing the necessary red rays. The apparatus can be seen at Messrs. Isenthal's establishment in Mortimer Street, near to Regent Circus.

A new mercury-vapour lamp is being placed on the market by Messrs. O. Sichel and Co., of Bunhill Row. It is being shown by Messrs. Sichel at the Royal Photographic Society's Exhibition, in a form for printing purposes. We shall give further particulars of the lamp in a later issue.

**The Schroeder Studio Flashlight Apparatus.** Sold by Friedrich Schroeder, Brandenburga Havel, Germany.

When we visited the studio of Herr Dührkoop in Hamburg some months ago we saw in use a portable flashlamp, of which Herr Dührkoop informed us very considerable and effective use was made by him, both in the studio and for "at home" work. We have since learned that the lamp in question is the invention of Herr Schroeder, a professional photographer of Brandenburga, by whom it is now placed upon the English market through the houses dealing with professional photographers. Herr Schroeder has shown us a number of collodion prints of the very highest technical quality made with his lamp, in the studio and in his sitters' houses. In most cases the magnesium light alone was used, but Herr Schroeder is a strong supporter of the Puyo idea of employing daylight as an auxiliary to the flash or vice versa, and by this method has obtained results which could not have been obtained by either source of light used alone. The lamp consists of a combustion chamber of fabric, which encloses the smoke. The powder is placed upon an ignition plate, which forms the top of a small box containing the battery and magnetic apparatus which actuate the percussion cap igniter. The electrical connection permits of the ignition of the powder instantaneously, not only by itself—the lens being left open—but also at the same moment as the shutter of the camera; the one release actuates both at the same moment. Further, the shutter can be opened and an exposure be given by daylight of sufficient length to provide any softening effect which may be desired, and on pressing the button the flash is made and the shutter immediately closed. The mechanism thus provides for all practical requirements, and it says much for the apparatus that it is the outcome of Herr Schroeder's own professional work. The price of the whole outfit (which may be carried by the photographer) is six guineas.

**Christmas Motto Mounts.** Sold by Marion and Co., 23, Soho Square, London, W.

Anyone who may have nursed the delusion that a few fine days might still be enjoyed before the winter sets in will receive a mild shock by hearing that Messrs. Marion are issuing catalogues and samples of their series of Christmas mounts. We hope, however, that the circumstance is an instance of their foresight and enterprise rather than of the immediate decline of the year. Certainly they are the first of the mount publishers to apprise us of their new designs and issues for the approaching Christmas trade. The list is a long one, running to twelve quarto pages, and we have some difficulty in preventing ourselves from exceeding the limits of space in selecting a few cards for special mention and approval. L 152 and L 75 are two cards we like. They take the postcard size of print, and are neatly made in an "impressed" card, with deckle



edges and a lettered motto. L 54a is another neat style, in board of imitation canvas. L 54b is a single folding card, in imitation grey canvas, with green seal, whilst L 88 provides space for two 1½ in. circle prints, and bears the motto, "A Happy Christmas, and Look Forward to Many More." Messrs. Marion's list and sample packets (the latter 2s. and 5s.) may now be obtained.

A new issue of the Barnet ortho plates reaches us from Messrs. Elliott and Sons, Barnet, by whom increased rapidity has been imparted to the emulsion, an improvement to the plate, which should be appreciated during the autumn and winter season. We have found the plates capable of giving excellent results from a variety of outdoor subjects, including a range of autumn browns. The plates should be fully developed—the point is one on which the makers lay special attention—and if this is done the gradation of subjects in which strong colouring occurs is a kind which indicates the possession of excellent orthochromatic properties.

#### CATALOGUES AND TRADE NOTICES.

MESSRS. HARRINGTON BROS., 4, Oliver's Yard, City Road, London, E.C., send us their latest wholesale list of photographic chemicals.

### New Books.

Sir Benjamin Stone's Pictures—Records of National Life and History, Vol. I. and II. (London: Cassell and Co., Ltd. 7s. 6d. each).

These two collections of photographs by the President of the National Photographic Record Association must represent a very small fraction of the photographic work which Sir Benjamin Stone has prosecuted in season and out of season whenever the opportunity afforded. Yet the subject matter of the volumes, "Parliamentary Scenes and Portraits" (Vol. I.), and "English Festivals, Ceremonies, and Customs" (Vol. II.), could hardly have been more widely chosen with the object of interesting the public. The scenes and characters upon the stage at Westminster—be the performance comedy or farce—hold the public mind, and Sir Benjamin Stone's very factual full-length portraits of members of the House, posed on the Terrace, with the full light of the river beating on them, are more interesting than many presentments of these gentlemen made in a studio. "It is," as Mr. Michael MacDonagh ironically writes in an introduction, "the real man, with all his natural perfections crowding thick upon him, that we see." The second volume presents records of a large number of the fairs and festivals which still survive—chiefly in the rural districts of England—from the most ancient times. Sir Benjamin Stone, and those who have helped him, should receive the thanks of all who value the preservation of our characteristic customs and festivals, some of which take place only once or twice in a lifetime.

Each photograph is accompanied with a few words of explanation or comment, and the volumes thus become a source of continual entertainment in leisure hours. It is to be hoped that they will also stimulate the photographic record which the survey associations systematically, and many individuals and societies, are carrying out.

An international lantern-slide competition will be held by the Association Belge de Photographie, Brussels. It closes October 15, and slides competing for the three prizes should reach the Palais du Midi on or before that date. The slides will be judged by arc light. The Belgian Society are also holding a competition for stereoscopic transparencies.

PHOTO-SECESSION Exhibitions.—The second series of exhibitions at the Little Galleries, 291, Fifth Avenue, New York, will begin November 1. The first exhibition is to be devoted entirely to members' work. Every member has the privilege of having at least one print hung. It is preferred that prints be unframed, but mounted on mounts 14 by 22 inches; these conditions are not compulsory. This exhibition will be followed by monthly exhibitions of American and foreign work.

## Meetings of Societies.

#### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
29 Oct.	Hull Photographic Society .....	Outing to Pauli.
1.....	Southampton Camera Club .....	Slide Criticism Competition.
1.....	South London Photo. Society ..	"Composition and Effect in Pict. Photography." G. J. T. Walter.
1.....	Luton Camera Club .....	"Lantern Slide Making."
1.....	Bowes Pk. and Dis. Ph. Soc. ...	"The Optical Lantern, and How to Work It." Mr. C. Roberts.
1.....	Lancaster Photo. Society .....	Members' Lantern Night.
2.....	Manchester Amat. Photo. Soc.	"On Mounting Photographs for Exhibition Purposes."
3.....	Woodford Photo. Society .....	Affiliation 1906 Prize Slides.
4.....	London and Prov. Photo. Assn.	Annual Supper at the Hotel Bolo.
4.....	Hull Photographic Society ...	27, Gerard Street, W., at 7.30. General Meeting.

THE BRISTOL PHOTOGRAPHIC CLUB held a most successful dinner at the Royal Hotel last week, the function being intended as preliminary to the big open exhibition which the club has organized for October 6. A pleasing incident of the evening was the presentation of an aneroid barometer to the late hon. secretary, Mr. W. W. Smith, as a mark of the members' appreciation of his services. Mr. M. B. Fowler, F.C.S., presided.

## Commercial & Legal Intelligence

A BOGUS CANVASSER. — Frederick George Hardy, School Street, Tirphill, pleaded guilty at Merthyr Police Court last week to charges of obtaining money, falsely representing himself to be agent of Messrs. A. and G. Taylor, photographers, Cardiff. In the case the prisoner obtained from Elizabeth Jones, wife of the landlord of the Mount Pleasant Inn, Vochriw, and in the other case he obtained half a crown from Mary Ann Kinsey, a servant at the inn. Prisoner was in Messrs. Taylors' employment for a month, about three years ago, but since then he has had no connection with the firm, and had no authority to do any business on their behalf. He was sentenced to gaol for two months.

#### NEW COMPANIES.

STANDLEY, BELCHER, AND MASON.—This company has been registered with a capital of £6,000 in £1 shares (2,000 preference) to carry on the business of wholesale and retail chemists, manufacturers of surgical, photographic, and scientific apparatus, and to adopt agreements with S. Belcher and E. D. Mason. The subscribers are:—S. Belcher, E. D. Mason, E. K. Mason, Mrs. A. Belcher, E. R. Mason, W. E. Belcher, Mrs. E. Belcher.

G. J. KIRKUP, LTD., has just been registered with a capital of £500 in £1 shares (250 Pref.), to carry on the business of chemists, makers of photographic, optical, and other apparatus, and materials etc. The subscribers are: A. A. Thomson, Moray Cottage, Mussburgh, N.B., corn merchant; A. Watson, Cloth Market, Newcastle-on-Tyne, merchant; W. Tiffin, 127, Northumberland Street, Newcastle-on-Tyne, baker's manager; J. Reid, Spring Bank, Ryton, Durham, gentleman; R. Aitken, 35, Coniston Drive, Edinburgh, accountant; J. Scott, Brunswick Street, Edinburgh, accountant; A. Cunningham, c/o Raines, Clark, and Co., Leith Walk, Edinburgh, bookkeeper. No initial public issue. The number of directors not to be less than two, nor more than three. The first are A. Thomas, A. Watson, and W. Tiffin. Qualification, five shares. Remuneration as fixed by the company. G. J. Kirkup is the secretary and manager. Registered office: 9, Westmorland Road, Newcastle-on-Tyne.

## Correspondence.

- \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- \* We do not undertake responsibility for the opinions expressed by our correspondents.

### A HINT TO REFLEX CAMERA MANUFACTURERS.

To the Editors.

Gentlemen,—Having searched the pages of the "Almanac" in vain for my ideal reflex camera, I make bold to offer a suggestion for the improvement of this most valuable of all types of hand cameras, which, if added to the splendid instruments made by the leading manufacturers, would not only add enormously to their efficiency, but would render them all that the most exacting could desire. One finds plenty of such cameras with long extension, revolving back, and rising front, all of which movements are indispensable, and some have in addition a side-sliding movement which is quite a superfluous and unnecessary complication on such cameras, being indeed seldom, if ever, needed on any reversible back camera at all, except, perhaps, for copying; but one looks in vain for a reflex with a swing back. The probable reason for this is that this movement may be impossible to incorporate in a camera of this type; at least during six years I have given careful thought to the subject, and I have failed myself to design a swing back and focussing glass that would move in unison.

But at the very outset of my experiments a way of solving the difficulty occurred to me, and five years ago I had a reflex camera built to my order and specification by a mechanic in America, where I was at that time, which served my purpose and requirements perfectly. The camera has a double swing front—i.e., the front board pivots at the centre on an axis, and the lens can thus be tilted up or down.

Now, apart from the value of this movement in architectural work—for the effect of swinging the lens is exactly the same as swinging the back—let me point out its untold value in ordinary instantaneous work, or in press photography. Naturally, you always try to get a little elevation if you can (on, let us say, such an occasion as some public event in the streets), both to secure better perspective and to get above the heads of the crowd; and, given such a slight elevation, the man whose reflex is provided with a swing front can completely eclipse the efforts of his confrère whose camera is not so fitted.

Perhaps the weather is bad and the chief subject moving rapidly; the use of a small aperture is impossible, yet with a large stop only a portion of the picture can be got into focus. Now just tilt the lens out at the top a bit—i.e., tilted looking downwards, and instantly even at the full aperture of the lens (if the focus be not too great), say, a 7 inch at  $f/4.5$ , the whole field of view, from the heads of the people immediately below you to furthest infinity, comes into sharp and clear focus, and the effect, as you see it on the ground glass in the top of the camera, corresponds exactly with that on the plate. By this simple device the man whose lens is not faster than  $f/8$  can secure a result beyond the power of the other man, no matter how rapid his lens, if his camera front be rigid, for in order to secure a corresponding depth of focus the latter would have to stop down to  $f/16$  or  $f/22$ . During the last two years hundreds of photographs of Japan, Manchuria, and the Russo-Japanese War, which have appeared in the English, American, and Continental illustrated weeklies and magazines, under the copyright of the H. C. White Co. were made by me, and in every instance all instantaneous pictures were made with a camera fitted with a single swing only—i.e., the lens tilts out at the top only as that is the movement most required. Also the large series of pictures of Japan, Korea, and Manchuria, with which Underwood and Underwood flooded the English press at the beginning of the war, were made by me with such a camera for the most part, as, anticipating the war, I travelled through those countries before the war began.

Pictures of India, Burma, and Ceylon appearing from now on in the English papers, under the H. C. White copyright, will show what can be done with such a camera, as all moving subjects, and

many stationary, which I photographed in those countries, were made with this reflex.

The swing front presents little difficulty, and in my present cameras is operated by a milled head at the side. It does not interfere with the use of a rising front. I would suggest to the manufacturers that instead of fitting such cameras with useless side-sliding fronts, they should turn their attention to devising a front that would not only swing vertically, but horizontally, as well. Every experienced worker knows the enormous value of the side-swinging back at times—for instance, when photographing obliquely down a street or side of a building. By the use of the side-swing on such occasions the use of a much larger aperture is rendered possible.

These remarks may rouse the cry of "distortion." I can only say that in hundreds of photographs so made I can notice none. In any case a little distortion is much better than a badly blurred picture. The manufacturers who put a well-made half-plate reflecting camera on the market embodying the triple movement of rising front and vertical and horizontal swinging lens, will secure my order at once, provided the camera has the usual qualifications of long focus and reversing back as well, and certainly no press photographer could afford to be without it once the instrument is obtainable.

These swing movements are equally useful in getting foregrounds and prominent objects at one side of the plate into focus in landscape work, and once having learnt their full value, one can never be really happy with a camera which does not embody them. I sincerely hope these remarks may induce the British manufacturer to give us this ideal reflex the coming year.

I enclose a few sample prints showing in high speed and medium speed work objects from nine or ten feet to infinity in sharp focus.

H. G. PONTING, F.R.G.S.

c/o Chartered Bank of India, Yokohama.

[The photographs, all of which are evidently taken from a slightly elevated standpoint, have both foreground and extreme distance in sharp focus.—Eds. B.J.P.]

### COLOUR-PRINTING IN ENGLAND AND ABROAD.

To the Editors.

Gentlemen,—I cannot see that Mr. Tilney's further letter to you helps matters in the least. I am not concerned to deny that some colour engravings are imported into England; the object of my communication was to rebut Mr. Tilney's accusation that the whole blame for this rested with the English photo-engravers. I assert, and offer evidence for my assertion, that this is due to many causes; and, further, I state, without fear of contradiction, that English firms having men of equal experience will turn out work in every respect as good as foreign firms, and in less time. I admit that competent art direction may be desirable, but I should like to point out that this alone is not enough; two firms, to my own knowledge, priding themselves on their art direction, have never made a profit, and a third firm would be in the same parlous state if the art direction was not over-ridden frequently. No, I cannot help still feeling Mr. Tilney's reckless indictment of native photo-engravers as being incompetent to be unproven; I think I have already shown his speculation put forward to support this to be entirely baseless.

Mr. Tilney's playing upon words must be looked upon with regard to the argument as "pointless wit," and his calling me "Mr. Whatname" is also somewhat paltry, since I expressly stated the reasons for my anonymity, which I did not wish to preserve so far as Mr. Tilney himself was concerned.—Yours, etc.,

PHOTO-ENGRAVER.

### AN ASPERSION ON CANADA!

To the Editors.

Gentlemen,—In your issue of last week, beneath the head of "The Photographic Salon" and the division under "Tomfoolery," you say, "A child, and the lower half of its nurse, is sent by A. S. Goss—from Canada, and therefore the circumstance does not surprise us." Is there not some mistake in this? For, although I agree with the Editor's criticism, I would not go so far as to take it as a natural course that, coming from Canada, a photograph must necessarily be bad. Perhaps, indeed, Kipling's "The Lady of the Snows" has prejudiced the motherland, but I think that if a deputation of English photographers could visit the premier colony they would find, not only that there is a summer, but also that there are, at



least, one or two photographers whose standard approaches that of the critics of the Old Land.—I remain, yours sincerely,

NUGENT M. CLOUGHER.

36, Ridgmount Gardens, W.C.

September 24, 1906.

[We are afraid it is useless to comment on our critic's sentence.—Eds. B.J.P.]

#### THE BISULPHITE FIXING BATH.

To the Editors.

Gentlemen,—For years the acid fixing bath has been so generously damned by various photographic authorities that it is gratifying to find MM. Lumière devoting time to its investigation and giving it their support. Their reference to the use of bisulphite in the fixing bath would, however, give one the impression that its use in this direction was of quite recent introduction, whereas it has been in use for upwards of twenty years. When eikonogen became popular as a developer in 1889, an acid fixing bath, containing bisulphite of soda, was recommended by the Actien Gesellschaft für Anilinfabrikation, who apparently owed their knowledge of it to a formula by Dr. Hermann Gunther.

Bisulphite of soda, as an addition to the fixing bath, was first advocated by H. B. Berkeley; it was also suggested in these pages by the then Editor, W. B. Bolton, for use with films, but he used it as a separate bath between development and fixation.

Gunther pointed out that when using bisulphite of soda in the fixing bath an alum bath might be used without fear of any precipitation.

When Cramer introduced his acid fixing bath I used it for some time, but gave it up for the simpler bisulphite bath, which I have used and advocated for the last sixteen years. Probably, now that it has received the hall-mark of MM. Lumière's approval, it will win its way to popular approval.—I am, Sirs, yours faithfully,

Sidmouth.

G. T. HARRIS.

#### AFFILIATION NIGHT AT THE P.P.S.

To the Editors.

Gentlemen,—Will you kindly accord me space to announce that the annual gathering of members of the affiliated societies will be held (by permission of the Council of the R.P.S.) in the New Gallery on Friday next, 28th inst., at 7 p.m., when the committee hope to see a large number present.

Members of societies will be admitted on showing their Red Books, their friends on payment of 6d. each, *plus* a red ticket.—I am, yours, etc.,

A. R. F. EVERSHEED,

Chairman of Committee.

6, Daysbrook Road, Streatham Hill, S.W.

September 22, 1906.

#### THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—The usual holidays have prevented me from writing to thank Mr. Kenneth Mees for his explanation as to standard light, given in your issue of August 3.

There are one or two other points upon which Mr. Mees or Mr. S. E. Sheppard will kindly enlighten me, perhaps.

In a paper entitled "The estimation of the colour-sensitiveness of plates" (*PHOT. JOURN.*, March, 1906), on p. 112 occurs the following passage, when speaking of the standard acetylene light filter: "It let through far too much red, while the failure of the acetylene flame to supply sufficient violet and ultra-violet was insufficiently compensated. The only way in which this last defect could be set right was to darken all the rest of the spectrum, etc." My point is that the acetylene light, as adopted by Messrs. Mees and Sheppard, is not comparable to diffused daylight, because of its deficiency in violet and ultra-violet. Surely the suggested remedy, namely, the darkening of the rest of the spectrum, is a parallel case to the Irishman, who, finding his blanket too short, cut a bit off the top and sewed it on to the bottom.

This disadvantage of the acetylene light is also proved by Messrs. Newton and Bull in a paper entitled "Orthochromatic plates and sensitizers" (*PHOT. JOURN.*, Jan.-Feb., 1905, p. 17), where it is said: "Although it is a disadvantage in work of this kind not to be able to use daylight or arc light, the only result observable

in using a light less rich in the shorter wave-length, is the subduing of the photographic effect of the blue, violet, and ultra-violet, etc." (The italics are mine.)

If we subdue the photographic effect of the shorter wave-lengths, surely for scientific measurement we reduce the speed of the plate; if we do not, then an ordinary plate behind Eder's potassium chromate screen should give us the true inertia also.

The other point which worries me from a practical point of view is the question of fog. In the thesis by Messrs. Mees and Sheppard for the degree of B.Sc. (*PHOT. JOURN.*, August, 1905, pp. 296-297) there appears a "note on fog," which concludes thus: "Obviously, fog increases faster in unexposed film than in the exposed; it is desirable, therefore, for photo-chemical investigation, to have an emulsion which does not give fog-density higher than 0.15 to 0.2, even on infinite development."

Now, if I want to apply Messrs. Mees and Sheppard's work to the practical testing of commercial plates for speed, having no control over the fog density, how can I rely upon the readings? For instance, taking the reading of a certain plate I find that deducting a fog density of 0.22 the speed is 200 H and D, but as the fog increases more upon the unexposed than the exposed strip it is obvious that this reading is too low. If I do not deduct the fog the plate reads about 400 H and D. What, from a practical point of view, am I to do?

I trust that Messrs. Mees and Sheppard will not think I am just quibbling, but these are points which are stumbling blocks to me, and I have only taken the subject up because I want to really learn it if I can, though I am handicapped by my ignorance of mathematics.

May I also ask Mr. Ferguson or Mr. Mees to explain how the factor 0.4186 is obtained in the explanatory letter by the former writer in your issue of July 27, p. 598. It occurs in the example worked out for finding a development factor = 1 when K and  $\gamma_{\infty}$  are known.—Yours faithfully,

London, E.C.

ARTHUR GASCOIGNE.

PROCESS INSTRUCTION IN MANCHESTER.—The prospectus of the department of photography and printing crafts in the Municipal School of Technology, Manchester, reaches us from the director, Mr. Charles W. Gamble. The various courses of instruction are planned to extend over two years and to provide a thorough training in the theory and practice of photography. The syllabus of this two years' course is as follows:—First Year:—Chemical: The methods of making solutions for ordinary use; preparation of special substances; making collodion; preparation of sensitive papers; development; orthochromatising dry plates. Optical: The simple examination of lenses; determination of focal distance and effective angular aperture; diaphragm values; making and testing light filters for various purposes. Mechanical: The examination and testing of apparatus, as cameras, dark slides, stands, exposing devices; camera manipulations. The Action of Light on Sensitive Surfaces: Testing the sensitiveness and gradation of photographic plates and papers; testing the colour sensitiveness of photographic surfaces; the use of colour charts and colour sensitometers. The Preparation of Negatives for Printing: Methods of intensification and reduction; printing processes; methods of printing by daylight and by artificial light; toning methods; development of various kinds of sensitive papers. Second Year:—The photographic camera and its accessories; lenses for different classes of work; camera images; manipulations with cameras and lenses; lighting; the various effects in the appearance of objects produced by different conditions of lighting; range of gradation in light and shade; exposing and the conditions which govern the exposure given to sensitive surfaces; development and after processes; the preparation of negatives for printing; production of prints; relation of the negative to the printing process; typical printing processes; albumen, collodion and gelatine papers; the platinum and carbon processes; bromide papers; mounting and finishing prints; the production of enlarged negatives and prints; reproduced negatives and transparencies; lantern slides. In addition there are full lecture and laboratory courses of instruction in photo-mechanical work and series of practical demonstrations in portraiture, silver platinum and carbon printing, negative retouching. Those in the Manchester district who are thinking of adopting any of these crafts as a livelihood should obtain the prospectus of the school or consult Mr. Gamble as to the best course of procedure.

## Answers to Correspondents.

**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.**

**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.**

**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.**

**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.**

### PHOTOGRAPHS REGISTERED:—

W. R. Jack, 82B, Lowther Street, Carlisle. *Photograph of the Carlisle Cathedral Copes. Photograph of the Bishop Bardsley Memorial.*

Mythb & Carey, 38, Fore Street, Bridgwater, Somerset. *Photograph of the Bridgwater Swimming and Water Polo Club.*

Madge, Frogmore Buildings, Abergavenny. *Photograph of the Rhymney Royal Male Choir.*

W. Ralston, 259, Rauchlehall Street, Glasgow. *Photograph of the Uddingston Cricket Club, First Team, 1906.*

Lydney, 24, Oxford Road, Manchester. *Photograph of the Picnic of Affleck and Brown at Windermere.*

A. Crook, Sandlea Villa, Datchet, Bucks. *Photograph of the Interior of St. Mary's Church, Datchet.*

G. Browne, 12, Sarsfield Quay, Dublin. *Photograph of Sergeant Doubleday, Middle Weight Wrestling Champion of Ireland.*

T. B. Robinson, 185, High Street, Homerton, London. *Photograph of Clapton Orient Football Team, 1906-7.*

T. Abery, 17, High Street, Bullth Wells. *Photograph of the Lord Mayor of London, High Sheriff of London, Mayor of Swansea, Mayor and Corporation and Officials of Brecon, and the Leading County Gentry. Photograph of Mamie Panquet held at the Castle Hotel, Brecon, in Honour of the Lord Mayor of London's Visit to Brecon.*

**COPYING, ETC.**—(1) In the course of my work I have to copy some portraits which appear to be sepia platinotypes. I find it difficult to obtain a negative on rapid plates which give a print equal to the original. Is it correct to use a fast plate, or should I use a slow plate, such as a "process," in order to obtain a negative which would give a rich plucky print? (2) Can you give me a toning formula for silver paper which will give a black or nearly black image while keeping the paper perfectly white?—A. R.

(1) We should advise you to use a plate of "ordinary" rapidity, and give a very liberal exposure. A print of this colour requires plenty of exposure, and we suspect your failure has arisen from insufficient attention to this point. (2) By over-printing, toning in the usual way, and then reducing the prints with weak persulphate solution (5 grains per ounce), you will get a very black colour equal to the results with the platinum bath.

**RETAIL.**—If you mean half-tone blocks, we are afraid we cannot. The process requires greater space than we can give it. You should study a text-book on the subject, such as Wilkinson's "Photo-Mechanical Processes." A paragraph on making photogravure copper plates appeared on page 743 of last week's issue.

**RELATINED HALF-TONES.**—Can you tell me how the enclosed postcard is gelatinized? I have tried the ordinary process of floating a half-tone print in gelatine, but it does not leave a gloss like enclosed card. Would the cards require to be sized first?—J. M.

The usual method is to float on the hot solution of gelatine and to immediately pass through rollers. An ordinary mangle, with a couple of ferrotype sheets, between which the cards are passed is used, to our knowledge, effectively for this work.

**ADDRESS WANTED.**—Can you recommend me to a first-class ivory miniature artist in this district?—W. B. YOUNG.

Addresses of those who produce ivory miniatures will be found in the advertisement columns of the JOURNAL. It is against our rule to specially recommend any particular advertiser's work or goods.

F. S.—If you made the enlargement from the single picture, and the copyright in it was not registered at the time you made it, you have not infringed the law. If you had made your reproduction from the portrait in the combination picture, the case would be different, because the Act makes it illegal to reproduce any portion of a copyright picture. If the man registers the copyright in the single picture now, he cannot proceed against you for what you have done.

**ENAMELLED DISH.**—I have an iron enamelled dish used for clearing platinotypes; enamel has come off partly. Can you recommend me a white enamel to touch it up? 2. I shall be obliged if you could give me address of maker of Whatman paper, or wholesale agent? Also vellum.—INQUIRER.

1. Aspinall's enamel is good for the purpose. See that the dish is thoroughly dry before it is applied. Two or more coats, thinly applied, may be necessary. 2. Whatman's paper may be had from any of the large dealers in artists' material. Vellum paper may be procured from such houses as Marions', Houghtons', etc. If they do not stock it they will doubtless procure it for you.

**ADDRESS WANTED.**—I would be much obliged if you will kindly give me through the medium of your valuable journal a name and address of a firm who are willing to let on hire dresses and wigs of different periods; my purpose is genre work.—ENQUIRER.

Fox, Theatrical Furnisher, Wellington, Street, Strand.

**STUDIO QUERY.**—1. I enclose a rough plan of a photographic studio I intend building in Madrid. It is to be situated on a terrace rising above all the surrounding houses. The walls marked with continuous lines cannot be altered, as they form part of the façade of the building, and all the little windows are required to keep the studio in harmony with the style of the rest of the building. But these, of course, can easily be curtained. The walls marked with dotted lines can be built in any way I desire, as also the ceiling, but they cannot be moved to alter the size of the studio in any way. Under these circumstances I should be very much obliged if you would trace out for me a cross-sectional elevation of what you would consider the best studio that can possibly be built on the site, giving as far as possible all the dimensions. "A" is where I propose putting a glass door. I should also deem it a great favour if you could give me any hints as to the kind of glass to put in, the colour the studio ought to be, and such items that go so far to make a complete success of the whole thing. 2. I also have to fit up a dark-room, and, so far, I have failed to secure any book dealing in any way with an ideal dark-room. Does such a publication exist?—C. P. A.

1. We should advise you to build the studio so as to utilise the light on the north side. This will give you a studio about eight metres long and five wide. About a metre and half, or a little less, at either end of the side, may be made opaque, and the rest glass. The same will apply to the roof. Ordinary plain glass will answer, unless the side is overlooked, then fluted, or rolled plate, may be used. For the colour, a rather dark French grey is as good as anything. We would suggest that you get Boias' book on Studio Construction, published by Marion and Co., Soho Square, W. You may get some hints that will be useful to you. 2. "The Photo-Miniature," No. 33 (Dawbarn and Ward, London), but most persons design the dark-room to suit their requirements—according to the space at their disposal.

**INTENSIFICATION WITHOUT METALLIC SALTS.**—In your issue of April 1, 1904, No. 2,291, Vol. LI., I read an article by Mr. J. S. Teape on "Intensification without Metallic Salts," and it has occurred to me to ask if this process is one that is meeting with favour amongst experts, as against the other processes. I have not noticed any further contributions in your journal on the subject, but if there have been, I should be glad to have the dates on



which they appeared. The process suggests great possibilities in the improvement of negatives, and I am sure many of your readers would appreciate an article, such as the one that appeared, giving the further result of experience, and experiment of this process. I may say I have made one or two trials of it with more or less satisfactory results—as an amateur—but I should be glad to hear from Mr. Teape or some other qualified contributor, as to the results of further experience of the process.—T. C.

You will find a resumé of the recent work on pp. 792-6 of the "Almanac."

**UNCEMENTING LENS.**—I wish to dissolve the Canada balsam in the front combination of a whole-plate portrait lens. Please say best and quickest way, as the lens is in constant use.—MANCHESTER.

Remove from the metal mount and place in some warm water contained in a saucepan on the bottom of which a few thicknesses of blotting paper or flannel have been laid. Add hot water gradually, until at last the whole is as hot as the hand can bear. When this is the case quickly apply a twisting movement to the upper lens, holding the lower one. They should slide apart. If they do not, the only thing is to make hotter and try again.

**VARIOUS.**—1. Where can I purchase the Bolcliffe or Bowcliffe midget camera and lens?—ANXIOUS.

1. J. Bilcliffe, Manchester, S.W. 2. It is against our rule to draw distinctions. If you compare the recent descriptions of the apparatus you can surely draw your own conclusions. 3. Better estimate the cost yourself from the lists of Fallowfield, the Tress Co., Sharp and Hitchmough, or Bolcliffe.

**FORMULÆ.**—Could you inform me whether it is possible to buy a book of up-to-date formulæ, such as developers for bromide paper, toning process for some, in fact, any dark-room recipes; where such a book is obtainable, and cost of same?—NATALIA.

The "British Journal Almanac," or the "Figures, Facts, and Formulæ of Photography."

**H. BURNE.**—The Platinotype Co., 4, Bloomsbury Street, W.C.

**A. COPYRIGHT QUESTION.**—In February last we copyrighted the enclosed combination of photographs, which we've taken individually, and each man remunerated for his trouble by receiving free copies. Now, a local photographer has received an order from one of these men (marked with an X), who handed him either the picture we gave him, or one he bought of us, printed separately, as also enclosed. Can we stop the photographer copying this separate picture, which is also in the combination copyrighted, but was not copyrighted independent of the combination? Your kind reply will oblige.—CHARLES KNIGHT.

Certainly not. You cannot make a dozen different subjects copyright by mounting them on one card, copying that, and then registering it as one picture. As the enlargement was made from one of the subjects which was not registered, the one who did it was quite within his legal rights.

**EXECUTION OF ORDER.**—I photographed a group of twenty persons (12 x 10) to be presented to one of the persons in the group, which order has been completed. The others in the group require twelve copies, but the one who has received the present objects to me supplying them, because she does not like her expression, etc. She had nothing to do with the ordering of the group, and has paid me no money. Can she stop me or sue me, etc., if I supply photographs to the other persons in the group, who think it a splendid photograph?—RODINAL.

We do not see how you can be prevented from executing the order, merely because one in the group does not like her expression—particularly as the group was not taken to her order.

**FORMULÆ WANTED.**—1. Will you kindly give me a good formula for washed collodion emulsion, and how is the emulsion washed? Would there be any difficulty in making small quantities, from 10oz. to 20oz., and what chemicals are used as sensitising dyes to increase the speed of the emulsion? I require the emulsion for black and white copying only. I refer to similar dyes as

used with Dr. E. Albert's emulsion. 2. If not asking too please give me a formula for matt varnish.—OLD READER.

1. There is no difficulty in making the quantity of emulsion mention. But space is too limited in this column to working details that would be of any value to one apparently ignorant of the subject. Formulæ for washed emulsion found on pp. 968-969 of the "Almanac." We should add to obtain Abney's work, "Photography with Emulsion Klein's "Collodion Emulsion." They will give you necessary information. 2. Sandarac 90 grains, mastic 20 ether 2oz.. When dissolved, add benzol from ½oz. to according to the grain desired. (See page 962 of "Almanac.")

**OLD LENSES.**—I shall be much obliged if you will give me some of the maker and value of the two following lenses I have had given me. Each is like the present-day trait lens, each has a rack and pinion, no stops, diameter of lenses about 2½in. to 3in. Front lens is a compound lens; back lens of each is a "separated compound" (a ring intervening). The only marks I can find are pencil the edges of the glass thus:—"Launn, Paris," "Mrs. O. The flange of the lens having the latter mark has engraved it "Voght." Would this be a forebear of Voigtlander's? donor tells me that his father was one who never spent a penny so as to get the best then obtainable, and he remembers one of the lenses cost £15, but cannot say which. CHILTON.

We can give no idea of the value of the lenses without seeing them. From the description, we should say that are ordinary portrait lenses of old French make, and have little market value now. Voigtlander's lenses always bear name in full, with a number, and address.

**MR. GEAR'S Classes in Photography.**—Mr. John H. Gear will conduct classes during the forthcoming winter at the Cripplegate tube, Golden Lane, on Wednesday evenings at 6.30, commencing October 3, and at the Croydon Polytechnic, Thornton Heath Thursdays, commencing October 11. In connection with each are special practical classes for bromide enlarging, lantern making, etc. The course of lectures includes exposures, neg making, development, printing, mounting, hand cameras, their and misuse, combination printing, intensification of negatives, bromide enlargements, architectural work, orthochrom work, flashlight, platinotype printing, carbon printing, enlarging negatives, and lantern slides.

**THORNTON-PICKARD 1906 Competition.**—We are reminded that competition, in which £100 is offered in prizes, closes October 1. The necessary entry form and prospectus will be sent at one application to the Thornton-Pickard Manufacturing Company, Altrincham.

**PLATINOTYPE Demonstrations at the R.P.S. Exhibition.**—Demonstrations of platinotype, including the new "Japine" paper, given daily at 4.30 at the Platinotype Co.'s stall and at 7.30 on evenings when the exhibition is open.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears the best portion of the paper.

## The British Journal of Photography

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# THE BRITISH JOURNAL OF PHOTOGRAPHY.

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FRIDAY, OCTOBER 5, 1906.

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## SUMMARY.

The Cameron Exhibition closes to-morrow, Saturday, at 12.30.

On Thursday next an exhibition of photographs, chiefly portraiture, will open at the house of the BRITISH JOURNAL OF PHOTOGRAPHY. The collection is made up of contributions, each of one print, from members of the Professional Photographers' Association.

The Ozbrome Process.—We publish a full report of a lecture by the Rev. H. W. Dick, giving practical particulars of this method of printing carbon prints from bromides. (P. 785.)

Colour Photography.—Baron von Hübl recounts his experience of the Smith bleach-out paper for obtaining colour prints at one exposure from coloured originals. (P. 787.)

The behaviour of soda sulphite in conjunction with soda carbonate is the subject of two editorial notes, and two letters (from Mr. H. W. Bennett and from a Lausanne correspondent) will be found on page 798.

The movements desirable and attainable in reflex cameras is the subject of some interesting correspondence. (P. 797.)

The Royal Photographic Society's Exhibition.—Reviews of the professional, technical, and scientific, and trade sections appear on pages 788-791. The exhibition closes on October 27.

A lantern-slide printing-frame and a method of retouching negatives are amongst the patents of the week. (P. 793.)

Some advisory notes on backgrounds for the professional photographer appear on page 784.

## EX CATHEDRA

The  
"Almanac,"  
1907.

Our labours in connection with the forthcoming issue of the "Almanac" are approaching a conclusion, and the forty-sixth volume of this universal publication will leave our hands to pass through those of the printers and binders before many days have elapsed. The tasks of ourselves and our publishers will be lightened if all those who have any communications for the "Almanac" will send them immediately. Our own ability to review novelties in the way of apparatus is largely a matter of securing the articles in good time, and we would ask that all firms who have not yet done so would be good enough to place their introductions in our hands without delay. Our publishers ask us to say that the last day for receiving advertisements is Thursday, October 18.

\* \* \*

To Society  
Secretaries.

The pages of "The British Journal Almanac" being now in a state little short of that which will justify us to give the word to the printers to pass the whole edition to the machines, we shall be glad if all secretaries of societies will take notice of our second application for particulars of their societies, to be inserted in the directory which for many years past has been a feature of the "Almanac." Those who have mislaid the form upon which these particulars should be entered may have a second copy by return of post on applying to our publishers, Messrs. H. Greenwood and Co. We would also remind our secretarial friends that the fixtures arranged by them for the opening season will be cheerfully announced week by week in THE BRITISH JOURNAL OF PHOTOGRAPHY, if the card or programme is forwarded to us.

\* \* \*

Grants for  
Photographic  
Research.

In our correspondence columns this week appears a letter from Mr. F. A. Bridge, announcing, in accordance with a recent decision of the Council of the Convention, the willingness of that body to grant monetary aid to the carrying out of photographic research. The determination of the Convention thus to promote the progress of scientific and technical photography is of old standing, but has dropped out of notice of late years, doubtless owing to the lack of applications from those qualified to undertake research work of a kind likely to be approved by the Council. The conditions on which grants are made are outlined in Mr. Bridge's letter, and our hope is that the standing offer of the Convention will be noted by those able to carry out experiments which promise to be to the benefit of photography. If the Convention can



do the smallest thing towards fostering research in this country, it should earn the gratitude of all classes of photographers.

### The "Single Picture" Exhibition.

The collection of photographs by members of the Professional Photographers' Association is now brought together in the house of THE BRITISH JOURNAL OF PHOTOGRAPHY, and will be opened to visitors on Thursday next, October 11, at 10.30. We have been gratified by the response from members of the P.P.A. in all parts of the country, since the act of sending a print can be prompted only by the desire to further the end of ourselves in promoting the exhibition, namely, to afford an opportunity for photographers to see side by side the work of a large number of their fellows, such work being selected by the photographer himself as that which most correctly represents the output of his studio. The exhibits which will be visible at the little gallery at our offices until November 10, will be worth a visit, not only on account of the different styles of lighting which the photographs illustrate, but also for the demonstration of the effects obtainable by ringing the changes on the papers and mounting boards at the disposal of the professional. In this respect alone the exhibition can scarcely fail to stimulate the struggling professional to produce things which are better—and, we hope, more profitable. We are convinced that, under proper management, the latter will follow the former.

### Slovenly Work.

It is somewhat surprising that some photographers, who expend much time and skill in producing excellent work, are so careless of the way in which the pictures are finished and handed to their customers. One not infrequently sees excellent pictures considerably marred by bad mounting and spotting—the latter often not matching with the colour of the photograph, so that it is really as conspicuous as if the spotting had been omitted altogether. Bad trimming of the prints greatly detracts from the appearance of the picture, caused by the carelessness of the mounter, or possibly through the corners of the shape being worn or chipped. We were forcibly reminded of this the other day when looking at the specimens in the show case of a very high-class West End photographer. The pictures themselves were most excellent. They were trimmed oval and mounted on Cosway border mounts. The prints were very unevenly cut, and an attempt had been made to

remedy the unevenness with water colour, which was conspicuous, as it did not match the colour of the graph. We mention this case merely to illustrate some, even high-class, photographers neglect little in the final finishing of their pictures. Such omissions, when exhibited as specimens in show case, lead some observers to imagine that similar or defects may obtain in the work generally issued from the establishment.

### A Non-Staining Pyro Developer.

We regret to find that some errors crept into our paragraph last week on this subject (p. 763), and they may mislead those desirous of experimenting with the developers mentioned, with this opportunity of correcting them. The sentence referring to the old formula used (beginning in the line) should read: "Previously we used one-fifth of the first two ingredients in (a) and three-quarters (one-third) the quantity of carbonate." Further, the strength of the stock neutralised sulphite solution should be 4 oz. of sulphite and 1 oz. of metabisulphite in (not 40 oz.) of water. The new formula we recommend is made up by dissolving 160 grs. of pyro (or pyrox) ounces of stock solution, and then adding water to 20 oz. The alkali solution used with this contains soda carbonate in 20 oz. of solution. The old formula is so slow in its action, is made up by dissolving 16 pyro in 12 oz. of stock sulphite solution, and adding of water, to make a total of 20 oz. With this, the solution used contains 3 oz. of carbonate in the 20 oz. This old formula gives, in about five minutes, at a moderate temperature, a negative that is too thin for ordinary poses, but one that is not, perhaps, unsuitable for colour work. We have given this old formula partly on this account, and partly because it happens to be the formula with which most of our experiments have been conducted. As regards the colour of the image, there is nothing to choose between the two formulæ, but the new and more rapid one gives greater density in the same time. As regards ultimate staining and keeping qualities, we know the old formula to be all that can be desired, but our experience of the newer one being much shorter, we cannot yet speak so positively with regard to it. It should be explained that the restraining influence of the sulphite solution is all in the direction of retarding density, and does not seem to hinder the appearance of detail.

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

### THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the

ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographer the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—Our publishers ask us to draw the attention of advertisers to the fact that the LAST DATE for receiving orders and copy for advertisement in the "Almanac" is THURSDAY, OCTOBER 18.

short development gives thin negatives full of detail. Prolonged development gives as much density as can be desired. In the fifth line of last week's paragraph, "pyro of pyrax" is a printer's error for "pyro or pyrax." We have mainly used pyrax on account of its convenience, but comparative experiments with pyro have shown that both compounds act in the same way precisely.

#### Some Curious Effects with Pyro-Soda.

The formula we have recommended in a previous note has some peculiarities, and gives effects that are not common to pyro-soda developers. The pyro stock solution is pink, and the addition of the alkali turns it yellow. This mixed developer will keep for months, but, as before stated, sulphite deteriorates in the presence of alkali, and so the kept one-solution developer gives a stain which increases with the age of the solution, though the solution itself remains perfectly clean and transparent. A one-solution pyro-soda developer that keeps as well as this is certainly unusual. The next point is that if a developer is used for a number of plates in succession, after about the sixth plate it becomes milky and useless, but up to this time it remains perfectly clean and transparent, and is of a yellowish or amber colour. If this clean used developer is allowed to stand, it speedily becomes bright red in colour, but shows no deposit of any description for a very long time. There is no sign of the brown muddiness that generally characterises a used pyro-soda developer. The developed plates are put direct without washing into a plain hypo fixing bath, and this bath, of course, quickly acquires the pyro colour. At first it is a yellow brown, but on standing after use it becomes a rich ruby or port wine colour, and remains perfectly clean and transparent for weeks. After about two months a precipitate is formed, but the cleanliness and colour of the solution prior to that appearance are both remarkable. We are quite unable to explain these unusual effects, except on the assumption that the preservative sulphites used have uncommon properties. It is difficult to guess what the exact composition of the mixture of sulphite and metabisulphite may be, but it is certain that it has characteristics quite different from those of plain sulphite or metabisulphite alone. Its keeping properties show that it is essentially different, for it is serviceable for any purpose for which sulphite is used, when a solution of either of the separate ingredients has deteriorated so much as to be quite useless. A peculiarity of this mixed neutral sulphite solution is that it is generally yellow in colour. It is doubtful if it is so with perfectly pure sulphite, but with samples commonly supplied as such it is an obvious yellow, though no precipitate is formed.

#### "Globe" that does not "Roll On."

To those who are interested in the subject of prejudice as it affects progress, an article in a recent issue of the "Globe" will be found so full of entertainment that we reprint it on another page. The writer of this curious article appears as a critic of the two photographic shows now open. His criticisms will, perhaps, appeal to an octogenarian here and there about the country; but all present-day photographers will regard them with interest only as they afford a pleasant link with the past, calling up associations of the quaint antique. For this critic's point of view is that of one to whom the term "photograph" is synonymous with "silver-print." Consequently, upon everything in these shows not recognised by him as a photograph of this type he raves in a way that is highly diverting. Speaking of a few awful examples at the shows, the review says:—

"These things and a host of others make the show a painful disappointment to all sincere believers in the future of photography." Now, who are those sincere believers? We thought we were amongst them; but obviously this lonely critic makes up the total, because he alone has suffered "painful disappointment." Everybody else seems tolerably pleased both with present conditions and with the outlook. Certainly artists are; for they see that photographic processes rely more and more upon the very faculties that make the true artist in other mediums. The artist is invariably the readiest to grant the charm and quality in works such as are now publicly shown in London. The works are as far removed as the poles from the Great Exhibition—crinoline—waterfall—and—footbridge—type of thing that the critic of the "Globe" pines for, and they are only possible by "treatment"—a thing of which the Early Victorian was ignorant, and to which the artistic scope of the "Globe's" critic does not extend.

#### Industrial Alcohol.

On Monday last the Revenue Act of 1906 came into operation. This Act permits alcohol, upon which no duty is charged, to be used for manufacturing purposes. For years German manufacturers have been able to use pure alcohol, free of duty, while English ones have had to pay a heavy one on what they use; hence Germany has, hitherto, held a monopoly in certain things that require pure alcohol in their production—many of the coal tar colours, to wit, and other chemical preparations. Things that could be made in Germany at, say, sixpence the pound, could not be produced here for nearly five times that sum. Consequently, the business has gone to that country, to the loss of our own manufacturers. It is only, however, in cases in which no alcohol remains in the finished result that relief is given, the extent of the reduction being some 40 per cent. in the cost of the spirit. Before manufacturing can be undertaken with the alcohol in question, it will be the duty of the Excise to see that it is blended with 5 per cent. of wood naphtha, to render it nauseous to the taste, and save the interests of the Inland Revenue—and the publican. As the concession is only made where no alcohol remains in the finished product, we suspect that collodion users will not benefit much under the new Act. The 5 per cent. of wood naphtha would not be very detrimental in collodion, even for negatives, if the naphtha were fairly pure. At present methylated spirit contains 10 per cent. of naphtha, but that would not be a serious matter if a pure or refined naphtha could be employed, but that the Excise will not allow. All samples of naphtha have to be submitted to the Excise authorities before they can be used by the methylator, and if they are of too pure a nature they are rejected.

#### Works of Art and the American Customs Duty.

It is pretty generally known that the duty imposed on pictures imported into the United States is exceedingly high. Recently the well-known picture dealers here, Messrs. Agnew and Sons, sent a painting to America. It was invoiced at three thousand pounds, but the Customs appraised it at double that sum, which increase, under the American Customs laws, made the picture subject to seizure. The Messrs. Agnew appealed against the decision of the Customs authorities on the grounds that the picture was sold for £6,500 subject to approval, and that until all points of the argument had been fulfilled, the painting still belonged to them, and should be valued at the price they paid for it, namely, £3,000. We now learn, from a Laffan's telegram, that



Messrs. Agnew have been successful in their appeal. The excessively high duty levied by the American Government on works of fine art is the means of keeping much out of that country. It is stated that more than one American millionaire has a number of pictures, for which they have paid almost fabulous sums, practically, warehoused here because they will not consent to pay the exorbitant duty imposed by the American Customs.

### **The Spectacle Makers' Company and Opticians.**

\* \* \* The "Standard," in an article one day last week, under the sensational heading "Alarmed Opticians," discloses a remarkable situation. It may be remembered that last session a Bill was put forward by the Spectacle Makers' Company—one of the ancient City Companies—as regards the testing of sight, and it was read a first time in the House of Lords. It was then abandoned. On making inquiries, a representative of the "Standard" found that a situation had been created that not only affects the internal working of the Spectacle Makers' Company, but may affect other City Companies. It appears that, according to the Charter granted by Charles I. to the Spectacle Makers' Company, all members of the company must be connected with the profession of spectacle making, and must acquire a practical knowledge of the art. It now appears that the terms of the Charter have not been kept, for not one of the gentlemen forming the Court is in any way connected with the trade. For example, one is a newspaper proprietor, another a caterer, one a baker, one a fancy warehouseman, another a ship-owner, and others are engaged in other pursuits in the City. It is stated that the income of this Company is something like two thousand pounds a year. It is supposed to be used for the benefit of the craft, and opticians generally throughout the kingdom have protested against the Bill promoted by a body who have no practical knowledge of the trade. It is understood that the general body of practical opticians have drawn up a second Bill of their own, which will be presented when Parliament reassembles. The "Standard's" article has brought a rejoinder from the clerk to the Spectacle Makers' Company, controverting some of the statements, and this has been replied to by Mr. Chas. Hyatt-Woolf, the editor of the "Optician and Photographic Trades' Review." Other letters will probably follow, and there may be an interesting controversy on the subject and, possibly, the composition of other ancient City Companies.

### **BACKGROUNDS.**

THE background in portraiture has always been, and always will be, of the utmost importance, be the method of expression what it will. Whereas, however, the artist whose work is entirely creative can make any background he pleases, the photographer is entirely restricted by the number of grounds he can conveniently keep ready painted in his studio. The importance of the selection of this limited number of grounds cannot be over-estimated. They must, not only from an artistic, but a utility, point of view, be of such a character as to be readily used for various subjects. They must be quiet and unobtrusive, and, in the case of professional portraiture, not so distinctive as to be easily recognised. If, however, the function of the background to enhance and accentuate the subject is remembered, this warning is unnecessary.

Of course, if the spectator deliberately looks for the background, its varying uses will readily be seen, but if it is at all satisfactory it will be so entirely subsidiary that it might be included in fifty portraits without the

fact striking the beholder. The background must on account be selected for what may be considered its beauty, but solely as a ready means of isolating strengthening the portrait, though certainly a certain class of customer will be pleased with a background, however inappropriate, so long as it is ornate.

Small head grounds are amongst the most useful, are the easiest to obtain good, since they pack into small a space, and are easily handled. A number should be kept, since a very indefinite ground is usually considered the more artistic. They can frequently be turned upside down with advantage. One also obtains in this manner the choice of the light or dark portions of ground on the shadow side of sitter. A means of slightly raising or lowering the ground is advisable; a reliable method is that described in the JOURNAL for November 1905.

Cloud grounds of varying depths, if of not too great contrast, are extremely handy. A suggestion of foliage can be introduced occasionally with effect. Plain ungraded grounds are not entirely satisfactory in middle tones of grey, usually being too much of the same tones as the flesh, or giving undesirable relief to portions of the clothing. The plain white ground used with light dresses is useful, and it will be found that all tones, from a medium grey to white, are easily obtained according to the position of the ground with regard to the light.

A soft lighting is advisable in the majority of cases with a light ground, yet we have made striking effects with a strong lighting against a grey ground with a portion of dead black introduced in some form or another. A used a black straight band about three inches wide.

A deep black ground is intensely useful for men, light with a concentrated beam; its use has, in fact, almost amounted to a convention. Very brilliant effects are made by contrasting light clothing with it. Backed plates should always be used in conjunction with the dead black ground. It must be remembered when using the favourite dark grounds of the day that a cloth of agreeable depth when used for an adult with full exposure, is frequently objectionably sombre if the exposure has to be contracted as is the case when taking children. For full-length three-quarter figure, quite plain ungraded grounds are apt to give the figure an inlaid appearance, unless, indeed, the dead black ground is used. With this latter, however, a certain lack of atmosphere is often apparent. This is overcome if the background stretcher is slightly elaborated by having hinged side wings made of opaque black material, to open out at right angles to the ground; an opaque top should also be provided. It can easily be arranged to fold flat with stretcher, so that when not in use no more space than usual is occupied. When the sitter is placed on an imaginary line drawn from the extremities of the open wings, the lighting will not be affected in any way, whilst the ground will be of purest black, into which the shadows will sink with roundness and softness quite foreign to the harshness associated with the usual black background.

Though grounds have of recent times, and owing to the example of the finest American painters, improved wonderfully, at the same time there are still too many shocking untrue and inappropriate, and full of unnecessary dead and worse highlights. Interiors are not yet satisfactory some of them outraging common sense, truth, and taste. These scenic grounds are frequently provided with false grounds, which certainly, in the majority of cases, improve them; they are, however, rather in the way. If the cloth are on the usual 8 ft. by 8 ft. stretcher, we sew two loops of tape on to the extreme corners of the foreground,

provide two hooks on which to hang them, screwed into the stretcher frame at the requisite height from the floor. In default of really good artificial interiors, we provide a real interior, which is very satisfactory. The end wall of the studio—of course, if both ends are available they can be treated differently—is papered with a very dark self-colour paper, of a tone to match the rest of the decorations. A picture-moulding frieze and skirting board are provided. They form a very large background, suitable for large groups or single figures. A picture of very low tones, framed in black, is often used in conjunction with this wall, and perhaps suggests more insistently than anything else the atmosphere of perfectly natural surroundings. It is, moreover, so easily moved, raised or

lowered, that it becomes a most valuable aid to the composition, often, indeed, pulling a picture together or supplying necessary balance. One or two pieces of dark furniture add to the homeliness. They may be placed against the wall, and it is by no means necessary that they be in focus. After using a fine natural ground like this, a ground suitable as an interior for the highest or the lowest class, one never wonders at the pervading artificiality of professional work, but rather that the baronial hall, interior of cathedral, or pantomime palace type of background have existed so long.

We hope in a later article to deal with accessories, including much that may reasonably come under the heading of backgrounds.

## THE OZOBROME PROCESS.

The method of "chemical printing" invented by Mr. Thos. Manly, of the Ozotype Co., has been before the photographic world only three months, and yet, so far as we can judge has not yet aroused the interest which would have been anticipated from its remarkable character. It would seem that the process is such a complete revolution in methods of photographic printing that experienced printers are inclined to dismiss it without investigation of its powers by a series of practical tests. Ozobrome, however, as we were the first to assert, is no freak process or *tour de force*, but a method—of extraordinary simplicity—possessing facilities which must surely prove tremendous advantages in the eyes of both professionals and amateurs.

In the first place, ozobrome yields a carbon (pigment) image indistinguishable from a carbon made in the ordinary way.

This carbon print is made directly from a bromide print or enlargement, and it is unreversed.

The printing (in the dark) of the carbon from the bromide is done in about the time required for daylight exposure.

The bromide, after use, may be restored to its original condition. The whole series of operations is performed in broad daylight, or by any artificial light that may be preferred, and may be mounted and finished.

To the amateur worker who has not the opportunity of daylight for a large proportion of his work these facilities require no comment or emphasis. The professional photographer or trade enlarger can hardly help regarding the process with special

interest from the point of view of lessening the cost of reproducing carbon enlargements. Hitherto an enlarged negative has been indispensable, and in contrast with ozobrome the cost of the materials may be compared thus:—

15 x 12 ENLARGEMENT VIA ENLARGED NEGATIVE.	
	s. d.
Contact Transparency, say .....	0 2½
15 x 12 Negative Plate .....	1 6
	1 8½

15 x 12 ENLARGEMENT VIA BROMIDE.	
15 x 12 Bromide .....	0 6½

The cost of "printing" ozobromes from the bromide should be less for labour than in making carbons by the ordinary method, and would compensate for the slightly increased cost of the ozobrome tissues (pigment plasters) compared with ordinary carbon tissue.

The figures given above leave out any value of the bromide print, although, of course, a considerable sum might be obtained for it either in its raw state or worked up. It is to be expected that one bromide enlargement, in conjunction with one or more carbons of the same size, will become a stock line among photographers; but in any case it is to be hoped that the profession will make the lessened cost of production the opportunity of extracting a larger profit from such extremely "cut" specialties as carbon enlargements.

### THE REV. H. W. DICK ON OZOBROME AT THE NORTH MIDDLESEX.

On Wednesday evening last, September 26, the fixture at the North Middlesex Photographic Society was the Ozobrome Process, demonstrated by the Rev. Henry W. Dick, of Manchester. Mr. Dick, who has several times lectured before the Society, was met by a large audience, who fully appreciated the opportunity of witnessing the demonstration of Mr. Manly's fascinating process. Many other photographers would doubtless have been glad to have attended had the occasion been announced. The demonstration was, however, arranged at short notice, Mr. Dick kindly consenting to devote an evening to the subject in his passage through London for a brief holiday in Normandy.

He explained that the whole of the preparations for the demonstration had been made for him by others, and that therefore the success (or failure) of the proceedings was not to be credited to himself. The demonstration, however, was completely successful.

#### The Preparation of the Bromide.

The lecturer explained that the basis of the process was the contact of a bromide print with a piece of carbon tissue or

pigment plaster, as Mr. Manly called it, this contact producing the effect of light, and giving rise to a print which was to all intents and purposes a carbon. The bromide was bleached during the course of the process, but it could be used again and again if desired, or it might be made the basis of the carbon print, in which case certain advantages were obtained. In both cases the bromides should be good prints, fully washed to free them from hypo, the presence of which would unfit them for the process. The reason of this was that the solution with which the carbon tissue (pigment plaster) was impregnated contained ferricyanide of potassium, which, with any hypo in the print, would form Farmer's reducer, and so destroy the silver image of the bromide in places. The gelatine film of the bromide should also be hard, in order that it might not soften under the action of the hot water used for development. The prints could be treated with 10 per cent. solution of formalin, but it was not absolutely necessary to use this bath, though probably advisable to do so, unless the prints were to be dried before being placed in contact with the treated tissue (pigment plaster).



### Transferring the Bromide Image.

The bath in which the tissue or plaster was immersed prior to contact was called by Mr. Manly the "pigmenting solution." It consisted of potassium bichromate, potassium ferricyanide, alum, and citric acid. The solution was prepared and placed on the market by the Ozotype Co., though the lecturer believed that in the event of the secret of its preparation being lost he could re-supply it.

The solution as purchased was mixed with four or less times its bulk in water. The stronger the bath, the more quickly the transfer of the bromide image to the tissue would take place. However, an average formula would be as follows:—

Stock solution .....	2 ozs.
Water .....	8 ozs.

The tissue was placed in this solution, and at once swabbed all over on the gelatine side in order to remove air-bells and obtain a complete action of the solution. A minute or two was sufficient for the process, the only action of which is to impregnate the tissue with the solution. The bromide print was soaked in clean water until flaccid, and the treated tissue then removed direct from the pigmenting solution, and brought at once face down upon the picture side of the bromide print lying face up in the dish. The bringing into contact of the two prints must be done smartly, as the action of the solution adhering to the bromide commences at once. The pair is removed (in contact) from the water and immediately laid on a piece of glass, the bromide underneath. A few strokes of a squeegee are quickly applied to remove excess of the solution, and the double paper laid under slight pressure—e.g., a sheet of plate-glass about  $\frac{1}{4}$  in. thick, and somewhat larger than the print—for about twenty-five minutes or half an hour.

The pressure on the prints should be even; if it is greater at one point than another there is likely to be a line showing in the final ozobrome print. But a pile of prints of the same size may be laid together under pressure without any evil results.

The contact between the prints and the tissue is only of service whilst the two are wet. If the time is so long that the tissue or the bromide print dries, the action comes to a stop. Mr. Dick could not say whether the action would take place more quickly if the print and tissue were laid under pressure together in a warm, moist place, but he was inclined to think that there was likely to be little advantage in this direction, as the tissue would adhere permanently to the bromide print on moderate elevation of the temperature, and therefore the preferable form of the process in which the final ozobrome is obtained without the presence of the underlying bromide image could not be carried out.

Clean water must be used for each bromide print—that is to say, the water must not be contaminated with the drainings from the bichromated tissue, or the print will commence to bleach before it is in proper contact.

In regard to the time during which a print should remain in contact, the lecturer said that it was difficult to over-print, but the temptation to cut down the time of contact should be resisted. In making a number of prints, no time was wasted, and twenty-five minutes could be given to each print.

### Ozobrome on Bromide Print.

This first process was preferred by Mr. Dick on the ground that when certain modifications—not suggested or authorised by Mr. Manly—were made, the richness of the final print was greater than by the other process, and afforded facilities for remedying defects in negatives which were very valuable. Nevertheless, the second process, in which the pigment print is obtained, supported on single transfer paper, the bromides being liberated for repeated use, was the one which the lecturer advocated for regular work. The method of employing process No. 1

is as follows:—The bromide prints and tissue (pigment print) after twenty-five minutes' contact, are placed together in warm water, about 100 deg. Fahr., or, say, about as hot as the hand will bear. The paper support of the pigment film becomes loose from the solution, in the hot water, of the gelatine film, and can be stripped off, leaving the pigment on the surface of the bromide print. Development is done in the usual carbon manner by laying hot water over the surface of the print, and removing to a dish of cold water when finished. The print now consists of a complete pigment print, or a bleached or partially bleached bromide underneath. This can be employed in several ways:—

1. It may be removed altogether by the Farmer reducer.
2. It may be redeveloped with any developer.
3. It may be darkened with the ordinary soda sulphide solution used in the sulphide toning process.

The first of these procedures will be adopted if the print is to be used for nothing to be desired as regards vigour. If, however, it is to be used for strength, the application of either solution—developer or sulphide—will improve it.

In either case, it is a curious thing that more detail is visible in the ozobrome print than is visible in the original bromide print. In fact, according to Mr. Dick, this is the case even if the bromide image is altogether removed. It is suggested that the invisible constituent of the bromide comes into play in the ozobrome process. It is sometimes found that in ozobromes worked according to this first method, the resulting ozobrome may be flat, apparently due to some scattering effect of the lights in the subject. The addition of a little alkali (ammonia) to the pigmenting solution will remedy this, and is a great advantage in preparing ozobromes from flat prints. The quantity of ammonia may be about 10 minims of 10 per cent. solution of ammonia to about 8 oz. of pigmenting solution. Addition of potassium citrate would give the same result, the lecturer stated, but he was unable to say whether its action was due to the alkalinity of the compound, or whether a neutral citrate would give the same results as ammonia.

In the case of subjects with too much contrast (in the bromide print) a little acid added to the pigmenting solution will remedy matters.

### Pure Pigment Prints by the Ozobrome Process.

The second method of ozobrome was described as that which would be adopted for regular work, as it was independent of the bromide image underneath. It was as easy to work as the first. The first part of the procedure is the same as in the first method, both methods, the print and treated tissue being placed in contact, while wet, for about twenty-five minutes. Instead of developing at once in hot water the tissue and bromide print are laid in cold water and the bromide print pulled off the two being under the water while this operation is being performed. A piece of single transfer paper, which has been soaked in water for a few minutes, is then brought face down on the exposed surface of the tissue and the two removed together from the water. They are squeegeed in contact and laid under a weight, such as a piece of plate-glass, for a quarter of an hour. The pair are then placed in hot water and developed in the usual way, already described for the first process, being finally soaked in cold water, and given a brief bath of alum and a final wash in water.

Mr. Dick showed a number of prints made by both variations of the process, and stated that the three prints by himself in the Royal Photographic Society's Exhibition were ozobromes.

The very greatest interest was manifested by those present in the process, which, it was acknowledged, fulfilled all the claims which were made for it, remarkable and almost incredible some of those claims were. The advantage of the chemical printing of the copies without light and of the non-reversal of

prints was commented upon, and Mr. J. C. S. Mummery, in proposing a vote of thanks to Mr. Dick, expressed the hope that

### OFFICIAL INSTRUCTION FOR OZOBROME.

Since the publication of the first directions for the working of Mr. Manly's process, the following additional notes have been issued by the Ozotype Company, from whom, we have no doubt, they will be obtainable. They will supplement the directions appended to an article by Mr. Foxlee, which appeared in our issue of June 29, contribution which was the first to give the photographic world information of this remarkable process. We may be pardoned for alluding to this point, but our attention has been drawn by several readers to the statements made by two of our contemporaries, each of whom claims to have been the first in communicating details of ozobrome. Both were several weeks after the BRITISH JOURNAL OF PHOTOGRAPHY.

It is possible that 1 part of the concentrated pigmenting solution to 5 parts of water may not be strong enough to completely bleach deeply-printed enlargement. Perhaps 1 part of concentrated solution to 4 parts of water might be considered as the average strength of the pigmenting bath. This strength will keep better than 1 part to 5 parts of water.

#### Safe Edging.

In Method No. 1, the bromide picture should be printed with a white margin of about half inch all round to serve the purpose of a safe edge, so as to prevent the edges of the picture from frilling during development.

In contact printing the margin formed by the rebate of the printing frame is generally sufficient, but in making enlargements the margin of the bromide paper should be protected. This may be easily effected in the following manner:—

Take a sheet of cardboard the size of the bromide paper (the straw-

board packed with the sensitive paper will answer admirably), paste or glue strips of thin cardboard or stout paper of any colour along each edge of the card, allowing about half an inch of the paper to project from the edge. When dry, turn the half-inch edge over the card, so as to form a kind of sheath, such as is used for carrying plates in some magazine hand cameras, but, of course, with four edges protected. You have now a very handy contrivance, which will be always serviceable. When about to expose, slide the sensitive paper into the sheath by unbending one side and replacing it. Adjust on the easel by pinning through the card.

#### Modifying the Picture.

In Method I., the bleached image beneath the carbon picture may be redeveloped partially or entirely, and this may be made use of in various ways. For instance, a weak bromide may be converted into a strong print by re-blackening the underneath image, and many beautiful effects may be secured by causing the redeveloped silver to modify the tone of the semi-transparent carbon picture.

If a weak developer be applied with a brush, local intensification may be effected, and a sky which is hardly strong enough for the rest of the picture may be made heavier in this way.

The underlying image may also be toned by the various bromide toning solutions.

Of course, the developing or toning solutions must be removed by washing for about fifteen minutes.

The redeveloped silver image, being protected from the atmosphere by a layer of hardened gelatine, is naturally much more permanent than an ordinary bromide print.

## BARON VON HÜBL ON THE "UTO" BLEACH-OUT PROCESS OF COLOUR PHOTOGRAPHY.

In the current issue of the "Wiener Mitteilungen" Baron von Hübl describes the results of his experience with the new commercial "Uto" bleach-out paper of Dr. J. H. Smith and Co., of Zürich, now commercially obtainable.

Although the principle of the bleaching-out process has been known for some years, successful results have hitherto been hardly possible, or there are many difficulties in the way of making a paper that will print well and with certainty. The well-known firm of J. H. Smith and Co., of Zürich, have, however, overcome, to a great extent, these difficulties, and placed on the market the so-called "Uto" paper, by means of which it is possible to learn the peculiarities of this interesting process.

The paper has a black film, and gives, on exposure under a coloured transparency, a print in the same colours. The process proves the possibility of obtaining any desired number of prints from an original, e.g., a transparent three-colour picture, and it may play the same rôle in three-colour photography as the ordinary printing processes of black and white photography.

The black film consists of a red, a blue, and a yellow dye, and contains—besides certain additions—sensitisers, which make the dyes fugitive to light; when exposed to light they soon bleach completely.

#### Principle of the Bleach-Out Process.

The formation of the colours during exposure can be easily grasped, when one considers that a dye can only be bleached by those light rays which it absorbs, whilst the rays, which it reflects, cannot affect it. In red light, therefore, the film of dyes must become red, because the red dye therein is not changed by these rays, for it reflects them, whilst the blue and yellow dyes are bleached. The same considerations will show that the black mixture of dyes will become blue in blue light, in yellow it will become yellow, and that in green light the red dye only will bleach, and the film will become green, and so on. In white light all three dyes will bleach, and therefore the mixture will become white.

The colour of the black film, therefore, always adapts itself to the colour of the incident light, and when a paper coated with such a mixture is exposed under a coloured transparent original, a print in the same colour must be formed.

Colours true to the original can, however, only be given if the three dyes are of the same light sensitiveness—that is, if the black film assumes no colour in white light, but gradually passes through neutral grey to white.

This condition is, however, very difficult to fulfil, as the dyes behave very differently towards the present known sensitisers. The best results are obtained in the meantime with the so-called "film papers," in which the dyes are not mixed, but are coated one on top of the other, in gelatine or collodion, with a suitable sensitiser. By this means also any simultaneous chemical reaction of the dyes is avoided.

#### The Composition of the Sensitive Film.

Thus the "Uto" paper contains two films of dyes, a red erythrosine gelatine film, and on top of that a green collodion film, which owes its colour to a blue and a yellow dye. The green film contains as sensitiser anethol, a substance which was recommended by Karl Worel, and, with the new dyes used, is extraordinarily active. The red gelatine film, on the other hand, appears to possess no sensitiser, but must be made sensitive by bathing in solution of hydrogen peroxide. The use of this for sensitising was first suggested by Dr. Neuhaus, and it is especially useful for dyes of the cosine group.

J. Szczepanik worked in a somewhat similar manner, only he used a colourless gelatine film on top of the blue-yellow collodion film, and bathed the green paper before use in a solution of erythrosine, containing hydrogen peroxide.

There are considerable difficulties in coating the dye films of the bleaching-out paper, as the dyes have always a tendency to penetrate the fibre of the paper, and one film has a tendency to diffuse into the other. In "Uto" paper these difficulties are overcome, as a specially prepared paper is used, into which the red dyed gelatine does not



penetrate, and which, on the other hand, is so permeable to the hydrogen peroxide solution that the erythrosine film is easily sensitised from the back.

### Working Conditions.

"Uto" paper shows, from its composition, the following peculiarities, which must always be borne in mind when using it:—

1. The unsensitised paper does not become white, even with very long exposure, but assumes a crimson red colour, for only the green film bleaches.

2. After sensitising with the peroxide, the dyes bleach fairly evenly, and, under favourable conditions, prints true to the original, with pure grey tones, can be obtained.

3. The activity of the hydrogen peroxide soon decreases, and completely ceases when the paper becomes dry. The prints must thus be finished before the paper becomes dry, therefore one can only print in direct sunlight.

In the shade only red prints are obtained, and also a piece of paper exposed by itself will not turn white, but remains red, as it dries before the complete bleaching of the erythrosine film. The paper only remains damp sufficiently long to completely bleach when in intimate contact with the original.

If the paper, therefore, is not used soon after sensitising, or the light decreases during the exposure, reddish tints are produced. In such case supplementary sensitising may be resorted to. The printing frame should be opened and the back of the paper covered with a sheet of blotting-paper, soaked in hydrogen peroxide, and half dried. As the damp "Uto" paper adheres tolerably firmly to the original, one need not fear any movement.

On the other hand, a freshly sensitised paper may give greenish tones in very strong light, for the red film bleaches too quickly. In this case it is advisable to cover the printing frame with a sheet of glass, coated with erythrosine collodion.

If attention is paid to these points perfect colour prints can be

obtained on the paper. The chief fault lies in the necessity of the unreliable peroxide sensitiser, which, as already mentioned, is essential, from the choice of erythrosine as the red dye. For this reason J. H. Smith and Co. are now endeavouring to find a substitute for erythrosine, a crimson dye, which will also react with the yellow and blue dyes with a dry sensitiser, and we must wait to see that these experiments will be brought to a successful conclusion.

The necessary time of printing with the present commercial process depends essentially on the intensity of the dye films. If the paper is thinly coated an exposure of from 20 to 30 minutes is enough in sunshine. In this case the paper shows only a dark grey colour, which, however, in the finished prints, is almost as good as black. If, on the other hand, the dyes are thickly coated, the paper appears before exposure, black, and then an exposure of an hour or more is requisite.

The fixation of the coloured prints presents no difficulties. The hydrogen peroxide is destroyed by complete drying of the print, and in order to remove the anethol several hours' soaking in benzene is required. As this sensitiser in "Uto" paper lies in the film, it can be easily removed.

The pictures obtained by means of the bleaching-out process actually deserve the designation of "colour photographs," for the dyes give the colours, and these are directly produced by the action of light.

The process will become especially valuable, when we shall succeed in obtaining the coloured transparent originals in a simple and certain manner. The present process of obtaining such pictures by the superposition of three monochrome constituent prints is a very practical work, far too troublesome and difficult, but it is not impossible that this goal may be obtained by a trichromatic or screen process in a very short time. Every advance, therefore, even now in the bleaching-out process will be welcomed in a friendly manner, and such, without doubt, "Uto" paper is.

A. VON HÜ

## THE ROYAL PHOTOGRAPHIC SOCIETY'S EXHIBITION.

### THE PROFESSIONAL SECTION.—(SOUTH ROOM.)

"ROYALISTS" usually claim for the Selecting Committee in the Pictorial Section at the New Gallery a considerable catholicity, and maintain that the pictorial work hung in the West Room is of all schools. In considering the professional work in the South Room (which will, no doubt, prove of special interest to those who are able to see it) we shall endeavour to show the same catholic spirit, and we may at once point out that both the purse and degree of artistic perception of the clientele must needs be reckoned with by the commercial photographer, who is, after all, in business to make money, and not to air any high-falutin' ideas on Art.

At the same time, we hope to point out how, in certain cases, work may be considerably improved from an artistic point of view, thus attracting more attention from the cultured and refined without in any way alienating those who demand what they may term plain, straightforward photography. Some of the portraits shown display a tendency towards eccentricity pure and simple, which, though it may occasionally be thought valuable (as we have been shown this autumn in another place), is nevertheless in danger of being overdone.

Before proceeding to a more detailed criticism of the groups of exhibits, we may call attention to the somewhat ineffective, and, therefore, defective arrangement of the the majority of the displays. Taken as a class, photographers are notoriously deficient in their ability to "stage manage" the studio and shop. The groups of work in this room exhibit the same defects as the arrangements in most show cases or shop windows. Mr. William Crooke, of Edinburgh, has made a most effective display with half a dozen prints on a

whole wall; but some of the other groupings would be better if half the work had been exhibited. Lack of scheme is another point, to which attention might well be given, both in a wall display, such as these, or in the arranging of work in the window. All kinds of portraits, often in various processes, together, and the general effect is less harmonious than it would be if a special show were made of children's portraits, theatrical views, and so on. If it were felt that a professional display should be comprehensive, then the work might be so disposed on the wall as to consist of a group of groups.

Miss Stephanie Maud, of 25, Harrington Road, S.W., shows an ambitious work, a good deal of which lacks finish. It has been said that finish is the one great difference between the work of a trained and the untrained. Artistic perception, which may be said to be the mark of a photographer, will frequently enable the happiest effect of lighting or arrangement and the most charming of expressions to be secured on the plate, but the manipulative skill needed to prepare a print and adequately mount the print is only to be obtained by careful training and a good deal of practice. Several of the portraits are weak bromide prints or enlargements, in one case at least, marred by a yellow stain on the edge of the print. A piece of *passe partout* mounting is crude, lacking precision and neatness. However good the wine, bush is necessary. There are also on the wall two portraits which show incongruity, the most noticeable being that of a lady in evening dress, sitting on the floor on a large white cloth, and leaning against a painted exterior background. Such mistakes here might easily have been avoided by a few moments' reflection before arranging the sitter.

The work of Histed, of 42, Baker Street, W., is curiously uneven. The effect of light and shade in most of the specimens borders on the eccentric, and is pursued without the least regard for truth to tone values. Concentration of light, and, consequently of interest, on the face is all very well, if properly done, but when this concentration exists on only about one-third of a face, truthfulness goes by the board. Forcible lighting, with a preponderance of shadow, is a characteristic of Rembrandt's work, but the shadows are luminous, or, at all events, transparent. In many of these prints the shadows are under-exposed, or if the negative has any detail in the shadows it is so strong and so deeply printed that the shadow gradation is lost in the print. A portrait of a child, masked with an oval mask, is noticeable for excessively heavy flesh tones, absolutely out of place in such a subject, which should in general be treated lightly and daintily. Nothing is really gained by the effects obtained by this falsifying of tones in the flesh or draperies. One of the best, and, at the same time, the most effective of the portraits is a cabinet-size print of an elderly gentleman, which is mounted on a dark-grey mount. Here the modelling of the features and the general roundness of the head is excellent, and one wishes to see more of such strong direct straightforward work.

James Clark, of Hanger Lane, Ealing, W., has a display which includes some sound portraiture, one or two of the enlarged portraits being very good commercial work. The coloured enlargement is effective, the colour being free from any of that crudity which too often occurs in work of this class. Of the smaller prints, there are too many, and a judicious weeding out would have improved the general effect of the display. Most of this small work lacks distinction. The technical quality of negative and print may be all right, but the public rightly place other qualities before mere technique, important as that is. Strength, character, and individuality seem to be lacking in many of the cabinet prints. Were they lacking in all of the sitters, or has the operator failed to educe them before making his exposures? Mr. Clark's fancy picture is, perhaps, better than the one he exhibited on the same wall a year ago, but we frankly admit we do not care for it, and we do not think it is the kind of photograph likely to enhance a portraitist's reputation. The make-up is obvious. The monk is apparently consuming macaroni from a plate, and is using his fingers for the work. The whole thing lacks refinement and dignity.

H. S. Mendelssohn, of 14, Pembridge Crescent, W., shows a group of his well-known photographs, some of which represent the high-water mark of commercial portraiture, while others are singularly below the artist's standard. It is worthy of note that all these prints are by the silver process, whether on albumen paper or on P.O.P. it is not quite easy to determine through the glazing of the frames, though we believe most of them are albumen. The colour of print has been characteristic of Mendelssohn's work for a great number of years, and is a rich warm purple brown, a colour easier to obtain on albumen than on P.O.P. The prints are numbered, so that it is easy to refer to any of them with certainty. No. 11, a portrait of William Carter, Esq., is excellent, quiet in treatment, soft in its gradations, and yet quite rich and strong enough for a man's portrait. In No. 8, Miss Leonora Jackson, there is noticeable a delicacy of gradation in the high lights, together with strength in the print and good shadow tones. No. 12, Michael Hambourg, Esq., is a fine lesson on the subordination of the tone of the hand, which is several tones lower than the face, and yet does not look "dirty" or false in tone. We do not, however, like the strong light on the book right on the extreme edge of the print, and it is so strong that it catches the eye before anything else. The nine portraits of rather more than cabinet size in a long frame are quite in the style one expects from the studio in Pembridge Crescent. The pose in No. 5 is not so pleasing and reposeful as in many of the other portraits. The knee appears to be too high, nearly on a level with the waist, and the light on it produces an unpleasant effect.

In the display of work by Wilfrid Jenkins, 116, Cromwell Road, South Kensington, there is, we think, the most even quality of work in the room, if we except the prints by Mr. Crooke. The portrait of a lady wearing a hat, the only print on a brown mount, is excellent. The photographer has realised that one measures height

to the shoulders or eyes, and not to the top of the hat, and so has rightly "placed" the portrait on the plate, the space between the top of the hat and the edge of the print is slight. Neither a dwarfed, nor yet a very tall appearance of sitter is suggested. The lowering of tone of the lace fichu should also be noted as the right way of doing it, in contradistinction to the crude sunning down of other prints already alluded to. We are assuming that these effects are produced by sunning down, as, of course, they may be. Whatever the means employed, whether this, or local reduction, or frictional reduction on the film of the negative, the final result is practically the same. In this portrait by Mr. Jenkins, the lowering of tone of the lace is so delicate that there is no suggestion of murkiness, and yet the desired effect of concentration of interest on the face is satisfactorily obtained. There are here several pleasing portraits of ladies with children, the arrangements being well thought out. Of the portraits of children alone several are capital, both in the seizing of expression and the general rendering of flesh tones. We think, perhaps, in one or two cases, the effect would have been better had the head not been quite so large.

The work of the Art Photographic Company of Stoke Newington and Muswell Hill is evidently intended for the middle-class portion of the community. A picture of a child pouring out tea into tiny cups, while a dog watches from the opposite side of the tray, is the kind of thing, while it is not great from an artistic point of view, appeals to the photograph buying public, and attracts a good deal of attention and comment when placed in a shop window. It is, happily, free from any suspicion of vulgarity. A fairly good example of Rembrandt lighting may be seen. An outdoor portrait of a lady standing partly under a trellis porch shows far too heavy shadows for an open-air or semi-open-air picture. The shadows, in fact, are too solid for any rendering of flesh, unless possibly when lighted by an artificial illuminant of extreme brilliance and concentration.

Mr. Eric Worsley Benison, of Egham, Surrey, has a few frames showing clean, straightforward work. We think the expression in the portraits is well secured, and the pictures convey the impression that they are good likenesses, though one does not know the originals. They appear a trifle hard, however, on the wall, but Mr. Benison, no doubt, knows that a picture which looks well on the wall of an ordinary room will frequently appear weak when hung at an exhibition such as this. These enlargements are not weak in their shadows, but the high lights and half-tones are rather too light for richness of effect.

Much of the work sent by Crooke, of Edinburgh, is so fine that to attempt criticism would be to lay ourselves open to the charge of finding fault merely for fault-finding's sake. The student of portraiture should note the masterly strength and dignity of the figure in No. 13, and also in the portrait of the late Sir Henry Irving. There is a reserve in the treatment of both these pictures, they are full of detail—sufficient detail, that is, for prints of such size—yet nothing whatever distracts the attention from the fine characterisation of figure and face. In No. 7 the fine treatment of hands should be observed; there is no distraction from the face, and no clashing of lights. The arrangement of the hands and other parts of the figure, as well as portions of furniture, give added dignity to the portrait, and are admittedly in unison with a face so grave, distinguished, and, withal, kindly. No. 6, a group of Mrs. Robert Cowan and children we do not like so well as some other similar portraits which Mr. Crooke has produced. The darkening of the hair against the background appears to be too uniform, the hair of the three sitters being equally dark. The portrait group of the Master and Assistants of the Merchant Company of Edinburgh is a fine achievement. Likeness is nowhere sacrificed to pictorial arrangement, yet this is secured in no small degree. The very even lighting of the heads and figures will at once call forth the admiration of the practical photographer. It is a great pity that such groups are not far more frequently taken of our great directorates, city companies, and other public or semi-public bodies. They would be extremely interesting and valuable in a hundred years' time. The visitor will notice that the numbering attached to the frames is not in accordance with the numbering in the catalogues, but this rarely prevents identification of the pictures, and they may all be enjoyed for their own qualities, and quite apart from the personality of the distinguished sitters.



## THE SCIENTIFIC AND TECHNICAL EXHIBITS—INVITATION SECTION.

The first exhibits we come to in this section are those of Mr. Douglas English, who shows some remarkably fine photographs of the Plume Moth (No. 414), and some interesting examples of mimicry in insects (No. 416), which illustrates the strikingly successful attempts of a spider to imitate a flower-bud, and is perhaps most attractive. Astronomical photographs are numerous, and while Nos. 419 and 423, from the Royal Observatory, illustrating nebulae and star clusters, are very fine specimens, Nos. 429 and 430, from the Solar Physics Observatory, are especially interesting, as they show the great success attained at South Kensington in photographing the mysterious solar prominences. No. 429 shows a most exceptional number of prominences, and No. 430 one of extraordinary size, its height being about 139,000 miles. Sir W. J. S. Lockyer shows some good specimens of cloud photography, while Captain D. Wilson Barker's collection of cloud types is also worth study.

A most interesting exhibit is that of Dr. R. A. Reiss, showing the application of photography in the investigation of crimes and detection of criminals. Nos. 444-447 show how readily an erasure and forged surcharge can be detected in a photographic enlargement, and No. 448 illustrates how photography can reveal the fact that an envelope has been opened and refastened. In No. 449 samples of finger prints are given, and in No. 450 we are shown photographs of footprints in earth, and of shoe-nail marks on a wood floor. Also one of a blood-stained handkerchief, revealing stains that have been washed out and rendered invisible to the eye. No. 452 is of especial interest, as it shows an ingenious ring-shaped cutting tool for making holes in safe doors. This tool is armed with diamond or carborundum splinters, and acts in much the same way as the diamond drill used for making boreholes.

Nos. 454-483 form a long series of photographs by Mr. K. J. Tarrant, of high tension electrical discharges, and the interest of these is

not solely scientific, though their scientific value is great. Close inspection reveals some most beautiful formations in these photographs, and special attention should be given to the wonderful ture of the plume-like formations in No. 456. The example reversal shown by M. P. Preobrajinski are worth study (Nos. 490-494) but the voluminous notes which accompany them take some time to read.

Perhaps the exhibit of greatest scientific interest (from the photographic point of view) is Mr. C. E. Kenneth Mees' gradation photometer. This is a cleverly designed instrument that undoubtedly fills a "long felt want," as it enables the user to determine the speed of a plate by direct observation and without any wearisome measurements and plotting. To effect this a developed series of test gradations is observed (five steps at a time), and compared and matched with a standard series of gradations, the steepness of which is adjustable, while its densities when plotted form a straight line. When a match is secured between five trial densities and five on the standard scale, all necessary data are, of course, secured. Other interesting but not such novel instruments are shown by Mr. Adam Hilg. These include a comparison photometer designed at the suggestion of Mr. F. F. Renwick, and a modified spectrophotometer.

A series of Lippmann photographs of the spectrum is contributed by Mr. Edgar Senior. These are not in the gallery, but are in the charge of the Secretary. They are interesting, but it is not easy to see them perfectly, as properly adjusted viewing apparatus is not available at present.

The lantern slides in this section are all three-colour, and they are supplemented by stereo, half-plate and quarter-plate transparencies. They are all natural history subjects, and on the screen would doubtless be most interesting, though as shown they can hardly be studied to advantage, and cannot be easily identified, most of the labels being invisible.

## THE COMPETITIVE TECHNICAL SECTION.

The only medal in the exhibition goes to Mr. C. Welborne Piper for a "model of light pencils showing various effects of aberration." The award has been criticised as not photography at all, but such criticism is misdirected, in our opinion, inasmuch as Mr. Piper's work is in line with the avowed aims of the society in advancing the progress of photography. That the exhibit is a highly educational one we cannot deny, and we hope to see more of its kind used in the teaching of photographic optics, though we fear there are few prepared for such feats of patience as Mr. Piper has performed. The models show:

Central aberration and eccentric coma. Actual model from lens.

Oblique coma. Actual model from lens.

Oblique and eccentric coma. Actual model from lens.

Oblique coma. Details of pencil in zones and at foci. The complete foci are shown in blue and yellow, the blue portions being filled by other zones not shown.

Pure and mixed astigmatism. Hypothetical model.

Pure astigmatism. Details of pencil and foci. Hypothetical model.

Studies of birds and animals form a very striking feature of this section, and their number suggests that before long such subjects will require a section to themselves. All the work of this nature shown may be styled good, and some of it shows remarkably perfect technique, while in a few cases the results are distinctly of a decorative and even of a pictorial nature. Striking examples are No. 284, The Great crested Grebe, by Mr. William Bickerton, who is not only a fine study of a grebe sitting on its nest, but is also a fairly good decorative composition. Mrs. L. Birt-Baynes, in her wolf and deer studies (Nos. 324-328), has gone a step further and has produced some charming little pictures in addition to securing some very perfect and characteristic portraits of her shy sitters. Nos. 324 and 325 seem to suggest the cowardly character of the wolf to perfection. The first one is particularly worth notice, as it represents the wolf slinking round a hillock with every apparent intention of doing such mischief as he safely may, but fully prepared to take to his heels on the least sign of danger to his precious self.

Among the bird studies the most successful appear to us to be those of Mr. William Farren, though Dr. Heatherly, and Messrs.

Frank J. Martin and Oliver S. Pike run him very close. Mr. Pike should have much cause for congratulation in being so highly successful with such rare birds as kites and eagles.

There are numerous photo-micrographs, Mr. Arthur E. Smith showing a good example in his foot of spider (No. 340), and Mr. J. Inderwick Pigg scoring a success in Nos. 342-3 with his heads of tapeworms. No. 348, by Dr. Rodman, shows the pollen of hollyhock and is a very curious and interesting example.

In the photography of insects Messrs. Forrester and Hugh Main are highly successful. The former's dragon fly (No. 351) is excellent while Mr. Hugh Main's frame of diving insects shows fine technique and is of great scientific value. There are some good studies of fruit and flowers that seem somewhat out of place in the scientific section as they certainly would not disgrace the West Room. Messrs. Edward Seymour and Robert Burnie are specially good in the examples. No. 356 is a series of photographs by Mr. D. Finlayson showing the fertilisation of white clove, and No. 357 is another series by Mr. Alfred W. Dennis, illustrating the details of the wych elm. Both these frames are worth study, and are of considerable scientific value from the educational point of view. In 361 and 362, Mr. J. C. Burrow gives some good specimens of flashlight work in the depths of a coal mine, and then we come to a long series of studies of sand waves by Dr. Vaughan Cornish. These, perhaps, are not of much interest to the uninitiated, though we did observe some visitors studying them very closely under the impression that they represented glaciers, but, scientifically, their value is undoubted.

The architectural exhibits do not strike us as particularly successful. The subjects have for the most part been photographed hundreds of times before, and some of them are seldom absent from a photographic exhibition. A few are of the "pretty peep" order, and possibly would have been more in place downstairs, where much better specimens of architectural photography are to be seen. G. Suter shows some good Alpine views that again seem rather out of place in the scientific section. Nos. 389 and 391 are both good specimens, and we do not quite see why they should not be classed as pictures, even though they may not be in the conventionally pictorial style, that, for the time being, is in fashion. In the specimen

which represent the application of photography to copying pictures and prints, and in representing sculpture, the best sample appears to be Mr. Howard Eslers "Greek Mother" (No. 401). This is a photographically perfect representation of a fine Tinworth panel. The three-colour work in the gallery is to us decidedly unsatisfactory, the only specimen worth mention being No. 408, a portrait made by the St. James' Studio. The best colour work is to be

found in the lantern slide collection belonging to this section, which collection is in the north room downstairs. Dr. Hutchinson (one of last year's medalists) shows a fine series of anatomical and pathological slides in colour, while Mr. Oliver S. Pike contributes a series illustrating birds' nests. The few monochrome slides on view are not eclipsed by the colour slides, for some very fine specimens are contributed by Dr. Francis Ward and Mr. Ellis Kelsey.

## THE PHOTOGRAPHIC TRADE AT THE EXHIBITION.

The Fountain Court at the New Gallery has its fountain submerged by the stand of the Adhesive Dry Mounting Co., Ltd., which, upon its moist substratum, and in apparent ignorance of the irony of their position, exhibits the apparatus for, and process of, dry mounting, and the accessories which they can supply in the shape of mounts, bronzed border tints, albums, etc. The process is one "par excellence," which lends itself to demonstration, and the exhibition which the firm is able to give is among the most popular items at the Gallery. We have no doubt that anyone who arrives at the R.P.S. with a print and mount will find the Adhesive Dry Mounting Company ready and willing to fix the one to the other by their process.

The Platinotype Company occupy their accustomed place, and are equally fortunate in having a process which can be shown from first hand under the eyes of the visitor. This year the new "Japine" paper is strongly in evidence, and the results with it which are shown with other examples of the platinotype process should not be overlooked.

Messrs. Kodak, Limited, have a representative assortment of apparatus, including the now well-known "Graflex," a high-class reflex camera. They also show specimens of the new "Velvet" bromide and gaslight papers, and are prepared to discourse to the visitor on Kodak products in general.

There is no more effective display in the exhibition than that of Wellington and Ward, who, among some specimen negatives on "Speedy" plates and prints therefrom on their various papers, have the results of a new introduction of theirs, a gaslight transparency plate of which we shall say more when we have had the opportunity of testing it.

J. H. Dallmeyer, Limited, show the new shutter for studio cameras, the characteristic of which is its wafer-like thinness, and the fact that it is obtainable in any size up to a diameter of working aperture of five inches.

Messrs. Sanger-Shepherd and Company attract a continual audience by exhibits of colour-photography, they having arranged a small projection apparatus with which to exhibit enlargements of the Sanger-Shepherd transparencies. They also show the latest models of the three-exposure camera, and are making a strong feature of their recent advances in plates and filters whereby the average exposure for the three negatives out of doors is only about four seconds. This is the time required when using a repeating back, a form of three-colour exposing apparatus which has always been strongly recommended by the firm.

Messrs. Sichel and Company place the new mercury-vapour lamp, viewed in another column, in the front place. They also show a number of very effective results obtained on a two-colour carbon process from ordinary negatives. "Platinochrom" platinum paper and its results are also shown, in addition to a variety of mounts—the latter interested us especially, and though Messrs. Sichel cannot display them, every professional visiting the exhibition should ask to see them—and of studio cameras.

Messrs. C. P. Goerz make their usual striking show of enlargements on negatives taken with the Goerz lenses, notable among which is one of detail in the Albert Memorial, made in the first instance with a Goerz telephoto at a magnification of  $7\frac{1}{2}$  times, and subsequently enlarged to five diameters.

Messrs. W. Watson and Sons show their cameras and "Holostigm" lenses, and exhibit also the Boardman arc lamp and some beautiful examples of work in West-End studios done with it. The latter could be asked for and inspected by our professional readers.

Messrs. Burroughs, Wellcome and Company make a neat but effective show of "tabloid" chemicals and specimens of results of their work, particularly in the direction of lantern-slides.

A new model of the Blacknote, viz., one taking a picture,  $3\frac{1}{2} \times 2\frac{1}{2}$ .

is shown by Messrs. Sanders and Crowhurst, who exhibit also Messrs. Butcher's latest edition of the Welborne-Piper clock. This modified form of the instrument allows a shutter to be left open for exposure and the clock to be set to a certain time, on the attainment of which the shutter will be automatically closed.

The approach to the north room is occupied by Messrs. A. E. Staley and Company with a case containing a large selection of their apparatus, chiefly optical (lenses, microscopes, etc.), but a note should be made of the prints illustrating the performance of the firm's anastigmats.

In the north room itself, the first display to attract the eye is the collection of portraiture by Mr. F. C. Clarkson illustrating the Eidoscope lenses. Among the specimens are several showing the extremely sharp results which can be obtained with the lenses if desired, which are the more interesting since the chief purpose of the instruments, and one which they will be seen to carry out to very good effect, is the production of portraits with enough diffusion of definition to improve upon the biting sharpness of the ordinary objective.

The Ilford Company make a small display of great specific interest, viz., enlargements on their various brands of "Bromona" paper. These show the effects obtainable with and without toning, No. 1 being in particular a good example of the fresh airy effect obtainable on the bluish-grey paper. No. 5 shows the pleasing results in portraiture of a toned cream-crayon "Bromona." The selection is a strong one, and quite characteristic of the Ilford's Co.'s specialistic methods.

Next in order comes the most interesting exhibit of the Ozotype Company, which this year, of course, is all ozobrome. Readers of the article on another page had better study the examples shown side by side with the original bromide prints from which they were made.

Messrs. Morgan and Kidd make a handsome display with a series of fine portraits on the "Richmond" self-toning, a selection which suggests that they are seeking the favour of the professionals for their product. Certainly the fine, cool black tones obtained by their special process of platinum toning leave little to be desired. The two panels on either side of these latter show the effects obtained with plain fixing, and are very strong recommendations of the paper.

The exhibit of L. Thornton and Co. is catalogued as "a collection of prints on 'Mattos' paper, but it includes also one or two (which are worth searching out) on wood and canvas sensitised by the "Mattos" method.

The largest exhibit next to the Autotype Co.'s is that of the Leto Photographic Materials Co., Ltd., which occupies the whole of the end of the north room. It contains some strikingly handsome specimens of the Pluto-Leto "Platino" paper, of deep rich black tone and showing the excellent results of which this paper is capable in rendering the details and texture of white draperies. A number of examples of Leto gaslight paper toned to various colours is worth examining, and there are also numerous specimens of the Leto Platino papers, Seltone, and other well-known specialties of this firm.

The huge show of the Autotype Company is extremely successful, and fills the north wall in an imposing way. The first panel, of portraiture on the various carbon tissues and worked up in several ways, is the most interesting to photographers, and includes one or two remarkably good things in the way of coloured prints. Two specimens are shown of the Autotype three-colour printing on the "Trichrome" tissues.

The last exhibit to be mentioned is that of the Falla-Rey Company, of Tunbridge Wells, which shows a number of postcards and prints obtained on a paper which is said to require only a fixing of one minute's duration and a washing of five. We have no information of this material, and should await an opportunity to verify the claims made for it with some interest.



## "THE GLOBE" ON THE "ROYAL" AND "SALON."

In its issue of Wednesday, September 26, the "Globe" makes the following comments to which we refer under "Ex Cathedra":—

There are to be seen at the present moment two important exhibitions of photographs—that of the Royal Photographic Society at the New Gallery, and that of the Photographic Salon in the gallery of the Royal Society of Painters in Water-Colours. The object of these exhibitions is, it may be presumed, to show to the world the progress and development of the art of photography, and to prove that, as an art, it has a claim to the consideration of people of intelligence and taste. That photography properly used and understood deserves an honourable place among the arts is certainly not to be denied, but that either of these exhibitions proves what this place should be cannot by any means be admitted. Both shows, indeed, are painful advertisements of the incapacity of photographers as a class to understand the genius of the art which they misuse; both have an atmosphere of foolish insincerity which is particularly irritating, and show in the plainest way how little the people who use a camera appreciate artistic responsibilities. It is the degeneration of a most important craft that is illustrated in the two galleries, not its progress nor the development of its best characteristics.

The reasons for this degeneration are evident enough. Photography has fallen largely into the hands of a class of workers who possess at best nothing more than that little knowledge which is proverbially so dangerous. The so-called artistic photographers—with very few exceptions—have not learned the rudiments of pictorial art, and are imperfectly acquainted with the technicalities of photography; so they produce things which are marked by an all-round inefficiency that is very distressing. Through lack of the right kind of training, they have no capacity to realise the qualities of the medium they employ, and as a consequence they condemn photography to undignified imitation of other arts to which it is not in the smallest degree akin. The directions in which it can be used to produce results unattainable by any other pictorial process they deliberately ignore, and they waste their energies in torturing the photographic print into imperfect resemblance to the work of the water-colour painter, the etcher, the lithographer, or the draughtsman in black and white.

In both exhibitions examples of this misdirected effort predominate—examples of what may reasonably be called technical dishonesty. Neither show includes much that can be welcomed as the expression of a sincere desire to use photography for the right representation of nature; the great majority of the works brought together are deficient in all subtlety of tone relation, in all delicacy of atmospheric effect, in accuracy of definition, and charm of quality, and most of them have as well grave faults of selection and arrangement. The things that the camera can do to perfection are for the most part avoided, and those which advertise its deficiencies as an artistic instrument are attempted with ignorant perversity. If such collections as these sum up the best that modern photography can do there can be no doubt about the disastrous degeneration of the art.

For instance, in the exhibition of the Royal Photographic Society practically the whole of what is described as "professional" work

repels by its entire lack of originality and by its utterly uninteresting and commonplace aspect; and the section devoted to "pictorial" photography contains little that is æsthetically of any value. Examples as Mr. L. Fleckenstein's "The Pet Angora," Miss Willis's "The Snowstorm," and Mr. P. Pichier's "Arkadien" taken as types of the inartistic productions which have been produced by so large a proportion of the contributors. These things, host of others of the same order, make the show a painful disappointment to all serious believers in the future of photography because they mark a tendency which is apparently becoming more pronounced year by year, and more demoralising to the less intelligent students of the photographic craft.

However, there are some exceptions to the general run of work which are worthy of special attention, because they point in a direction in which sound achievement must be looked for in the future. Mr. E. B. Cook's "Calm Sea and Low Tide," with its tender and correct relations of light and shade, Mr. A. W. Walburn and expressive "The Evening Hour," "A Morning Catch," by Mr. M. L. Bodine and Miss N. F. Lewis, which is excellent in its air suggestion, and the admirable "Winter," by Mr. J. E. B. Lewis, which is particularly to be praised for its tone subtlety and judicious and expressive actuality, are all productions which themselves and do credit to the taste and skill of the workers concerned. There are others which in a less degree possess these qualities, but, unfortunately, the total number of these more valuable contributions is too small to give the collection as a whole the real amount of authority.

The Photographic Salon is not more convincing than its rival. It shows once more the inclination, with which it has been trained throughout its career, to encourage eccentricity with little regard for artistic properties. There are certainly some things, like Mr. C. H. Emanuel's spacious and atmospheric "Landscape View," Mrs. F. E. Coburn's vigorous studies, "Hammersmith" and "Reflections"; Mr. C. Puyo's "L'Etang"; the treated architectural subjects, "A Pillar of Chartres," by Mr. Evans, and "A Relic of the Past," by Mr. S. G. Kimber; and charming little figure composition, "Fair is Thy Blossom, Thy Flower," by Mr. T. Lee Syms; but these are not enough to save the society from the sin of seeking to exalt mere extravagance in position which should be reserved for inspired originality.

It gives up, unquestionably, too much of the wall space of the gallery to such works as Mr. W. Cadby's "Snow Sketch," Mr. C. Grove's "Vigil," Mr. W. Muir's "Winter," and Mr. W. B. Ton's "Evening Mists"; and it assigns prominent positions to productions of nature like Mr. Horsley Hinton's "On the Moors," and A. L. Coburn's ponderous tone study, "The Rudder," a good specimen spoiled by absence of executive refinement and by lack of intelligent management of light and shade relations. But in this misuse of opportunities the Salon only follows the lead of the Royal Society and adopts a fashion which to all appearances dominates the photographic world. That it should do so is a matter for the deepest regret; while this fashion persists photography must always remain outside the pale of the arts.

**TONING Postcards: A Correction.**—Mr. G. T. Harris writes us:—I shall be glad if you will allow me to correct an error in my article on "Toning P.O.P. Postcards," which appeared in your issue of the 14th ult. The strength of the fixing baths should be, for the first 10 per cent. and for the second 5 per cent., not 6 per cent. and 4 per cent. as given. I alone am responsible for the error, which should have been detected in the proof. I have only now glanced through the published article, when the mistake at once caught my attention.

**THE Photographic Convention of the United Kingdom.**—Mr. F. A. Bridge (hon. sec.) and Messrs. Alfred Ellis and Water Potter (members of council) journeyed to Hereford last week to confer with the local committee as to the proposed arrangements for next year's meeting. On Tuesday, the 25th ult., an interview with the Mayor at the Town Hall was followed by a well-attended committee meeting, over which Mr. Alfred Watkins presided. During their brief visit Mr. Bridge and his colleagues motored over much of the

ground proposed for next year's excursions. The towns and villages included were Ledbury, Bosbury, Weobley, Pembridge, Kington, and Abbeydore. Mr. Watkins (president-elect) drove his own car, and, being well acquainted with the locality, most enjoyable and interesting runs were made, the roads being very good and the weather splendid. Ludlow, Goodrich, and Ross have also been mentioned as possible places to be visited, and will be included in the list to be submitted to the council at its meeting on Thursday the 11th inst.

**TITLES ON Negatives.**—In reference to recent inquiries from readers, Messrs. O. Sichel and Co., 52, Bunhill Row, London, E.C., draw our attention to the "Titleit" outfit of theirs. Opaque letters are applied to the negative, and the title appears white as white on the prints. The outfit contains a large assortment of letters. Other title outfits have been reviewed under "New Apparatus."

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received from September 11 to September 22.

**WASHERS.**—No. 20,746. Improvements in attachments for taps for use in connection with the washing of photographic plates, prints, etc. Edwin Goodman, 24, Temple Row, Birmingham.

**CAMERAS.**—No. 20,781. Improvements relating to photographic cameras. Kodak, Ltd., Chancery Lane Station Chambers (for Harvey W. Locke, United States).

**PLATE-HOLDER ATTACHMENTS.**—No. 20,782. Improvements relating to plate-holder attachments for photographic cameras. Kodak, Ltd., Chancery Lane Station Chambers, London (for Harvey W. Locke, United States).

**HELIOCHROME PLATES.**—No. 20,384. Improvements in the manufacture of screens and plates for heliochrome processes. Rodolphe Berthon and Joseph Gambis, 31, Bedford Street, Strand, London, W.C.

**BORDERS ON PHOTOGRAPHS.**—No. 21,041. Improvements in means for producing fancy borders on photographs. William Tylar, Prudential Buildings, Corporation Street, Birmingham.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**CINEMATOGRAPH-PHONOGRAPH.**—No. 26,522. 1905. The invention consists of synchronising apparatus—viz., a speed indicator which enables the speed of the cinematograph to be ascertained at every moment and regulated in accordance with that of the phonograph. This indicator apparatus chiefly consists of two rotating indicator hands concentrically arranged, one of which is freely and regularly operated by the phonograph, whilst the other depends on the movement given to the cinematograph in such manner that the second hand can be made to follow exactly the speed of the first, the speed of the said cinematograph thus being modified. This action can be effected either by hand or by means of a resistance when the cinematograph is operated by a mechanical or electric motor. A. J. Boulton, 111, Hatton Gardens, E.C., for Henri Joly, 94, Boulevard Jourdan, Paris.

**RETOUCHING NEGATIVES.**—No. 24,816. 1905. The invention has for its object the simplifying of that part of the work known as knife work, which consists of cutting away or thinning portions of the film to make corrections in the picture, which is usually done by a sharp knife. It consists of a composition composed of fine cutting or abrading powders, in fine division, combined with various waxes or similar substances to form them into a solid substance, which can be compressed or moulded into convenient shape for use as a crayon or pencil, and be sharpened to a point so that it can be used as an erasing point. These moulded and pointed substances are used in conjunction with a lubricant which is called a medium, and which is composed of various fine thin oils, such as paraffin, turpentine, and the like, or a mixture of them. This medium is smeared on the parts of the negative to be worked upon, and the work is then executed by means of the pointed substance, which is worked with a delicate rubbing motion and removes the surface as much as is required, instead of cutting or shaving off the same with a knife. James William D'Anter, 4, Villas-on-Heath, The Vale, Hampstead, N.W.

**LANTERN SLIDE PRINTING FRAMES.**—No. 22,898. 1905. The invention is a frame permitting of accurate adjustment of the negative of the lantern plate, so that horizontal lines are so rendered in the lantern slide. A main board, having a square aperture in it, is hinged to a frame with like aperture, which, when clamped together, hold the "negative" between them, the frame allowing the passage of a lantern plate to the back of the "negative." To the main board is hinged a door, which swings

to the back of the frame, excludes the light from the rear, and presses the lantern plate into contact with the "negative" in the usual way. A frame holding a ruled screen of glass, which may be fixed rigidly at right angles to the hinged door, so that when the latter is swung away from the back, the ruled screen comes into position in front of the main board, to allow the adjustment of the "negative" to the lines on the screen. To enable the printing frame to fold into compact form, the door and ruled screen are hinged to the main board in line, and supported at right angles to each other by suitable catches or clamps. The ruled screen may be fitted in the door, may slide across the square apertures in the printing frame, or may be placed in position temporarily, and removed therefrom during exposure. The screen may be hinged or pivoted to any desirable portion of the printing frame in any suitable manner, and may consist of glass or other suitable material, with ruled, cut, or otherwise formed lines, or may be constructed of wires, cords, or the like stretched across a frame. The invention may take the form of a T-square or straight-edge, sliding across the square apertures, such as springs, pins, stops, or catches.—George Russell Nicholls, 48, Crescent Road, South Norwood Park, S.E.

## New Books.

"Jahrbuch für Photographie und Reproduktionstechnik." 1906.

Edited by Dr. J. M. Eder. Halle: W. Knapp. 8s.

Dr. Eder's "Yearbook," in reaching its twentieth issue, shows an increase in the text pages of over 100, the volume now running to page 688. As in previous years, the contents consists of original articles on photographic science or industry, and a classified abstract of contributions to photographic progress during the year. There is also a list of the new books of the year and of German photographic patents. With these must be mentioned the very full index of authors and subjects, the two occupying 32 pages. Dr. Eder and his staff are to be congratulated on the production of another issue of this great work, which is, if anything, too encyclopædic and comprehensive. To the more recondite branches of photography, such as photo-chemistry, Russell effects, spectroscopy, Dr. Eder is prepared to devote a number of pages, which in this country would seem out of proportion to the number of persons able to make use of such information. Our own feeling in preparing the "Epitome of Progress" in the BRITISH JOURNAL ALMANAC, is, that such persons may be presumed to have the original articles for their reading. The first portion of the "Yearbook" includes the following on colour-photography:—

"The Bleach-Out Process," by Dr. Neuhaus.

"New Investigations in the Lippmann Process," by Dr. Hans Lehnmann

"The Young-Helmoltz Theory of Colour and Colour-Photography," by Dr. L. Pfandl.

"Coloured Illumination in Three-Colour Photography," by William Gamble.

Among other noteworthy papers may be mentioned one or two others, though they do not by any means exhaust the list:—

"The Preservation of Gelatine Emulsions in Milk," by Dr. Homolka.

"Yellow, Orange, and Green Tones on Bromide," by Prof. R. Namias.

"The Cause of the Special Action of Hypo in the Developer," by Dr. Lüppo-Cramer.

"Stable Sulphite Solutions." W. Weissenberger.

"Silver Phosphate Emulsions," by E. Valenta.

A word should be said for the supplements, among which are an example of Spitzertype, in four colours, machine collotype, and many specimens of half-tone and photogravure printing.

"Simple Photographic Experiments" is the title of a small book, published by Messrs. Percival, Marshall, and Co., 26-29, Poppin's Court, London, E.C., for the sum of 6d. It forms one of the well-known series of handbooks, the publication of which is in the



capable hands of our contemporary, "The Model Engineer." In the present volume Mr. Thorne Baker has been persuaded to interest the engineering student in the technique of photography. His chapters are devoted to the processes of emulsion making, paper manufacture, the gum process, orthochromatic plates, enlarging, lantern-slide making, and elementary photographic optics. Though not intended to be in any way a handbook to these branches of photography, the book will no doubt answer its avowed purpose of introducing its readers to experiments in the essential processes of photography.

## New Apparatus, &c.

The "Sickle" Mercury-Vapour Printing Apparatus. Sold by O. Sichel and Co., 52, Bunhill Row, London, E.C.

This new introduction of Messrs. Sichel is opportunely placed on the market at the commencement of the winter season, and should therefore particularly merit the attention of professional photographers and printers. The apparatus utilises the now well-known mercury-vapour light, the suitability of which for the purpose, owing to its great actinic power and absence of heat, is no doubt widely appreciated. The printing outfit is sold in two sizes, the smaller enclosing one lamp and the larger, shown in the drawing, three. The single-tube installation accommodates twelve



half-plate printing frames; the larger apparatus has the advantage that it can be employed for large and small frames, having a capacity of twenty-four half-plate frames or a smaller number of larger ones, and *vice versa*. Although placed close to the tube, the equality of the light over the frames is remarkable, and the heating is practically nil. The speed of printing is from ten minutes on

P.O.P., according to the density of the negative, but with time, which is that for a clean, quick printing negative, the cap of the apparatus is quite sufficient to keep a printer busy. The needed current, which must be continuous, not alternating one-half unit on a 200-volt circuit per hour, representing a of running which prospective purchasers can work out for themselves from the day charges for their local supply. The construction of the apparatus is convenient and compact, and we have doubt that Messrs. Sichel will find many customers among professional classes. The price of the installation, complete lamps, resistances, and induction coil, is £6 10s. for the one-size and £11 for the three-tube. Extra tubes cost 30s. each.

The Aldis Anastigmat, Series II., No. 2A. Made by Aldis B. Old Grange Road, Sparkhill, Birmingham.

This lens is of 6.4in. focal length, and is designed to work at  $f/6.3$  when mounted in a Bausch and Lomb 5 by 4 Unicum Automat shutter. Though included in the well-known Series lenses, which work at  $f/6$ , we understand that the 2A lens is a modified design. It has been produced especially for use in a card-size camera, and it should fulfil this purpose excellently, considering that our tests in a half-plate gave most satisfactory results. A trial on a plane test chart showed that it covered a half-plate well at  $f/6.3$ , and that the definition at the corners was all that could be desired with such a large aperture. A more critical test on a small point of light shows that the astigmatic correction is of a high order, the trace of astigmatism and coma being very slight indeed. It may, perhaps, be as well to note that such traces nearly always to be found even with the highest-class lenses, that such a test as this readily reveals aberration, even when the amount is so small as to be quite negligible in practical work. Tests on normal subjects show that the lens is a most useful one for anything up to half-plate, and, considering its low price, should be a very popular instrument. When stopped down, it covers a fairly wide angle, and, obviously, it should be useful as a wide-angle lens with fairly large plates, though we have not actually tested it on any bigger than a half-plate. The lens is small, very light, weighing in plain brass mount only  $3\frac{1}{2}$ oz. Comparing with another anastigmat of the same aperture and 7in. focal length (only .6in. more), we found the difference in weight to be no more than  $7\frac{1}{2}$ oz., or close on  $\frac{1}{2}$ lb. Such differences are of considerable importance with lenses designed for rapid work in hand cameras. With regard to the Aldis mount, we should like to suggest that an index mark to which the diaphragms are adjusted should be bolted. At present it is a little difficult to find. The price of 6.4 focus is £2 2s. 6d., in iris mount.

PORCELAIN Dishes.—Messrs. Houghtons, Ltd., 88-89, High Holborn are issuing a new series of dishes, which are the result of some considerable pains on their part to obtain a dish, the design of which would be an improvement in strength and convenience on the existing patterns. The dishes, which are the result of their labours, are known as the "Ensign," and are to be marketed at the standard prices as follows:—

Inside Measurement.	Shallow. Each.	Deep. Each.
$4\frac{1}{2} \times 3\frac{1}{2}$ .....	0s. 6d. ....	0s. 7d. ....
$5 \times 4$ .....	0s. 7d. ....	0s. 8d. ....
$5\frac{1}{2} \times 3\frac{1}{2}$ .....	0s. 7d. ....	0s. 8d. ....
$7 \times 5$ .....	0s. 10d. ....	0s. 11d. ....
$9 \times 7$ .....	1s. 2d. ....	1s. 5d. ....
$10 \times 8$ .....	1s. 5d. ....	1s. 8d. ....
$12 \times 10$ .....	2s. 3d. ....	2s. 9d. ....
$15 \times 12$ .....	5s. 0d. ....	6s. 0d. ....
$18 \times 14$ .....	9s. 0d. ....	12s. 0d. ....

In many respects the dishes meet with our approval. The bottom is flat instead of possessing the annoying bulge, which prevents the plate from lying flat in many dishes; there is a narrow channel at the end of the dish, which permits of the plate being readily removed; the rim round the base of the dish prevents sticking to the developing bench; and last, but not least, the dish is strengthened at the corners by thickening of the material. Mechanically, the dishes seem excellent, and we are glad to have Messrs. Houghtons' assistance that, in addition to its good qualities in these respects, the material withstands the action of alkaline and other solutions.

failure of cheap developing dishes to retain their glaze, even when used for water only, is a source of dissatisfaction, which doubtless many of our readers have experienced. The "Ensign" dishes should be welcomed if they preserve the natural surface of the enamel.

## New Materials.

"Argo" Gaslight Papers. Made by the Defender Photo-Supply Company. Sold by A. E. Staley and Co., 19, Thavies Inn, London, E.C.

In announcing to us the introduction upon the British market of the manufactures of the Defender Company, Messrs. Staley send us samples of the Argo (gaslight) papers, of which no less than twenty-four varieties are made by the American Company, though not all of these, our dealer friends will be glad to hear, are to be marketed in this country. As representative of the papers, we may describe the brands designated by the names "Carbon Velours," "Portrait Argo Matte," and "Carbon Argo." These we find to afford a pleasing variety in surface. The "Carbon Argo" is a fine matt paper, the "Portrait Argo" is one of a series of papers for soft effects and for contrasting negatives, and "Carbon Velours" is a paper with a slightly lustrous surface resembling albumen.

The different effects obtainable should satisfy the printer that a negative must be outside the very widest limits if an Argo paper cannot be found which will give a presentable print upon it. The necessary developing preparations are supplied by Messrs. Staley, from whom a full supply of the papers will be almost immediately obtainable. Dealers should apply to Thavies Inn for further particulars and scale of discounts.

THE Adhesive Dry Mounting Company, Limited, 27 and 28, Peter Lane, London, E.C., notify us that in consequence of the completion of their factory in Hackney for the making of the adhesive tissue, etc., they are able to reduce the prices as below:—

	Old Price.		New Price.	
	2s. 2d. per gross	1s. 6d. per gross	2s. 2d. per gross	1s. 6d. per gross
Quarter-plate .....	3s. 3d. "	2s. 6d. "	3s. 3d. "	2s. 6d. "
5 by 4 .....	3s. 6d. "	2s. 9d. "	3s. 6d. "	2s. 9d. "
5 by 4 1/2 .....	4s. 6d. "	3s. 3d. "	4s. 6d. "	3s. 3d. "
Half-plate .....	6s. 6d. "	5s. 0d. "	6s. 6d. "	5s. 0d. "
5 by 6 .....	8s. 0d. "	6s. 0d. "	8s. 0d. "	6s. 0d. "
Whole-plate .....	12s. 0d. "	8s. 0d. "	12s. 0d. "	8s. 0d. "
10 by 8 .....	16s. 0d. "	12s. 0d. "	16s. 0d. "	12s. 0d. "
12 by 10 .....	24s. 0d. "	18s. 0d. "	24s. 0d. "	18s. 0d. "
15 by 12 .....	52s. 0d. "	45s. 0d. "	52s. 0d. "	45s. 0d. "
20 by 24 .....	10s. 6d. "	7s. 6d. "	10s. 6d. "	7s. 6d. "
20 by 24 .....	10s. 6d. "	7s. 6d. "	10s. 6d. "	7s. 6d. "

## CATALOGUES AND TRADE NOTICES.

From Messrs. R. J. Moss and Co., Constitution Hill, Birmingham, we are in receipt of a booklet containing a good deal of advice on the management of the acetylene light. The publication also embodies a price list of the leading requisites for the generation and use of acetylene, and should form a useful reference volume to those contemplating the purchase of an acetylene installation for enlarging or projection purposes.

"How Can I Enlarge?" Under this title Messrs. W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C., have produced an attractively got-up booklet, which imparts the elementary principles concerned in the making of a bromide enlargement in a commendably agreeable manner. The booklet includes prices and illustrations of the firm's various enlarging apparatus, and is supplied to dealers with their name printed on the front cover. Those intending to obtain the full value of the winter trade in these articles should get it worth their while to apply to Messrs. Butcher.

The Boardman Electrical Patents Company, Limited, send us their latest list of open and enclosed arc lamps for portraiture and printing. It gives particulars of their standard lamps and of a new installation produced (at a popular price) for both studio work and P.O.P. print-

ing. Application to 10, Southwark Bridge Road, London, S.E., will bring this list.

No. 3 of "The Professional Photographer" (Kodak, Ltd.) reaches us, admirably printed, and containing seasonable literary fare in the shape of articles on "Portraiture in Winter," "Christmas Trade," etc.

MESSRS. BUTCHER AND SONS, Camera House, Farringdon Avenue, E.C., are drawing attention to their cinematograph department by the issue (for the first time) of a special catalogue of their cinematograph goods. The list runs to sixty-four pages, and includes, in addition to particulars of projectors, films, and accessories, details as to Messrs. Butcher's hire department.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Sept.	Name of Society.	Subject.
6.....	Worthing Camera Club.....	Outing to Shoreham and Southwick.
6.....	L.C.C. Staff Camera Club.....	Outing to Wimbledon Common.
6.....	Aberdeen Photo. Art Club.....	Outing to Bishop Loch.
6.....	Southampton Camera Club.....	Slide Criticism Competition.
8.....	Luton Camera Club.....	"Practical Oil Printing." G. H. Rawlins.
8.....	South London Photo. Society...	"Lantern Slide Making." C. H. Oakden, F.R.P.S.
8.....	Lancaster Photo. Society.....	"Development of P.O.P." Fred Hargreaves.
9.....	Leeds Photographic Society...	"The Land of the Vendetta." Chas. B. Howdill.
9.....	Keighley and Dis. Photo. Assn.	"The Making of Lantern Plates and Slides." F. Brundrett.
9.....	Darlington Camera Club.....	"Enlarging." Demonstrated. C. J. Barthorpe.
10.....	Croydon Camera Club.....	"Making Transparencies for Enlarged Negatives." F. W. Hicks.
11.....	North London Photo. Society...	"What is a Good Negative?"
11.....	London and Prov. Photo. Assn.	"A Scientific Chat." A. Haddon.
11.....	Dumfries and Maxwell's P.A.	"First Annual Photographic Exhibition and Competition."

THE CATFORD AND FOREST HILL PHOTOGRAPHIC SOCIETY commence their winter session on Monday, October 8. The Secretary (Mr. W. T. Browne, 169, Woolstone Road, Forest Hill) will be pleased to send any information to our readers or to hear from intending members.

THE BOROUGH POLYTECHNIC PHOTOGRAPHIC SOCIETY.—At the annual general meeting held on September 26 last, the hon. secretary's annual report showed that the society was in a sound financial condition, and that the past year's works had been very satisfactory. A very comprehensive syllabus has been arranged for the coming session, including lectures and papers by some of the leading workers of the day, and a series of practical demonstrations, which beginners will find very useful and instructive. Meetings are held every Wednesday, at the Institute, 103, Borough Road, S.E., at 8 p.m. Applications for membership from ladies and gentlemen, amateurs or professionals, are cordially invited, and should be addressed to the Hon. Sec., Mr. F. Harrop, 7, Boveney Road, Honor Oak Park, S.E., or at the Institute.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—At the meeting held on the 27th, Mr. Briggshaw in the chair, the members were entertained by a very special and enjoyable lecture by Mr. A. L. Henderson, upon "Madeira Up to Date." Madeira, he said, was about thirty miles long by some fifteen miles wide, and very hilly, the usual manner of ascending the hills being either by rail or by means of what could only be described as a hammock slung to a long pole and carried by two men. In his own case it was four with double charges, and the descent was usually made by means of a sledge, which ran freely over the cobbles with which the roads were made, the men holding on the two ropes and thus acting as brakes. In all, Mr. Henderson showed some 150 exceedingly fine slides, many of them being panoramic. Slides were also shown of the special lepers' hospital and the lepers and their attendants. A hearty



vote of thanks brought to a close all too soon a very interesting evening.

**SOUTHAMPTON CAMERA CLUB.**—The members of the above gave a very warm welcome to the Rev. H. W. Dick, of Manchester, who lectured to them on Monday, October 1, on photographic work "in field and dark-room." In quiet conversational fashion the lecturer produced from his storehouse of practical experience many points of interest and instruction, and demonstrated many possibilities in the pursuit of the art. At the outset he warned the workers not to fall into the habit of charging their failures to their apparatus, nor to attribute their lack of progress to want of expensive instruments. He stated in emphatic terms that with an inexpensive yet suitable camera, and an equally inexpensive but R.R. lens, the best pictorial results were open to the enthusiast. After pointing out the varying spheres of usefulness of the stand and hand cameras, he referred to some difficulties connected with the latter. The difficulty of focussing in hand work he suggested might be better dealt with in the following way, which he used: The focussing scale should be subdivided into smaller distances by careful records made thereon after accurate measurement; then, instead of guessing at the distance of an object to decide at what distance it could be best dealt with, focus the camera and step out the distance. With moving objects, as in figure studies, the camera should be focussed for a given distance, and the worker should preserve that distance instead of standing still and making a guess when the pose was right. The lecturer pointed out that the difficulty of preserving sharpness in both foreground and distance could be met by the tilting of the swing-back, a fact not generally recognised. Mr. Dick pleaded for the use of isochromatic plates and screens in hand-camera work, alleging that the advantage of these aids might be obtained even in October at the best hours of the day by anything like a 1-25 at  $f/8$  on a special rapid plate. Among dark-room matters one point was made much of—viz., that to force an under-exposed plate must always be fatal for the pictorial worker, since if detail were obtained in the shadows the high lights would certainly be spoiled. The rule given was "expose for shadows, develop for high lights." A most cordial vote of thanks was passed by a most appreciative audience.

## News and Notes.

**ROYAL Photographic Society.**—We regret to hear that in consequence of General Waterhouse's illness, he will not be able to give his presidential address next Tuesday, Oct. 9. In place of that, descriptions of the spectrophotometer, comparison photometer, wavelength spectroscopic, and the various photometers now on exhibition in the balcony of the New Gallery, and other apparatus in connection with their use, will be given by Mr. C. E. Kenneth Mees, B.Sc. Mr. C. Welborne Piper will also describe his models of light pencils, showing various effects of aberration, and Mr. E. J. Wall will deal with Mr. Edgar Senior's Lippmann photographs.

**R.P.S. LECTURES.**—The following lectures will be delivered at the New Gallery:—

Saturday, Oct. 6, "Limestone Marvels of the Subterranean World." (The interiors of the caves will be shown on a patent crystalline screen, the invention of the lecturer). By F. Lambert, F.R.G.S.

Monday, Oct. 8, "Our English Chapter Houses," by E. W. Harvey Piper.

Thursday, Oct. 11, "A Trip to the Victoria Falls of the Zambesi," by John F. East.

THE Congress of "Photographic Record," recently announced as to be held in France, will take place at Marseilles, in the Hall of the Colonial Exhibition, on October 19, at 2 o'clock. Particulars of the railway facilities, etc., may be obtained from the secretary, 51, Rue de Vichy, Paris.

THE Southampton Camera Club are continuing their custom of issuing a pocket-book for their members' use. The present issue, just published, is, as before, a permit to photograph in certain places in Hampshire. It contains also the Society's programme for the forthcoming session. Members are to be congratulated on a list containing the names of Arthur Marshall, Harvey Piper, Harold Baker, W. L. F. Wastell, W. Farrel, C. H. Hewitt, and

C. B. Howdill, all of whom, with others, are to lecture before Society.

**LONDON and Provincial Photographic Association.**—On October 1, Mr. A. Haddon will give a scientific chat at the usual meeting, The White Swan, Tudor Street, E.C., at 8 p.m. Visitors are welcome at the London and Provincial Photographic Association.

**M. TANQUEREY Again.**—The following letter appeared in the "Constitution" for September 25:—"Sir,—I wish to state, for information of your readers, some time ago I received a letter from A. Tanqueray, artist, 23, Rue de Hambour, Paris, stating that I filled in the enclosed coupon and sent with it a photograph of myself, which I did, he would forward by return a beautiful portrait, absolutely free. That, unlike other artists, he was asking me to take a frame from him. When next I heard from him it was to send on ten shillings, when he would then forward me a crayon portrait. I wrote to tell him that he made no stipulation and he has taken no notice of my letter. I merely write as a warning to others who may be tempted to do likewise.—Yours, etc., F. H. DAUNT, Carrigaline, September 21, 1906."

**SHOULD Have Been Full Length.**—An amusing story of how Preston Guardians were once surprised was told last week, when a Liverpool lady, applying for a position as charge nurse, forwarded a photograph, saying that she could not come owing to a desire to see the family. Once before, said a guardian, they appointed a candidate who forwarded a photograph, and on her arrival she was found to have a wooden leg.

**THE Sensation of Electrocuting.**—A delightful compliment has been paid the photographic process in the course of a murder sentence in New York. The mystery of the murder of an Armenian has been solved by the identification of his dismembered body, and the confession by his brother, Aram Tashjian, that he slew him. The brother was arrested Aram on suspicion. While he was seated in a chair photographed for the Rogues Gallery, Aram became terrified, thinking it was the electric chair, and he admitted everything.

THE prize of £1 10s., offered by Messrs. Growers, Ltd., for the best photograph of the Malden marine lake has been won by H. H. Taylor, an engine driver on the Malden and Witham Gas branch.

**PHOTOGRAPHIC Trade in Italy.**—The current "Board of Trade Journal" reports that in the import of cameras, lenses, photographic plates, films, etc., there is keen competition with America and Germany, but principally with the latter, on account of their cheap prices and the facilities they give as to credit, which is an inducement to the dealers to recommend German-made articles. British-made articles are, however, in great demand on the part of tourists, and a pretty good trade is carried on. British camera manufacturers should endeavour to meet the wishes of local importers, as far as may be possible, and send out travellers with cheap patterns; their apparatus should be accompanied by proper instructions in the Italian language.

An enthusiastic amateur photographer has passed away in the person of Mr. J. A. Prout, of Park Grove, Bromley.

At Cilfynydd last week, Luke W. Proud, photographer, and another D. Rosser, Pontypridd, were brought before an occupation police court, the former charged with using a room for the purpose of receiving bets, and the latter with resorting to a place for the purpose of betting. Inspector Salter, who watched Proud's premises for a few hours, stated that he entered the premises with a warrant and upon both men were found betting slips. The presiding magistrate said he thought the defendant had been the dupe of a man. A fine of £7 was inflicted in each case—£21 in all—on months' imprisonment.

**BELFAST Central Camera Club.**—The annual meeting of this club was held on the evening of the 28th ult., in the club rooms, Assembly Buildings, Mr. A. A. Shaw presiding. The secretary's report was a most satisfactory one, and showed the club to have made considerable progress both in membership and work done. The treasurer submitted an equally pleasing financial statement, showing a balance in hand. It was decided at the meeting to fit a first enlarging apparatus (large enough to take whole-plate negatives) in the dark room, and a special effort is being made by the club to have this done as early as possible.

## Correspondence.

- \* Correspondents should never write on both sides of the paper.  
 No notice is taken of communications unless the names and addresses of the writers are given.  
 \* We do not undertake responsibility for the opinions expressed by our correspondents.

### PHOTOGRAPHIC RESEARCH.

To the Editors.

Gentlemen,—I shall be glad if you will kindly find room for the following announcement:—

The Council of the Photographic Convention of the United Kingdom is prepared to make grants of money in aid of photographic research.

#### CONDITIONS.

- (1) An applicant for a Research Grant must present (a) a concise statement of the general nature of the proposed investigation and its object, with an abstract of any results that have already been obtained, and (b) a general statement of the way in which it is proposed to expend the Grant.
- (2) A Grant must not be expended on the purchase of permanent pieces of apparatus except by special permission of the Research Grants Sub-Committee.
- (3) The receiver of a Grant must make a general report of expenditure, either at the end of, or during the progress of, the research, and shall then be entitled to receive either the whole grant, or such part of it as may have been actually expended.
- (4) The receiver of a Grant must present a full report on his investigation at the first meeting of the Convention after the research is finished, and an interim report at any intervening meeting. If necessary, in order to secure priority of discovery or intervention, the results may at once be published, by communication to such recognised national, scientific, or photographic society, as the Research Grants Sub-Committee may decide.

Thanking you in anticipation, I remain, gentlemen, your truly,  
 F. A. BRIDGE,

Hon. General Secretary and Treasurer.

East Lodge, Dalston Lane, London, N.E.  
 September 28, 1906.

### THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—In reply to Mr. Gascoigne's letter of the 28th, if a light be taken, which is too rich in green or red compared with blue and violet, then this excess can clearly be removed by means of a bluish-violet screen, and if any particular wave-length be taken as the standard a screen can be made which will render the adjustment right throughout the spectrum up to that wave-length, provided that any light of that wave-length is present at all. This may be made clearer by a reference to the figure. Suppose A is the curve of sunlight intensity against wave-length and B the curve of acetylene. Then the use of our filter will reduce the curve of B to that shown as C. These curves are not intended to be accurate, but illustrative. For the accurate curve see "Photographic Journal," March, 1906, and November, 1904.

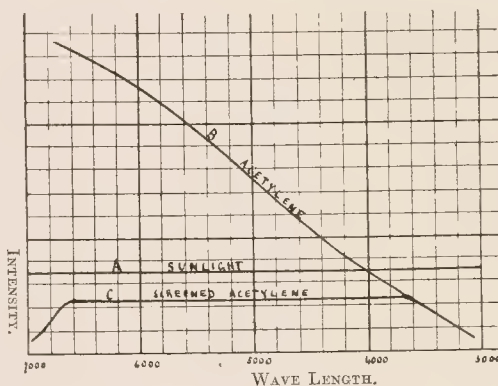
It is seen that between 6,700 and 3,700, the correct acetylene curve is the same as sunlight, though of lower intensity than that shown as curve A. Possibly this correction should be extended below 3,700, but this is very difficult to do.

The intensity of the light source used is of no importance, because, after reduction to the correct spectrum curve, it is standardised by photographic comparison with a standard pentane lamp upon an ordinary plate.

Thus the standard pentane is taken as an actinic standard, not a visual one. If a light screened by Eder's potassium chromate were standardised in the same way then an ordinary plate exposed behind it would give the correct inertia. It may be well to state that the screen given by us is unsatisfactory in some ways, notably as regards

permanence when made as a gelatine screen. I cannot spare time at present to re-investigate it, as I should like to, with the new red sensitive plates; perhaps some one else can.

As regards fog, the answer to Mr. Gascoigne's question is, that if the fog is high he cannot rely on his readings, and cannot get the true inertia. But there are very few plates on the market in which the fog is great enough to cause an appreciable error if care is taken in working. In the case given by Mr. Gascoigne of a fog of .22, the error is negligible, and the speed might be safely taken as 200. The fog must be deducted. In some of H. and D.'s experimental



plates, however, the fog error is very serious, and in our own work, when working with thiosulphate in developers, or developing for twenty-four hours for  $\gamma\infty$ , fog was the great trouble, and by far the greatest source of error. Mr. Gascoigne will note that it was in photo-chemical investigation that we laid stress on the necessity for very fog-free plates.—Yours faithfully,

C. E. KENNETH MEES.

Croydon.

### REFLEX CAMERA MOVEMENTS.

To the Editors.

Gentlemen,—In your last issue Mr. H. G. Ponting, under the heading, "A Hint to Makers of Reflex Cameras"—the idea of a swing back—it may therefore be news to him that I some months ago, to be exact, on March 9, applied for a patent for the addition of a swing back to reflex cameras, and, as my full specification is now in the hands of the Patent Office officials, I hope soon to have the same upon the market. Mr. Ponting appears to have given some thought to the subject without success, and I, after some long, and perhaps rather tedious, experiments, at last hit upon the plan which is now under patent arrangements, and discovered a means of moving both the focal-plane and the plate, the finder, ground glass, and the mirror in unison. You, gentlemen, shall see the camera as soon as complete, or, if you care to, you can, at any time, even now, see my rough model, which undoubtedly will be sufficient to show you the movements.—Yours very faithfully,

ERNEST HUMAN.

43, Whitta Road, Manor Park, Essex.

To the Editors.

Gentlemen,—Having read with interest Mr. Ponting's letter on page 777 of your last issue, we are pleased to inform you that we have already fitted our well-known "Videx" with the complete extra movements he asks for, and in such a perfect and simple manner as would probably surprise him.

With this letter we are submitting a half-plate "Videx" fitted with our new horizontal and vertical four-way swing-front for your inspection, feeling sure that you will be sufficiently interested to appreciate what we have accomplished, and thus be able to inform your correspondent that his stated requirements can be most fully met.

Mr. Ponting says:—"The manufacturers who put a well-made half-plate reflecting camera on the market, embodying the triple



movement of rising front and vertical and horizontal swinging lens, will secure my order at once, providing the camera has the usual qualifications of long focus and reversing back as well."

We can assure him he may place such order with us with confidence, as it is for such capable and practical workers as himself that we specially cater, and the high appreciation we have received from press and public, and which now number many hundreds, prove sufficiently encouraging to us to persist in turning out the finest and most complete instruments that our capabilities and long experience in this class of work enable us to do.—Yours faithfully,

26, Charing Cross Road.

ADAMS AND CO.

[The movement referred to Messrs. Adams has the great practical advantage of automatically bringing the lens "square with the plate." It provides up, down, and sideway tilt of the lens, and appears in every way to respond to our correspondent's requirements.—Eds. B.J.P.]

#### To the Editors.

Gentlemen,—The letter on p. 777 of last issue is, I venture to think, well worth the attention of reflex camera makers, and there is also one other point which I think is worth notice. Why is it necessary to put the ground glass focussing screen flat on the top of the camera? This necessitates craning the neck over the camera in a decidedly uncomfortable position, whilst if the screen was set at a slight angle, the angle of the mirror, of course, being likewise shifted, it would be much easier to see the image on the ground glass.

Whether it would increase the size of the camera or not I cannot say, but it ought not to, because it should be easy to arrange for the ground glass to be pivoted at the edge nearest the user, and thus enable it to be depressed flat when not in use and be covered by the light hood in the usual way.

The normal position of holding a book or paper to read is about 25 to 30 degrees from the horizontal, and this would, I think, be about the correct angle for the focussing screen.

There might possibly be some optical objection to altering the angle of the mirror, but on this I cannot speak.—Yours faithfully,

F. BELL.

Glasgow, September 30, 1906.

#### THE RETURN OF SPECIMENS.

##### To the Editors.

Gentlemen,—I often wonder if it is necessary to keep a man waiting some two or three, and sometimes four, weeks for the return of his specimens which have been sent in answer to advertisements. Surely it does not take a man all that time to make up his mind which operator he will try. I sent my specimens some three weeks ago, and up to now have not received any reply. The result is I am not able to answer other advertisements for want of specimens. This is very hard on a man who depends on samples of his work to get an engagement.—I am, yours faithfully,

ASSISTANT OUT OF WORK.

#### THE STABILITY OF PYRO AND SODA DEVELOPING SOLUTIONS.

##### To the Editors.

Gentlemen,—In your interesting notes on my article in the *BRITISH JOURNAL OF PHOTOGRAPHY* of September 23, pages 762 and 766, there are two points on which I would ask your permission to comment.

You say "Mr. Bennett's idea of a stainless negative evidently differs from ours. In the latter part of his article he refers to the composition of the developer not being favourable to the production of a pure black tone, which idea is just the one that we endeavoured to combat in our former note. The brown-coloured image to which he refers is not a necessary consequence of using pyro, which, with properly devised formulae, gives as black and as clean an image as metol or any of the new developers, and does so without the aid of an acid or any other special kind of fixing bath. Such images cannot well be obtained with formulae in which the sulphite and carbonate are mixed together, on account of the rapid deterioration of the sulphite." The italics are mine.

There appears to be a misunderstanding. In writing that it was

"necessary to discriminate between a negative that is brown as a consequence of the composition of the developer not being favourable to the production of a pure black tone, and one that is stained," I wished to refer to those cases in which a brown image is produced, as in transparency making, though the plate is absolutely stainless. If a slow negative plate is used for making a transparency, and considerably over-exposed, and the same developer is employed that would produce a pure black tone in ordinary negative work with the addition of a large proportion of bromide, the image will be brown instead of black, but quite free from stain as under normal conditions. By using a chlorobromide plate, as in lantern-slide making, a very warm brown almost a red, may be produced by the normal pyro developer by simple addition of a bromide. My reason for this distinction is the fact that photographic workers and writers have confused colour with pyro stain, which is incorrect. This colour is due to a difference in the deposition of the silver forming the image, and with a decomposed developer the gelatine film is stained.

In the press and at meetings of photographic societies I have always contended that a pure black tone should be the aim of the photographer in negative making. And this is, in reality, the sole reason of your comments, and of my article. Equally strongly as you, I advocate the pure black and stainless negative, but there appears to be a radical difference in our conclusions from our experience.

You state, page 762, "that a stale compound solution of sulphite and carbonate, only three months old, acted in precisely the same way as a fresh solution of carbonate alone. This amply proves the sulphite practically disappears in the alkaline solution in short time."

This is the crucial point at issue, as it is impossible to reconcile your experience with mine. Used in conjunction with a pyroton containing half-a-grain of potassium metabisulphite to a grain of pyro, a plain solution of sodium carbonate would give very dirty and stained negatives, while a solution containing equal parts of sulphite and carbonate has invariably produced stainless plates. At times my photographic work becomes very intermitting and then solutions are kept, but no difference in quality of working is apparent. My negatives are a good black colour, always free from stain. And no clearing bath or acid fixing solution is ever used. They are fixed in clean hypo only. The alkaline solution invariably used contains equal quantities of sodium carbonate and sulphite. It is the experience of years of working with these solutions that has led me to form the conclusions expressed in my article. The combined solution of carbonate and sulphite has never, in my work, acted like a simple solution of carbonate. At times a plain solution of carbonate, or a smaller proportion of sulphite has been used for experimental purposes, and inferior stained negatives have always been the result.

The importance of this subject will, I hope, be considered a sufficient reason for this long communication.—I am, sir, yours truly,

HENRY W. BENNETT.

Ilford, October 1, 1906.

##### To the Editors.

Gentlemen,—The articles on the sulphite in the developer interested me at the present moment, and lead me to ask a practical question for myself, which perhaps you or some of your correspondents will kindly answer. I am only an amateur and able to work at photography only at intervals. After a period of five years I have again got out my apparatus. I used at first a pyro developer, which I often used before, mixing it generally at short intervals. As much of my work is experimental I resolved to try again the hydroquinone and the eikonogen, as shown below, developers with which I had scarcely any experience, and to use one or the other separately or both combined, according to circumstances. I used it with a series of exposed films of different makers, applying first the hydroquinone and adding the carbonate and the eikonogen, rather more diluted than the formula indicates. The films which would have proved over-exposed with the pyro were by no means so with the developer. It was perhaps too much diluted. I have adopted this form for several reasons, and, among others, because these develop-

spoken of as being very stable, and it will be a great convenience to have such as I may at any time depend on, without the need of making them up afresh; also it is said that they may be used several times over.

## HYDROQUINONE.

Aq. ....	1000 c.c.m.
Soda sulphite .....	75 gms.
Hydroquinone .....	10 gms.
Crystallised soda carb. ....	150 gms.

## EIKONOGEN.

I. Aq. ....	1000 c.c.m.
Eikonogen .....	16 gms.
Soda sulphite .....	70 gms.
II. Aq. ....	1000 c.c.m.
Soda carb., crystallised .....	150 gms.

A little bromide was added in some of the developments. This brings me immediately to the point I wish more especially to inquire about—the previous explanation showing the exact position of things. As I developed each film in the manner mentioned above, I poured the mixed developer into a red well-stoppered bottle, and took from this to develop the next set of exposed films. For each one I found that it would not develop until I added from the unused developers, the eikonogen more specially, and then only with difficulty, as if it had been much over-exposed. I thought it likely, from previous experience, that it had been over-exposed, and when at last they were fixed, etc., they did not at all present the appearance of having been under-exposed. Since reading the explanations in the JOURNAL, I ask myself:

1st. Whether the hydroquinone developer is not so stable as represented; whether the soda carbonate has acted on the sulphite in the manner described?

2nd. Whether, in the developer mixed and used in the way I have mentioned, the soda has had a still more deteriorating influence? 3rd. Whether it would be necessary, or at least better, to keep the soda in the first formula separate till the moment of development?

4th. In what other way I could modify these formulæ so as to have a purpose of having a developer that will keep good for a long time and be ready whenever I want to use it? To meet the case of different plates, different subjects, and different exposures, I wish to have at my disposal the qualities of the hydroquinones of eikonogen, or of the two combined, and I want them, with a little necessary modification, to serve for bromide papers also. I wish further on substitute metol or amidol for eikonogen.

I shall perhaps mention that in developing some of the first set of films, I used a little bromide also. I shall feel much obliged for information that may come to me through the answer to this inquiry, and remain, dear Sirs, faithfully yours,  
W. WASHAM.

Ulla Cornelia, Chemin de Villard, Lausanne.

October 1, 1906.

Dr. HALL EDWARDS, who was one of the very first pioneers in X-ray work, and has employed the rays for medical work ever since, suffering from severe dermatitis, and his condition, as communicated to the "British Medical Journal," should be a warning against the indiscriminate use of the Röntgen rays. Mr. Edwards writes: "Despite all methods of protection, my hands are steadily getting worse. I have not experienced a moment's freedom from the pain for more than two years, and at times the pain is so severe that I am rendered absolutely incapable of work, either mental or otherwise. In the cold weather I am unable to dress myself, and the pain experienced cannot be expressed in words. On the back of each hand I have from fifty to sixty warts, many of them confluent. In order to excise these it would be necessary to remove the whole of the skin from the backs of the fingers and from the greater portion of the hands. The excruciating, ever-present pain appears to be due to permanent irritation of the cutaneous nerves, which nothing soothes, and which is intensified by holding the hands in a dependent position and by cold. The pain is of a neuralgic character, it never ceases, and is intensified from time to time by sudden stabs and jumps of such severity as to make one cry out. . . . In conclusion, I adjure those engaged in X-ray work to protect themselves before it is too late."

## Answers to Correspondents.

\**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

\**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.*

\**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington Street, Strand, London, W.C.*

\**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington Street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.*

### PHOTOGRAPHS REGISTERED:—

R. S. Cumming, 131, Fore Street, Exeter. *Photograph of the Opening of the Electric Tramways in Alphington Road, Exeter.*

Miss F. M. Buxton, 82, Balham Park Road, London, S.W. *Photograph of Miss E. Buxton.*

W. T. Whiffin, 770, Harrow Road, Willesden, London. *Photograph of the Queen's Park Rangers Football Team.*

A. T. Sidwell, Post Office, Meriden, Warwickshire. *Photograph of Mr W. Johnson, M.P.*

J. Shivas, 46, Queen Street, Peterhead. *Photograph of the Rev. Dr. J. Stewart.*

W. Bowd, 577, Garrett Lane, Earlsfield, S.W. *Photograph of Eleven of Surrey C.C. v. Ely, at Earlsfield and District, 1906.*

C. C. Smith, 1, Norman Place, Lincoln. *Photograph of the Lincoln City Football Club team of 1905-7.*

**RESIDUES.**—Can you tell me how to deposit washings from P.O.P. prints (not hypo)? I use salt, but with very little effect—in fact, from washings from some paper there is no deposit; the water remains transparent, no matter how much salt is thrown in. **RESIDUE.**

In place of salt try hydrochloric acid. Some P.O.P.s contain but little soluble silver salts, so that much cannot be expected in the washing waters. It is possible that you have been adding too much salt, as chloride of silver is, to some extent, soluble in a solution of chloride of sodium, and you may have been re-dissolving the small quantity that was precipitated. Hydrochloric acid will also act as a solvent if used in excess.

**EXISTING COPYRIGHT.**—Can you tell me whether the original of the enclosed is copyright, or whether I shall be free to publish as postcards, and also whether I can copyright the enclosed?—  
F. H. H.

We cannot say for certain whether the copyright in the original has expired or not. But from the age of the picture we should think it had. The copyright in a picture endures for the lifetime of the artist or engraver, and for seven years after his death. You can, of course, register the copyright in your reproduction, supposing there is none in the original. But anyone else will be able to make copies from the original picture.

**BLANCHARD'S PAPER.**—Could you very kindly tell me if anyone now owns the business once carried on by Mr. Valentine Blanchard, of Shepherd's Bush, and, if so, his name? Failing this, can you kindly give me any information, or where I could obtain it, as to Mr. Blanchard's "Platino Black process"?—F. ORAM.

Mr. Valentine Blanchard has been dead many years now, and his paper business is not being carried on by anyone. So far as we are aware, Mr. Blanchard did not publish the method by which it was prepared. However, very similar results may be obtained on the modern platino-matt papers.

**CELLULOID FACED PICTURES.**—Will you please reply to the following: 1. Can you tell me how miniatures (cheap) are prepared and coloured with celluloid fronts? I wish to do them but do not know where to get the celluloid. 2. Is there a list of photo-



graphers in the United Kingdom published from which wholesale houses obtain names and addresses for circularising, etc.?—Focus.

1. The prints are tinted with aniline dyes, which may be had from any of the dealers. The celluloid may be had, in wholesale quantities, from Messrs. Guitemann and Co., 35, Aldermanbury, E.C. The method of applying it may be learnt from a pamphlet published by Fallowfield's, who supply the necessary appliances for the purpose. They probably also supply the celluloid in retail quantities. 2. Not that we are aware of.

**ANACHROMATIC LENSES.**—I would be glad if you could tell me where I could obtain full details of price, etc., of the new French anachromatic lenses, and if there is an English agent for the same.—W. F. TAYLOR.

Two French makers of the anachromat lenses are M. Turillon, 122, Rue Gravel, Paris, and M. Morin, Ligny-en-Barrois, Meuse, France. We believe Messrs. Staley, Thavies Inn, London, E.C., are acting as agents for one or other of these firms. We would also refer you to Mr. F. C. Clarkson, Colchester, who is agent for the French Hermagis lens, giving results very similar to the anachromats. You will see specimens of these latter at the present exhibition of the Royal Photographic Society.

**FRANK BUTLER.**—1. They do. 2. Yes, proprietorship or management of a photographic establishment.

**COPYRIGHT (Aberdeen).**—1. You were decidedly wrong in supplying the print without the sanction of the one for whom the photograph was taken. But as the copyright in it was not registered, we do not see that you can be proceeded against under the Copyright Act. 2. Under common law we should say that proceedings can be taken for damages, if any can be proved. We should advise you to wait until process is issued; if it is, then state the facts to your solicitor. If the one for whom you did the photograph registers the copyright in it, he can restrain further publication of the postcard if he thinks proper, and you from selling further copies of it.

**E. FOX.**—The spots are undoubtedly due to metallic particles, most likely iron. You should look to your water supply and filter the water you use by trying a double thickness of thick flannel over the tap.

**C. H. MADDEN.**—You do not state in what order you print; it is advisable to put the red impression down first. Slow transfer of the dye is due either to too little ammonia in the red solution or insufficient soaking of the transfer paper. It can be considerably facilitated by soaking the transfer paper in water at 70 deg. Fahr. If you are still unsuccessful and care to send up a set of print plates and a failure, we will have some trials made for you. Are you sure your red printing plate is not over exposed?

**STARTING IN BUSINESS.**—I have an ambition to go into business as a photographer, but at the present time I am a clerk (married) at a salary of 30s. per week. For the last ten years, however, I have carried on photography in my spare time as a "professional-amateur," and during that time have gained a good amount of experience, and have done fairly well. At the present time I have about £20 in hand, and have thought (as this is a military town with a population of 40,000, with ten photographers) that I might be able to get on. If you thought I might try my luck would it be better for me to take a shop and build studio at rear, or have a private house with showcase in front? I believe I possess all the apparatus I should require, but as it is a question that wants a little consideration, I thought you would not mind giving me the benefit of your experience upon the matter, and whether I should stand a chance.—"HYPO."

Yours is a rather strange question for us to answer. One would think you could answer it better than anyone else could. You say that you are getting thirty shillings a week, and "doing fairly well as a professional amateur." It is for you to consider whether it would be well to throw this up, and with the small capital of twenty pounds, out of which you will have to build a studio, provide show cases, etc., attempt to compete with ten established photographers in a place of only forty thousand inhabitants. We think the matter should receive careful consideration before you make the attempt.

**P. MARTIN.**—The only work on the subject is contained in "Zur Photochemie und Spectralanalyse," Part V., by E. Valenta, which is in the R.P.S. library. The object of precipitation is to produce a pigment; therefore it would be useless for your purpose. You do not state the colour you want, but the pinatype dyes should answer your purpose, and stand at least eight months' sunshine.

**STAIN.**—We could have advised you better had you sent us a negative to look at. The stain may be dichroic fog, in which case a solution of potassium cyanide, 5 grains; sodium carbonate, 20 grains; water, 2 ozs., would remove it. If this does not, it would be as well to try some of the clearing solutions on p. 955 of the "Almanac."

**G. FRANK.**—Try the outfit of Messrs. Sichel mentioned on p. 955, and write us again if it does not suit your requirements.

**H. E. C.**—(1) We believe he holds a professional position. (2) I think they do not.

**ARTISTIC.**—We know of no work dealing practically with the subject.

**H.R.H. THE PRINCE OF WALES** has sent Sir William Trevelyan as a donation to his "Crippled Children's Fund." The fund for special reasons been opened much earlier than usual, and His Majesty the King, as has already been stated, has an annual subscription of ten guineas. The object of the fund is to hamper of Christmas fare direct to every crippled child who cannot attend the annual children's banquet at the Crystal Palace. On an average 7,000 hampers are thus despatched every Christmas, each containing enough to enable the child to act as hostess for his family for the day. Subscriptions should be sent to Mr. Alfred William Treloar, 69, Ludgate Hill, E.C., who has now a scheme going for thirteen years.

**MESSRS. ERDMANN AND SCHANZ** have moved to more convenient premises not far from their previous house. Their present address is 109, Bedford Hill, Balham, London, S.W.

**BIRMINGHAM Bankruptcy.**—The further proceedings of the examination of Mr. J. A. Draycott took place at the Birmingham County Court last week, before Mr. Registrar Whitlock. A deficiency of J. A. Draycott is put at £1,790, and the Official Receiver drew attention to the fact that at a previous examination he had disclosed the whole of his liabilities. The debtor: "No, sir. Why did you not disclose £150 judgment obtained against me by your wife under a separation deed?—I had arranged that it should not be pressed. Was there any such arrangement?" "It was not put into form, but it was between us. Debtor further stated that he had paid her £3 since the date of the receiving order. The Official Receiver said the judgment was for arrears on a deed of separation which debtor was to pay £2 per week. The debtor: "I paid it." The examination was adjourned until October 25 for further matters to be amended.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received to the approval of the Publishers, and advertisements are accepted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

The Oldest Photographic Journal in the World.

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## SUMMARY

Exhibition of photographs by members of the Professional Photographers' Association opened yesterday, Thursday, at the "British Journal" office, and will remain open until Nov. 10, from 10.30 to 4.30 (Saturdays, 10.30 to 12.30). We publish an article on photographs by F. C. Tilney. (P. 805.)

Notes for short studios. Some notes for the inexperienced ap-  
p. p. 804.

Photographers troubled with fraudulent canvassers should invoke  
aid of the local newspapers. (P. 802.)

Mercury Vapour Lamp.—Some hints on portraiture by this  
artificial light appear on page 808.

Daily paper assures us that boot-button photographs are to be  
fashion. (P. 803.)

The Croydon Camera Club last week a demonstration of  
the new platinotype paper, was given by Mr. W. H. Smith.  
(P. 807.)

Pyro-soda Developing Solutions.—We publish some corre-  
spondence confirming our previous notes on this subject, and em-  
phasising the fact that the soda sulphite and carbonate should be  
used in separate solutions. (P. 816.)

Photographic journal in Esperanto has been published. (P. 802.)

The Correspondence Columns.—Photographic research: the  
Ozobrome Process: Direct Bleach-out Colour Photography: and  
of Production. (P. 816.)

The Bristol Camera Club have held their first, and a very suc-  
cessful, exhibition. (P. 811.)

We publish an account of the work of F. Benedict Herzog, whose  
pictures at the Salon have been greatly admired. (P. 809.)

Method of toning prints by chemical means, supplemented by  
the new patented. New "Cooke" lenses are among other  
items of the week. (P. 811.)

## EX CATHEDRA.

### The Pyro- Soda Developer.

Our notes on this subject, and on the stability of soda sulphite in conjunction with alkali, seem to have aroused much interest. Our experiences do not appear to have been on all fours with Mr. Bennett's, as described in his article and in his letter on page 798, but we have tested the matter for such a long period that we must hold to our opinion that pyro is preserved more effectually by neutralised sulphite than by metabisulphite, and that sulphite rapidly deteriorates in conjunction with an alkali. This latter effect is very marked with the neutralised sulphite solution, for while the addition of alkali causes it to rapidly deteriorate, yet in the neutral state it keeps almost indefinitely. In saying this we are gauging keeping qualities solely by the behaviour of the solution with developers such as pyro, amidol, and hydroquinone—chemical tests will come later. Our experiences with the neutralised sulphite solution date back for three or four years, but in regard to the use of metabisulphite and other preservatives we have been experimenting and comparing formulæ for at least thirteen years. In the days of pyro-ammonia we used the very popular ten per cent. pyro stock solution containing ten per cent of metabisulphite, or twice the quantity used by Mr. Bennett. This we found to be a most wasteful and deceptive formula, for the developing power of the solution deteriorated rapidly within a few days after mixing. There was a marked difference in the behaviour of a quite fresh solution and one a fortnight old, but it appeared that the rate of deterioration was most rapid in the first few days and then fell off. In a month or two the solution became very unsatisfactory. It would continue to develop for many months, but there was an increasing difficulty in obtaining density, and the net result was that in a few years fully a pound of pyro must have gone down the sink pipe in spoilt pyro solution. One source of trouble with this solution was the free sulphurous acid which increased in quantity as time went on and neutralised more and more of the alkali. This effect is not of so much importance with the pyro-soda developer, but it still takes place, and we are strongly inclined to suspect that Mr. Bennett's success with his own formula depends more or less on this free sulphurous acid which helps to compensate the deficiency of sulphite in his alkali solution. It must also be observed that as he uses more sulphite than we did in our combined alkali and sulphite solution the effect of deterioration (as regards stain) is not likely to be felt so rapidly. Moreover, a loss of developing power in his pyro solution may be counteracted by a loss of restraining power in the alkali solution, due to the diminution of sulphite, and so may escape notice. Our experience shows that the traps and pitfalls for the investigator are innumerable in this matter of development.



**Matters for Investigation.** Our notes up to the present embody all the practical results we have arrived at. We felt they were worth publishing, as it was most evident that we had found an extremely useful and economical formula. There are, however, many points that require elucidation, and we hope to take these up shortly. Mr. Bennett's article and letter are both valuable, as they suggest a course of comparative experiments. For instance, it will be noted that his formula contains bromide while ours has none, and that it contains apparently about the same amount of sulphite. Yet, unless his developer is a remarkably slow one, ours must be as much restrained as his, for its one defect is its slowness. If Mr. Bennett would kindly give us an exact formula for a developer containing a definite number of grains of pyro to the ounce, and also some idea of the time taken to attain average density, and of the number of plates that can be developed in succession without stain he would greatly assist us. There is a mystery about the extraordinary restraint exercised in our developer that it is most desirable to solve, for it is an action of a most useful kind, and one that should be of great value if it can be controlled. The relative keeping qualities of the solutions should also be compared by keeping them side by side. Another point that we hope to study is the constitution of stale sulphite solution. Mr. Bennett, like many others, seems to attribute all its deficiencies to the presence of sulphate, but as a matter of fact we have found that a stale sulphite solution and a sulphate solution behave altogether differently in combination with developers. This seems to be a very weak point in most theories concerning the action of developers. In spite of all that has been written on the subject it does not appear that anyone knows what happens or what exists in the complex mixtures of sulphites, bisulphites, metabisulphites, alkalis, and sulphates that help to form the average pyro-soda developer. There are many possibilities that do not seem to have been tested. That different conditions exist seems to us to be amply proved by the results of our initial experiments, but it may take many months to strictly prove that point, or to gain even an idea as to what those different conditions are.

#### Foto-Revuo Kun Ilustraĵoj.

Of course, our readers will easily see what that means. It speaks for itself quite plainly. We trust that nobody will conclude that our compositor and proof-reader have been "over the way" together, and stopped too long. We are truly proud to flourish this utterance from the new Tower of Babel, for it signifies that photography, youngest and sprightliest of artistic sciences, is in the forefront

of fashion, the first of them all to have a journal of herself in the serio-comic language, yclept "Esperanto." We must not be hard on the lingo because it is so full of smiles and tears. It has been designed, no doubt, to view to flattering the vanity of every existing journal under the sun by making each one think that its journal is the largest. On this assumption Dutch and English seem to score, for a general shake up and reshuffle of these two would make very passable Esperanto, too. But when all is said and done, we should like to know who is going to read their photographic literature "allsorts mixture"? Here are some developers: pirogajla, Hidrokinono, Glicino, Amidolo, Metolo. The idea is that if in a foreign country one asked for garlic or something would be offered, but at the same time Metolo the shopkeeper would lean across the counter to embrace the customer, shedding fraternal tears of joy whilst he handed out the article. Vivaj Esperanto! Fotogramatoroj and professionaloj! The Foto-Revuo is published monthly in Paris, and the subscription price is five frankoj.

#### How to Fight the Canvassing Fraud.

A correspondent in the provinces writes with reference to a recent visit of a fraudulent canvasser to his town. The method was a localised edition of the plan adopted by that great benefactor of his race, Tanqueray, of Paris, namely, to offer an enlargement of a photograph for nothing and extract an exorbitant payment for a copy. Our friend promptly placed a statement of the doings of such gentry before the editor of the local paper, and sent it with cuttings from our own pages on the subject of canvassing roguery. We give the comment of the paper, and advise all of our country readers to take similar measures in the event of a visit from the canvassers:—"I should like to draw the attention of readers to certain persons who are said to be paying attention to certain Shropshire towns at present, soliciting orders for photographs, at what looks upon the face of it a very reasonable price. But there is a condition attached to the purchase. The sitter must buy the portrait framed, and it is in the quality of the frame that the man gets his pound-and-a-half of flesh. Another of these free lances of the profession is to secure orders for photographs by using the name of a well-known photographer. Money is demanded as a deposit on an order. In some cases the people are asked to visit a studio; in others they are told they will be waited on and invited "to moisten the lips a little" in their homes. In both cases the object is the same—in

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES, and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the

ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers all over the world as a daily reference guide in practical photography. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—Our publishers ask us to draw the attention of advertisers to the fact that the latest date for receiving orders and copy for advertisement in the "Almanac" is THURSDAY, OCTOBER 18.

the canvasser may "moisten his own lips" in another position at their expense; for neither the deposits nor the canvasser are heard of any more."

\* \* \*

We have learnt to expect great things of Mr. Stieglitz' publications, and yet each new number charms us with its demonstration of what a photographic journal may be under the control of a man possessing infinite patience and the artistic temperament. The present issue is adorned with plates by Demachy, Puyo, and Le Begue, the French giants any one of whom would secure its success. There are articles too, and the most important one by Demachy on his experience and practice with oil painting. It is written, of course, in M. Demachy's wonderfully lucid and idiomatic English. Similar epithets cannot be applied to the English of Mr. J. T. Keiley, who writes upon Vanity. The pellucid ease and grace of his writing may be judged from this:—"Vanity makes vulnerable the weakness of smallmindedness, natures naturally simple and large, and generous of thought." We fear we are not as many subscribers to "Camera Work" as this country as it deserves. One or two societies, however, chase it, but many others would do well to follow their example if they wish to let their members see what the pictorial work is like. They can take it from us, for the reproductions Mr. Stieglitz gives them are as true to the originals as they can be made, and, in many instances, are indistinguishable from them. "Camera Work" is published by Mr. Stieglitz, at 1,111 Madison Avenue, New York.

\* \* \*

We glean from the "Evening News" that "the latest thing in footwear is a pair of boots, inside the buttons of which are inserted small photographs of either the owner or his friends." There is an ambiguity about the last portion of the announcement that may signify that the photographs are so indifferently done as to be as much like the owner as the boots as like his friends. This being so, it is difficult to see exactly where the great advantage of the invention comes in. If these photographs are not for purposes of identification, what are they for? As mere ornaments they would miss fire with all but the most myopic-eyed, for a little splash of mud would look as pretty on a boot-button at a range of, say, five feet six. A photograph on the fair and heaving bosom of an *ingénue* might be worth the closest possible inspection; but the photographs are rare when a man is so near a lady's feet as to recognise a portrait in her boot-buttons. Supposing that the idea is identification of boots by their owner, however, identification of their owner by the police in cases of theft or what not, then it is positively essential that the photograph resemble the owner and not his friends.

\* \* \*

The exceptionally hot and dry summer which we have had has, no doubt, had its effect on the roofs of many photographers' studios, causing the putty to become abnormally hard and brittle, with the result that it has cracked away from the glass, and thus will let water in with a heavy down. Nothing looks much worse in a photographic studio than stained blinds and curtains. Costly backgrounds, too, are frequently spoilt by rain finding its way through the roof. We may direct attention to the fact that the present is an excellent time to see the roof and have made water-tight for the winter. In many cases a couple of coats of good white lead paint, carefully applied, will do all that is necessary. In others, however, if the

putty has cracked away from the sash-bars, it should be chipped out, a thin coat of paint laid on, and fresh putty applied. The work should then be repainted with two coats of paint made with good raw linseed oil. If this be done at once, it can be more effectually done than is possible later on. Modern studios, as a rule, are not so very troublesome to keep watertight, as they contain far less glass than the old-fashioned "glass-house" studio; still, their roofs require periodical attention if stained blinds, etc., are to be avoided, and now is the time to put the work in hand.

#### LENSES FOR SHORT STUDIOS.

THERE is little question that at the present time there are many studios in which it is impossible to produce really good pictures. Those who regularly read through the "Answers to Correspondents" column of this journal cannot have failed to notice the number of questions we have answered with regard to the arrangement of windows, blinds, and the light in short studios—eighteen, sixteen, and one this week only twelve feet long. A short studio means the employment of short focus lenses, and short focus lenses mean that the camera must be placed nearer to the sitter than is desirable to get pleasing perspective in portraiture. Most people know quite well that by the use of wide-angle lenses in outdoor work—say for architectural subjects in confined situations—violent perspective is produced, which is very unpleasant in the pictures. But many do not seem to realise that the same conditions obtain when a short focus lens is used in the studio and the camera planted very near the sitter. Although the effect may not be quite so immediately conspicuous as it is in the case of the interior of a building, it exists nevertheless, and the portrait is an unpleasing one, though the sitter may not be able to say why, and the photographer in many instances be ignorant of the cause. In some cases short studios are necessitated by want of space to build larger, sometimes by the exigencies of the building laws, and sometimes by false economy. Some of the inconvenience of a short studio may, at times, be overcome by having a means of placing the camera outside—say, by having a door at the end so that it can be taken into the garden, or perhaps into another room.

Reverting to the article on lenses for studio work (see page 764 *ante*) we shall now consider the question of short studios. We may at once say that it is a mistake to build studios in which lenses cannot be used of such focal length as will yield pleasing perspective. But there are circumstances in which, by reason of the exigencies of building laws, or limitations of space at command, a longer studio cannot be erected: it is a question of a short one or none at all. In some instances, with a desire of saving outlay, a studio is made shorter than it need be—an act of false economy when the best possible results are of first consideration. Nevertheless we shall doubtless be consulting the wishes of many of our less experienced readers by giving some words of advice on the selection of a lens for such studios as they are compelled to work in.

In the previous article it was mentioned as generally recognised that in order to get pleasing perspective in portraits the focal length of the lens used should be at least double the longest dimension of the picture. This rule was laid down by eminent authorities in the days when full length cartes and cabinets were so much in vogue, and the lenses recommended were, for the former, about eight and a-half inches, and for the latter eleven to twelve inches focus. With either of these from eighteen to



twenty feet between the camera and the sitter is required. It is by reason of this distance that the perspective in the pictures is so satisfactory. In the United States greater attention seems to be given to this point than is the case here, for we see from the price list recently issued by one of the leading opticians there that twelve-inch focus lens are not recommended for the cabinet size, except in galleries of limited length. The sixteen inches focus, says the prospectus, is the regular cabinet lens as giving the best pictorial results, and it will also do for 10 x 8 plates. This lens requires some five-and-twenty feet between it and the sitter, and, of course, necessitates a studio longer than many photographers possess. We may here say that we do not consider so great a distance as this desirable in this country, particularly in large towns where the atmosphere is usually more or less hazy, inasmuch as the intervening haze has a tendency to make the negatives flat or lacking in brilliancy.

The mistake is frequently committed by portraitists of limited experience of trying to make one lens serve for all purposes—full length cartes, cabinets, and groups, as well as three-quarter lengths and large heads. In a short studio this necessitates a short focus lens to take the full lengths, and if that be used for the portraits on the larger scale the perspective will be very violent, and so-called "distortion" evident. It is, no doubt, within the knowledge of many workers under these conditions that their large heads do not give the same satisfaction to their sitters as do the three-quarter and full lengths, although the sitters do not find any special fault with them. The pictures are sharp and otherwise good photographs, yet still they are not satisfactory, and few re-orders are received. No experienced photographer thinks of using a very wide angle lens for outdoor work if one of ordinary angle will include what is desired, because of the violent perspective, owing to the closeness of the camera to the subject. The same conditions prevail when the camera is brought close to the sitter in the studio, though this fact is often overlooked.

Large heads, taken direct, have never met with much favour in this country, though they are very popular on the Continent; by large heads we allude to those of about four or four and a-half inches from the top of the head to the point of the chin. The reason for this is, no doubt, that abroad much longer focus lenses are used for the work than is the case here, so that there is a greater distance between the camera and the subject, and the perspective is good. Many of our older readers will well remember the pictures that were shown in the Crawshaw competition for the prizes offered many years ago for the best life-size portraits taken direct, and the comments that were made upon them, alike by the photographic and the lay Press, some going so far as to term them "abor-

tions"—and, in fact, they were little better than that. Their defects were due to the camera having to be so close to the subjects. The lenses used for the pictures were something about thirty-six to thirty-eight inches focus. Consequently the cameras had to be approached to six feet of the sitter—no wonder at the violent perspective distortion and the severe criticisms. Similar defects are produced when large heads for, say, cabinet pictures are taken with the camera only six feet or less from the sitter, though they may not, at first sight, be so plain as with the life-size heads.

One of the mistakes frequently made by novices is of being guided by opticians' catalogues. Lenses are recommended to cover certain size plates, which those of the makers do admirably, and the inexperienced select one or use it for the full size, quite regardless as to the perspective it gives when so used. For example, what is recommended by the different makers the No. 3 cabinet, or some "3 B," which is of from eleven to twelve inches focus, and is generally used for that size picture, will really cover the whole plate when placed near the sitter, though only recommended for the smaller size. If used for full size it will cover, the perspective must be much less unpleasant as compared with that in the smaller sizes.

Having said this much, the question comes as to most suitable lenses for short studios. Portrait lenses of the Petzval type are the most rapid, and therefore best for studio work. They are made of so short a focus that they require but twelve or thirteen feet between the camera and the sitter, and they are the best to use for full length portraits and groups in a studio that will not permit of longer focus one being employed. But they will not do for full length cartes, as they would require a distance of about eighteen feet, so that for cartes and smaller sizes a shorter focus instrument is necessary. The large format may be used for cartes, three-quarter length or head and bust, but the smaller will not do for cabinets. The large format again, are not suitable for cabinet head and busts, but the camera would have to be placed very near to the subject with the result already referred to. If pictures on a smaller scale are to be produced—say head and bust—then a lens of larger focus should be employed, so that whatever distance is required from twelve to fifteen feet intervenes between camera and subject. Under this condition satisfactory results may be obtained even in a short studio. I mean, of course, that those who have studios of small dimensions should have a larger supply of lenses than is necessary with those who possess larger ones in order to secure the same satisfactory pictures. In conclusion I would recommend that, in either long or short studios, the longest focus lens, within reasonable limits, that can be worked should be used in order to produce the most pleasing pictures.

**BOARDMAN Arc Lamps at the R.P.S. Exhibition.**—Messrs. W. Watson and Sons ask us to intimate to professional photographers that their representative attends daily at the R.P.S. Exhibition, and demonstrations of the Boardman electric studio light can be given to anyone interested. The demonstration would be sufficient to show the satisfactory nature of the light and the ease with which soft portraits can be obtained.

**DRYING Velox Prints.**—A correspondent of the "Camera" describes the following method used in an American factory: A piece of mailing board showing the corrugating on one side, the other smooth, is used, and the smooth side coated with shellac and dried so as to remove the impurities. A piece of loose cheese cloth is then laid on the prepared board loosely, and then the prints laid face down on the cheese cloth. Blotting paper is then placed over the back of the prints, and the strip, which may be 5ft. to 10ft. long, is rolled up, but not too tight. String is placed around

the roll top and bottom, and it is then placed in an oven or over a stove. Prints come out perfectly flat and dry in a very short time—in fact, about one-eighth the time usually occupied in drying. The corrugated surface allows the warm air to circulate through the entire roll—in fact, to a degree, it is on the plan of the developing apron used on the developing machine, only in a different form.

**PHOTOGRAPHS in Catalogues.**—According to leading tradesmen interviewed in the "Daily Express," photographic catalogues are the draper's autumn novelty. The latest shoe photographs are of a pretty foot or a twenty-button length glove on a well-shaped arm and make a far more effective picture than if sketched. Rare embroideries and priceless laces arranged on a dark ground are more picturesque when depicted by a camera than by an etching pen. "We photograph gloves, laces, curtains, ornaments, and umbrellas," Messrs. Whiteley's manager says, "but gowns and hats are always sketched."

# THE EXHIBITION OF PHOTOGRAPHS BY MEMBERS OF THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

## AN ARTIST'S VIEW.

YESTERDAY the Editors opened to the public the doors of their little gallery, where, for the first time in the history of the calling, the professional photograph of commerce is exhibited where the amateur is excluded. On the whole, perhaps, the amateur does not suffer by remembered comparisons. That is strictly on the whole, however, for when particular cases are dealt with the amateur does not score by any means. There is a masterly slickness about professional work that is not out-balanced by the "temperament" and "feeling" of his rival who pays no rent and taxes for his studio. We miss here our old friends, fuzziness and obscurity. We do not see faces shown as though they were looking through a small hole in a shutter that had been fitted with a magnifying glass. All here is decorous, clean, and of bright tone. Men and women appear as they are—when they go to the photographer's.

If only the amateur and the professional—the best of both—could be rolled into one, what a fine thing camera portraiture would be! In one or two cases where this state of things has happily come about the results are, indeed, fine things. But as a rule the professional is too hedged about by an unpurified popular taste to be able to let himself go, even if he would; whilst the amateur continues to let himself go to lengths that certainly get him talked about. What kind of talk it is he does not mind in the least.

To be just, it must be admitted that all the modern improvements and developments that push affairs forward upon artistic lines are seized hot from the hands of the amateur. The professional, however, uses where the amateur frequently abuses. Particularly is this noticeable in the case of mounting. Even the multiple mount has been taken over by the professional. On the other hand, the amateur does not seem to borrow from the professional. It is doubtful whether those very neat and taking Cosway mounts, so full of an old-world grace, will ever be used by other than the class for whom they have been made. They are certainly a great help to the likenesses of dainty sitters, such as pretty women and children; but there is a danger of their becoming hackneyed when supplied from a maker wholesale. A safer and more artistic plan would be for each photographer to have his own borders designed by a good artist. They would then be associated with his work only, and a liberal selection would meet the demands of every class of work. In this connection, it cannot be too strongly urged that the designer should be trustworthy, if not of recognised ability; for a poor thing is positively damaging and infinitely worse than none at all. The hand-drawn miniature frame and ribbon design round the pretty head that is numbered 66 in the exhibition is only good, though not new, in idea. It is so feebly designed and so childishly drawn as to spoil the fine work it is supposed to embellish. Comparing this with a simple double line of light grey ruled round the print on a dark mount, as in No. 61, we see how far good taste may be removed from mere elaboration. Mounting is certainly not a strong point with the profession as a general rule. Many of the works exhibited here seem not to have caused their senders the shadow of a thought, for the prints seem simply stuck on to a card drawn out of a drawer where the bulk is kept for all purposes.

It is possible, of course, that some of the exhibitors have not regarded it as necessary to exhibit mounts to their brother workers, and have thus adopted a sort of temporary support in the shape of a piece of white card just sufficiently large. It is difficult otherwise to account for one or two really striking works so meagrely furnished as they are.

Another point that shows weakness at times is the trimming of the prints. It is safe to say that a square thing is always unpleasant. If a lady at full length, with a long train thrown out across, occupies height and width to the proportions of a square, it is certainly better to sacrifice a little of the precious garment and get something approaching a panel shape than let the complete thing take the shape of a square. In the case of a court or theatrical dress that is the *raison d'être* of the photograph, care might be taken in posing to avoid a letter L composition. Many an instance is here of too much empty space on both sides of a figure. Settees and backgrounds are for their own sakes not worth the material they use up. All of them that is beyond the mere occasion of giving a physical support to body or hands can be pruned away with advantage. How much nicer would be the excellent "Queen of Spain," No. 4 here, if there were not so much space on either side of her to rob her of importance in the print! Other examples will be noticed by the visitor bearing out this principle.

Some specimens of tinted work are well worth inspection. One very full and elaborately coloured head and bust has been executed, so I understand, by the "Aerograph" air-brush. It is most cleverly done, and has a most charming effect. For the silky texture and sheen of white silk dress and shoes another relies upon body-white tastefully painted on a print of rather low tone. There is also a tinting of the flesh parts, as well as some unaccountable marks of colour upon the floor. A third is evidently tinted in imitation of a coloured mezzotint of a past century. There is much about it that is taking, and the background looks very like what it imitates; but the lighting of the little figure comes in such arbitrary patches that we should think a logical customer would want to know the reason why. Some lilies held in the hand are suppressed to the tone of the dark background. The subject that enjoys the hand-painted frame to which we have referred is likewise an attractively coloured print.

For artistic quality in purely photographic effects there are few things to surpass the beautiful back-view of a girl, No. 61. The softness of the flesh and hair, the lighting, and the general tone should be a pattern to many. Very pleasing, too, are some of the child subjects, one of which includes a pet lamb—surely not a property one either.

The posing of the figures is in all cases the matter least open to caviel. In some it is exceptionally good. This is, perhaps, a point that the photographer has been alive to the supreme importance of, and has, therefore, given it more study and cultivation than other matters not so obviously essential. We trust that by this and possible further exhibitions those who are wanting in certain matters will find here the wherewithal to fill their deficiencies, though what the first-class men are to find except mere gratification it is hard to see.

F. C. TILNEY.



## THE EXHIBITION OF THE ROYAL PHOTOGRAPHIC SOCIETY

To the notices which have appeared in the past two issues of the "Journal," an addendum must be made in reference to two exhibits which we omitted to include when dealing with the sections to which they properly belong. These are the displays of Messrs. Elliott and Sons, of Barnet, and of Mr. Adolph Langfrier. The former, which is one of the large trade exhibits, is placed in the "professional" room, and the latter, from exigencies of space in this same south room, is shown among the trade exhibits in the north room. Hence, as our notices of the two sections were in different hands, the exhibit in each not belonging to its department, was passed over, and the oversight, we regret to say, was not noticed until too late to remedy it in our last issue.

Messrs. Elliott, we would now point out, occupy the whole of one wall in the south room with prints on their bromide papers. They set apart a section to toned prints, and show the results of the sulphide process (Barnet "Owl" toner) on the various classes of their paper, such as "Tiger Tongue" (white and cream), rough and smooth, ordinary and cream crayon. The collection includes an immense variety of portraits, and scapes and seascapes, and while it is a very strong argument for the bromide process is the best evidence of the

perfection to which Messrs. Elliott have brought the manufacture of their papers. The big enlargement of a figure study by Mr. Cr. Richards is beautifully soft in its tones, whilst the wide range of gradation in some of the architectural subjects is equally remarkable. Extremes of this kind are a severe test of a paper, and any one studying the collection can see how well the Barnet paper comes out of it. Most of the negatives are on "Barnet" ortho plates, and those interested in orthochromatic work will discover some beautiful examples on the wall—not the most conspicuous perhaps, but having tone-rendering which is extremely good. The "Surrey Wood," N in the little "Barnet" catalogue, is a charming example.

In the north room Mr. Adolph Langfrier has crowded his space with what he calls "every-day portraiture." We can have too many of the best, and for purposes of display alone half the number of portraits would have been better. Yet the large number has not meant inclusion of a good deal of bad work, and if this be Mr. Langfrier's everyday photography we congratulate him upon it.

His portraits of men are strong and life-like—see those of Mr. Humphrey, McIntosh, Manly and Bridge—and women he can take as lightly and delicately. He has some very pretty figure studies. His mounting and framing we admire in almost every case.

## INTERFERENCE BANDS, GRAPHIC OPTICS, AND SENSITOMETRY AT THE R.P.S.

THE opening meeting of the Royal Photographic Society took place on Tuesday last, but owing to the continued illness of the President, Major General Waterhouse, the presidential address had to be omitted from the proceedings. In place instead, a symposium of science was provided by Messrs. C. Welborne Piper, E. J. Wall, and C. E. K. Mees. Mr. Piper explained the model illustrating optical systems, to which a medal has been awarded in the present exhibition.

Mr. E. J. Wall dealt with the Lippmann photographs exhibited by Mr. E. Senior in the technical section of the exhibition. The exhibit, he said, was described in the catalogue as a "Lippmann photograph produced by exposing film successively to two continuous spectrums, the red end of one being superposed on the blue end of the other. Two

means a new hypothesis or theory, but only a necessary sequence of the generally accepted ideas."

Neuhaus at first called them Talbot's interference lines, but Talbot pointed out that interference lines would be seen, when examining a spectrum, if a thin sheet of mica was passed along the spectrum from the violet end till half the pupil of the eye was covered. The rays passing through the mica were retarded and caused these in-

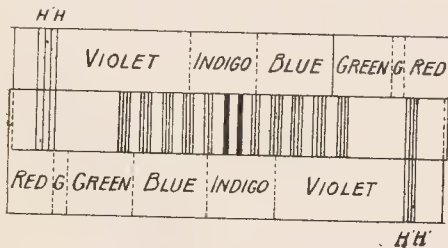


Fig. 1.

short spectra are thus obtained crossed by fine dark lines first observed by Dr. Neuhaus.<sup>1</sup> The concluding words of this description might or might not be correct.

These lines might be either due to the use of gelatine plates, or they might be true interference lines. The former were obtained in trying to produce the latter, which, according to Dr. Neuhaus,<sup>1</sup> would be most easily obtained on albumen plates, as the latter have a more even film.

If these were interference lines then they should be called Zenker's lines, because he was the first, Mr. Wall believed, to point out the possibility of their formation, for he says,<sup>2</sup> "although the formation of stationary waves by two rays of similar wave length meeting one another has not yet been experimentally proved, yet it is by no

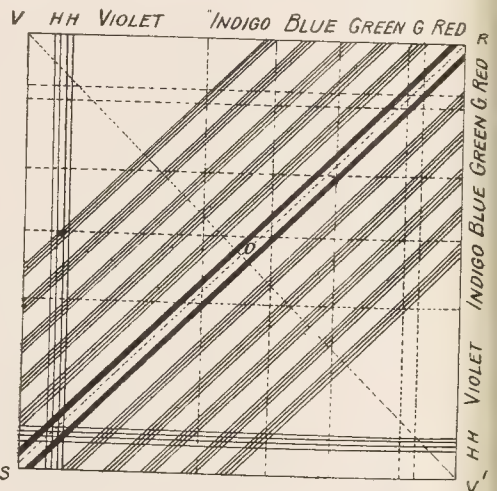


Fig. 2.

ference lines with the light that did not pass through the mica. Later, he seemed to have suggested that they should be called Zenker's lines.

If they were the latter, then Neuhaus was not the first to observe them, for he states that "to his knowledge Valentia first prepared similar photographs at Dr. Zenker's suggestion three years previously. Neuhaus has made several experiments, such as bleaching the first spectrum and then superposing the second, and so on.

<sup>1</sup> Die Farben photographie nach Lippmann's Verfahren, 1893, p. 54.  
<sup>2</sup> Lehrbuch der Photochromie, 1895, p. 80, also Dr. Schwalbers edition, 1900, p. 121.

This subject, continued Mr. Wall, had been treated at great length by Dr. Pfaunder, of Graz<sup>3</sup>, and more briefly,<sup>4</sup> and from the latter the following extracts may be of interest, as they explain very clearly the formation of these dark lines, and are proof of the correctness of Zenker's statement above.

"Fig. 1 shows two parallel but reversed spectra. The upper and lower parts correspond to each of the two spectra, whilst the middle portion represents the overlapping parts. The latter shows here two similar colours are superposed, one pair of dark sharp stripes, and on each side of the same others which are fainter and less sharp at equal intervals. The colour in the middle is a bright indigo. Towards the ends the colours are less bright and correspond to mixtures, where the bright green, the yellow, and especially the red, are in preponderance. At the extreme ends the H lines are visible."

"Fig. 2 is still more instructive. This shows a diagrammatic sketch of two spectra crossing at right angles. Here the dark stripes appear near the diagonal R S, and their intensity and sharpness increases towards the corners V V'. Along R S are found, as is obvious, the pure spectrum colours; towards the corners V V' are the dampened compound colours, in which the bright yellow and red overpower the other colours. The diagram corresponds to the results which must be formed with a diffraction spectrum. With prismatic spectra theory requires a faint curvature of the lines outwards, which, as a matter of fact, is to be seen in the original. According to Dr. Neuhaus's suggestion I have called these lines Zenker's stripes."

This diagram explains the "dark lines on the back, traversing the image obliquely" in Mr. Senior's No. 5 exhibit.

<sup>3</sup> Über die dunklen streifen, welche sich auf den nach Lippmann's Verfahren dargestellten Photographien sich überdeckender Spektren Zeigen (Zenker's Zeitschr. d. Naturforsch. Ges. Wien. Vol. 63. Jan. 1904.

<sup>4</sup> Eder's Jahrbuch, 1904, p. 329.

Dr. Pfaunder then says: "Quite apart from the theory of their formation these images prove the important fact that with a large number of pairs of colours their superposition on a Lippmann photograph does not reproduce the physiological colours, but causes a destruction or weakening of the light."

The greater the difference in wave length the less these periodic changes are produced, and with indigo and yellow are scarcely noticeable. The mixture of the spectrum rays caused by the reversal of the spectra can be at once traced along the dotted horizontal and vertical lines.

Dr. Pfaunder, towards the end of his article, expresses himself very plainly, and says: "Lippmann's process, therefore, not only on account of its uncertain and difficult manipulation, but above all on account of its falling short of its theoretical basis, cannot be considered as a complete solution of the problem of photography in colours. . . . Lippmann's process will therefore always remain what it always was, an extremely charming and highly interesting physical experiment."

Mr C. E. Kenneth Mees explained the apparatus of his design. He made and exhibited in the New Gallery by Adam Hilger. The first was a modified Hüfner spectrophotometer, fitted with a device (in addition to the spectroscopic) for dividing up the beam of light into two parts, the upper one passing through the substance to be measured, and the lower one through a polarising Nicol. The beams are then brought into juxtaposition and pass through an analysing Nicol mounted on a divided circle, by turning which the gradual extinction of the polarised beam can be accomplished.

He also explained the use of the gradation photometer already described in our pages when reviewing the technical section of the exhibition.

## JAPINE PLATINOTYPE PAPERS.

The opening night of the Croydon Camera Club, on Wednesday the 11th inst., brought a full attendance of members to hear the President, Mr. W. H. Smith, explain the properties and method of working of the latest product of the Platinotype Company. Inasmuch as the Platinotype is authoritative, and the Platinotype papers have attracted a considerable amount of attention, a full abstract of Mr. Smith's remarks may be useful to many.

### What is Japine?

was the question often propounded, Mr. Smith said. Many photographers taking it to be a new paper having no relation whatever to platinotype. As a matter of fact, the Japine printing papers are pure platinotypes, made in "sepia" only, and in two qualities, one with a semi-matt or "egg-shell" surface, the other being glossy, but not very glossy, the latter having something of the characteristic appearance of a sepia print whilst wet. Many users in the past had expressed a wish that a paper might be made to retain the fine and lustrous appearance which sepia platinotype papers presented whilst lying in the baths, and in response to such demand a paper fulfilling this condition to a great extent had been introduced a few months ago by the company. The semi-matt Japine paper gives a slightly warmer tone than the "ordinary sepia"; the glossy, much warmer tones than the semi-matt. The manipulation of both varieties is the same, and differs but little from the usual practice. Japine papers are not intended to displace the ordinary "sepia," but they may in certain cases give more pleasing results, according to the subject, quality, or character of the negative; whilst in other cases the ordinary "sepia" cannot be beaten, the employment of one or the other depending naturally upon the precise effect aimed at. Japine papers certainly afford more detail and greater shadow transparency. The typical negative suitable for platinotype generally, viz., a somewhat soft one, and full of gradation (not a flat negative), is equally applicable to the newer papers; these, moreover, possess a far greater latitude in printing than the ordinary black and sepia papers, and negatives generally considered too hard for the process under normal conditions can, with the Japine papers, be printed for the high-lights without choking, or burying the shadows to any noticeable extent.

It need hardly be pointed out that this is a very useful attribute. In addition, these papers will stand rougher treatment generally, and are not so easily affected by damp. In one or two instances in this connection, he (the lecturer) had kept Japine papers before printing for twenty-four hours exposed to a damp atmosphere in the dark, the only observable result being to slightly flatten the prints, without any alteration of colour. Workers in the United States had made trials on similar lines, which confirmed this statement. Mr. Smith then passed on to practically demonstrate the process, and showed some interesting variations obtainable in colour and contrast by alterations of the constituents of the developing baths, of which we extract so much as may be considered normal treatment or supplemental thereto.

### Printing

Storage calls for no special comment, the paper being kept dry in the familiar storage tubes of the company.

The precise depth to carry printing is the same as for the ordinary sepia platinotype. When the paper is being removed from the original tin, or from the storage tube, care must be taken, and in all subsequent operations, to avoid bending it sharply, or the surface owing to its nature, may crack. Only ordinary care is required to prevent this occurring.

### Developing,

Two formulæ are recommended, one containing special salts with a proportion of glycerine added; the other, a normal sepia developer. For general work the former is to be preferred as giving a normal amount of contrast from the average negative. The best temperature to employ is from 100 deg. to 120 deg. Fahr. Between these limits, which may be considered standard, little, if any, difference in colour can be noticed. Full development takes from two or three minutes, and to secure the richest tones full development is essential, but if a print has been inadvertently over-exposed it may be withdrawn at an earlier stage, and with prints from certain types of negatives, landscape subjects, for instance, there may be but slight loss in quality or colour, curtailing development, however, tended



to flatten the print. Several prints can be developed together in the same bath, being slid into the developer face up, with a fairly even motion, and then gently turned over. Working the bath below 100 deg. down to 80 deg. Fahr. results in proportionately colder tones, more contrast, and perhaps a slight loss of quality. It was somewhat of a paradox, but when this developer is used at a low temperature printing should not be carried so far. With the ordinary papers the case was reversed. If the temperature is allowed to exceed 120 deg. up to 160 deg. Fahr., more contrast than the normal is again obtained, with results generally disagreeable. Mr. Smith stated that in one experiment he had left a print in the developer for forty-eight hours; the print somewhat curiously gained in intensity, this being no doubt due to deposition of platinum on the image. The developer was an old one, and therefore contained a certain amount of platinum salt derived from former prints. The developer would keep fairly well if stored away from strong daylight, but a sharp look-out should be kept for any signs of deterioration of tone. Should this be observed a fresh bath must at once be made up. With the alternative formula (sepia salts) less contrast is obtained, a fact which may be taken advantage of when dealing with harsh negatives. The temperature of this bath should not be allowed to drop below 120 deg. or exceed 160 deg. Fahr. Within this range no appreciable difference in the character of the prints will be perceived.

#### Clearing and Washing.

These operations are carried out in the usual way, and call for no remarks, except that a little longer immersion in the baths than that prescribed will do no harm, and will at least be erring on the safe side.

#### Drying.

A preliminary bath of glycerine mentioned in the instructions, the lecturer said, was not essential, and it was perhaps better to omit it. The prints should be removed one by one from the last washing water, and after blotting off surface moisture, be laid face down

between layers of fluffless blotting paper, without further pressure than that afforded by the blotters themselves. The prints would dry flat.

#### Mounting.

Any good adhesive will answer, but Mr. Smith preferred the mounting process. It gives an added finish by no means despised. He here showed a capital little machine for the purpose very low in price, and successfully mounted a few prints on art paper to illustrate its simplicity of working.

#### A Warning.

The lecturer, in conclusion, warned his hearers against departing from the instructions issued by the company, the outcome of extensive experimental work. Variations in procedure, based on principles from a few isolated negatives, could never be relied on. Substituting developers of different constitution to those recommended might in some cases, and with some particular types of negatives, show differences, whilst in other cases, and under other conditions, differences might be most marked.

In the short discussion which followed, Mr. C. E. Kenneth enquired the reason why Japine and sepia papers persisted in showing a slight yellow tinge in the whites compared with the image papers. Another member asked if the lecturer did not consider the present price of platinotype papers to be excessive. Smith, in reply to both questions, said that a "natural colour" paper was utilised for the sepia and Japine platinotypes; it afforded a more harmonious base, and was preferred by the majority. The so-called "blue" paper was employed for the black image platinotypes. Comparing the two, the former would appear to be of a slight yellow tint. As to the price of the papers he most certainly did not think them dear; indeed, the reverse was the case, considering the high price of the metal itself, which had enormously risen in the last few years. At the instance of the vice-chairman, Mr. Terry, a hearty vote of thanks was accorded the lecturer.

## PORTRAITURE WITH THE MERCURY-VAPOUR LAMP.

The character of the light from the mercury-vapour lamp is different from what might be imagined, and without any diffusing medium the illumination is soft and even. A diffusing screen of butter muslin, *papier minéral*, or other translucent medium, however, makes the light still softer and more pleasant to the sitter. A point of advantage of the light, particularly in small studios, is that no extensive fittings are needed, wiring with a minimum capacity of three amperes, terminating in a small wall plug, being all that is required. In a studio of good size it might be advisable to have two or three of these wall plugs, so that the length of loose wire is not excessive. This simplicity of installation enables the photographer to remove the lamp during the summer months, and there is nothing unsightly remaining.

The lamp will commend itself for studio use on account of its cleanliness. Some forms of artificial light produce a good deal of smoke and dust, but with this apparatus there is nothing to give rise to either of these objectionable drawbacks. Neither are there any difficulties in the working of the mechanism which need alarm those who are unused to the handling of electrical appliances. The starting of the lamp is very simply managed, to cut off the current it is only necessary to withdraw a plug, and while the lamp is running it requires absolutely no attention. Being almost silent in running, and giving off little heat, it is free from those distractions alike to the sitter and the photographer, which so often conspire to injure the expression at the vital moment of exposure.

#### Lighting Precautions.

A few points with reference to the actual lighting of the sitter may be helpful to those who have already installed the lamp. If the tubes are placed too close to the sitter there will be a flattening of the modelling on the light side of the head, while at the same time a harsh effect will be produced. It is most probable that this mistake, coupled with the improper use of reflected light, will lead to most of the initial failures. Care must be taken that the light from the tubes illuminates the reflector adequately, or there

will be a deficiency of reflected light. It is sometimes forgotten that the reflector is not a source of light, and that obvious cannot reflect light which does not reach it. By keeping the reflector at some little distance from the sitter and using a large area of light, the reflector, not too near, sufficient shadow detail may be secured, that kind of modelling which is never obtained when the face is flooded with an excess of light. True, it is important to keep exposure within reasonable limits, and in some cases, with children or nervous sitters, it may be well sometimes to sacrifice a certain quality of modelling to this shortness of exposure; but in general a slightly longer exposure is a small price to pay for good modelling and effective light and shade in the features, but for the average sitters the difference between one and two seconds is almost immaterial. This is in the nature of a digression, applying, as it does, generally and not more particularly to the mercury lamp than to any other artificial light or daylight. But it is mentioned here because, using any movable form of light there is a tendency to get too near the sitter as possible, under the mistaken idea that the effect is the same and the exposure less. Where a large illuminating lamp is employed it is always more difficult to control the lighting, or, in other words, a greater movement of sitter and camera is necessary to produce any marked difference in the effect.

#### Mercury-Vapour plus Daylight.

It is interesting in this connection to recall the use made of mercury-vapour tubes by Mr. Pirie Macdonald, of New York, who, when the daylight is failing, starts his lamp tube by tube, the first light providing the soft and general illumination, while the second direct beam from the single tube gives a touch of force and brilliancy to the lighting of the head. When the lamp is being used for evening work, much the same effect may be secured by the use of a diaphragm head screen, a large circle of tracing linen with an opening in the centre which allows a beam of direct light to reach the head, the combination of diffused and direct light giving a perfect combination of softness and brilliancy.

the lamp will be found of value for making sittings where three or four different positions and lightings of a head are required. The work is usually better done for being done quickly, the sitter being worried by re-arrangements as little as possible, and the photographer's time being economised. The art of setting the head and shoulders so that the effect is good from more than one standpoint should be acquired, and then by slight movements of the camera the various negatives may be taken, the lighting being modified as required by moving the lamp a little.

#### The Cost of Running.

Two important points must be referred to—the cost of running the exposures necessary. The cost is remarkably low; the lamp when running continuously only taking about half a unit per hour. Supposing the current to cost 6d. a unit, we get at once a consumption of 3d. per hour. Of course, the time for a sitting depending on the class of work done and the number of plates used, the actual cost per sitter will vary, but assuming that three sitters are needed per hour the cost works out at a penny per sitter. If a number of incandescent glow-lamps are used to supply the red rays in which

the mercury-vapour light is deficient, the cost is somewhat increased, but supposing it to be doubled, a light charge of 2d. per sitter is almost negligible.

On account of the tendency to strong contrasts with all artificial lights, it is probable that the most rapid plates will be employed, especially as such may now be obtained at ordinary prices. With such plates, and using an aperture of  $f/6$ , the exposures for head and shoulder portraits will be found to work out at about  $1\frac{1}{2}$  to 2 seconds. The exposure naturally varies according to the character of background used, and the distance from lamp to sitter; but this time will be found a fair average.

In concluding these notes, the writer would say that they are based upon the use in his studio of the new mercury-vapour lamp of Schott and Genossen, Jena. No doubt the experience gained would be found to apply to any lamp of the mercury-vapour class. The writer would also like to be allowed to thank the British agent for the lamp, Mr. A. Iserthal, of Mortimer Street, W., for much friendly advice on the electrical side of the use of the lamp.

PROFESSIONAL.

## THE PICTORIAL WORK OF F. BENEDICT HERZOG.

The present exhibition of the Photographic Salon contains two examples of the photographic work of an American, Mr. F. Benedict Herzog, whose large picture, "A Tale of Isolde," was shown last year at Pall Mall. Our opinion of Mr. Benedict's photographs was expressed recently in the conclusion of the notice of the Photographic Salon, and we can add no higher praise of this extraordinarily clever photographer than what we have already said. We may, however, quote an account of Mr. Benedict's work which appears from the pen of Mr. Roland Rood in our New York contemporary, the "American Amateur Photographer," in accompaniment of some eight reproductions of the photographs, some of which have not, as far as we know, been seen in this country.

There has long been a complaint of the art critic that photographers so rarely evince originality that they copy the ideas of painters, and what originality they possess expends itself in improving their mechanics of production—in other words, that their highest claim to the title of artist lies in being technicians. In this view I heartily concur. It is therefore with pleasure that I offer the following to the consideration of the reader, for in Mr. Herzog we find a man who has passed beyond the mere student stage where desired exposure and development, correct values and clever printing and the imitation of the ideas of others seems everything; he has entered that broader field of thought where the æsthetic qualities assume their commanding position. As this type of man is not often found using the camera, it may be of interest to the reader to be initiated a little into these higher "secrets." To do this it will first be necessary to make some explanations regarding impressionism.

Impressionism can be defined as the fixing on canvas or paper of the first momentary impressions we receive when we suddenly look at any natural scene or object. Now in the first instant we do not properly think, but we distinctly feel, and the object of the impressionist is to convey that momentary feeling. This method of painting has one decided advantage over all others. The element of thought not being in the picture, the spectator is only made to feel; and as feelings unmingled with thought (which is a mixture of questions, contradictory assertions and judgments) are much stronger than feelings to which thought has been added, such a picture will produce a much stronger impression than one which may really have more thought; and as people are prone to judge rather from the strength of their feelings than from their logical conclusions, will receive more credit than it deserves. Impressionism, in its strictest sense, of necessity precludes any composition which rises above the simplest arrangement, and it is that which is so attractive to the youthful student, for he feels that with this kind of art he, too, may have a chance.

Successful as the French impressionists have been in fixing their impressions on canvas, I doubt if they have (minus the question of colour) done it any better than the photographers. The photographic impressionist is the finished snap-shooter. At the outset of his career he is perfectly thoughtless and snaps at anything and everything which produces an impression on him. It is only necessary for him to become conscious that he is feeling a sensation to be impelled to press the button. His results are bad, not because his mind is not

of the proper quality, but because owing to lack of optical knowledge he chooses to photograph such effects of light and perspective as are not within the grasp of the camera, and also because he knows nothing of values, exposure, developing, printing and pictorial arrangement. But if he persists and acquires technical power, and if his mind is sufficiently open to impressions, he evolves into the full-fledged impressionist and produces that class of work which may be classed as topographical or historical records, as for example, pictures of foreign landscapes and street life, of parades and public functions, of races and fires and accidents, etc., all of which are well worth presenting, but are the most pleasing when represented in a simple impressionistic way because we want to know—when we see a picture of this kind—exactly what the thing looked like, and not what its pictorial possibilities may have been.

Beautiful and interesting, however, as are these photographic impressions, the reader, of course, understands that they cannot be looked upon as the final goal of pictorial photography; they are but the first step on the road to ripe art. The second step is the addition of thought to the impression. I must here digress again to make some psychological distinctions which I have touched on before, but wish now to bring fresh to the mind of the reader, as they are very essential to the explanation of Herzog's work.

When I look out of my window I perceive (in psychological language) spaces of blue, streaks of gray and brown, patches of yellow and green, which in themselves are quite meaningless. But as I look I add to it thought gained from previous experience and apperceive these colour blotches to be a forest under a blue sky. As I continue gazing I add more and more previous perceptions. I think of the forests, and how I wandered through them, and how strong and large the trees seemed, and of what strange adventures I had there; and little by little, without being at all conscious of it, I have added so many of my past feelings to that forest that it no longer seems the same. And if in that half dreamy, half thoughtful state of mind I were to paint it, I would paint, work conscientiously as I liked, something quite different from the picture traced on the retina of my eye. I would not paint the forest, but my apperception of it.

Now in these two states of mind lies the main distinction between the impressionistic and the idealistic schools of painting. The impressionist perceives and the idealist apperceives; and the impressionist in only perceiving makes us only perceive (and very frequently not that, for perceptions without previous thought added to them are



often quite meaningless); but the idealist in apperceiving makes us apperceive and throws us into a reflective state of mind.

Let us see how the above principles can be applied to the practice of photography. The photographer unfortunately cannot work as does the painter; no matter what are the state of his feelings the lens pays no attention to them but transcribes a simple perception on the sensitised plate. How can the photographer change the mind of the lens and make it do as he wishes? The painter is not confronted with this problem; he makes such alterations as he deems necessary at will, or, as is usually the case, when under the influence of a strong apperception, he alters unconsciously and draws his objects in such a way as to embody many different feelings. He unconsciously eliminates, adds and exaggerates. But the photographer must always proceed knowingly. How, then, can the photographer transcribe his apperception to his sensitised plate? The simplest way that I can answer these questions, and at the same time come to the main point of this article, is to describe the idealist method of work.

Unlike the impressionist, he starts with a preconceived idea. He is possessed with a feeling more or less strong of what he wants to do. And this feeling which formulates itself in his mind in the shape of a composition, vague or distinct, depending upon the force of his imagination, has come there he hardly knows how—possibly from a picture by another artist; or from suggestions in one of his own; or from something he has read; or from something he has seen in nature—but originate this feeling as it may, it possesses and worries him until he has expressed it, until he has gotten it out of himself and given birth to it in the shape of a finished picture. And this is distinctly Herzog's attitude toward art and nature. When the idea has taken hold of him he sets to work like any other idealist with the requisite knowledge and makes studies upon studies; studies of detail; studies for line and light and shade, and studies for the whole composition. Only these studies, or sketches we may call them, are made with the camera. And when he has collected a sufficient number and gained a clearer idea of the nature of the apperception he is trying to express, and of how to express it, he poses his models into more complicated groups, preserving what he likes and eliminating the rest, and so on until at last the whole, to the smallest detail, is expressive of his original idea. Generally, however, where the conditions render it impracticable to produce the best results by the process of photographing the entire motif on one plate, he takes various parts of different plates and makes a composite from them. In cases these compositions may consist of as few as two figures, in other cases of many figures.

It is not astonishing that with a conception of art and mode of procedure so different from that of most other photographers his productions should also be different.

When eighteen months ago I was reviewing an exhibition at the Camera Club, the dozen Herzogs which he had hung there upon the occasion of his election as president, impressed me with their singularity. They were not matured in the sense they are now, and I hesitated to criticise; for all that I clearly recognised their potentiality and wrote as follows: "When I look at a Herzog I always feel that his work is totally different from that of any other photographer. I have never yet grasped its meaning, so will refrain from criticism, except to say that in a Herzog you can feel the reverberations of the thoughts of the old masters (after they have passed through his intellect and become imbued with his personality)—Titian, Veronese, Rembrandt, and so forth—Herzog is the only photographer I ever heard of who has attempted to combine the merits of Michelangelo and Franz Hals." The short time, however, that has elapsed since then has been sufficient to show me that I was right. The old master

feeling has become stronger, but more individual and expressive his own personality; his control over his models is greater; incongruous combinations somewhat less frequent, and I feel to-day entitled to assert that in the combination of the sense of beauty, and line, and classical, and romantic composition, excelled by no other photographer in America. It is also safe to say that in the handling of drapery he can hold his own with the painters. This is enough said when I add that he is but an infancy—photographically. It may be interesting to note that he also paints, and it is not impossible that his understanding of painting may have helped in giving him his broad view of art. That is right in my deduction that his pictures are apperceptive productions and not merely perceptive impressions is, to an extent, proved by the fact that everyone who sees them instinctively criticises them as if they were black and white paintings and not black and white photographs. In this respect his work is like Mrs. Barton's. In fact, it is work like theirs and the Viennese workers, and Clara H. White's and a few of the other secessionists that make me believe the lens may possibly some day be used not merely as a means of art expression—that is an old story—but as a means of Fine Art expression. By this I mean that it has been accepted by all intelligent critics twenty years and more ago that photographs could be artistic, tasteful, beautiful, etc., and so, too, may an old chair, but this in no sense implies that such a beautiful chair photograph can at all be ranked as a Fine Art production; it is infinitely more than that to validate such a claim. The point often advanced by photo-enthusiasts that because a photograph can be recognised as being made by so and so, and because it is possible of his personality it must also in consequence be a work of Fine Art is probably the most fallacious cant that ever was uttered. I can recognise a Columbia bicycle from an English Humber at a glance, and that because they both bear the impress of the personality of their creators; I can recognise the paintings of Y as far as I can tell, because they are so strongly expressive of his personality, but it so happens that the personality of the creators of the Columbia and Humber bicycles was scientific; and the personality of Y, although strong, is essentially inartistic, and very naturally, therefore, most of the productions can possibly fall, not merely within the realm of the Fine Arts, but even of the arts "ordinaire." To be personally expressive does not mean to be artistic; hoodlums are also personally expressive and capable of expressing their idiosyncracies, clumsiness and dilettantisms; and this they do just as much in the way they throw a suit of clothes or putt a golf ball as in the way they handle a brush.

There is another feature in Herzog's work which should be encouraging to all workers with the lens. His prints grow on you; you often see them, and this is diametrically opposed to the photographs usually do as every observant critic has remarked. It indicates clearly to me that the lens in the right hands is as capable of registering an apperception as a perception, a thoughtful revelation of nature as a superficial glance.

On reading what I have written I fear that because I have criticised Herzog with Mrs. Barton and White and the Viennese workers it may be understood that I mean he is as capable an artist as they. This is far from my meaning. I have merely classed him with them because they all have the same order of mind; Herzog's work is yet exceedingly incomplete, but as such possibly better illustrates of art principles, for in thoroughly expressed work like that of Mrs. Barton, or White, or Mrs. Käsebiel, or Day, the machinery of construction is not so easily seen and understood. Still, Herzog passed his first student days and entered the field of broad apperceptive work, and for that deserves consideration.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—Mr. A. H. Downey has been appointed hon. secretary in succession to Mr. H. C. Beckett. Communications for the society should now be addressed to Mr. Downey, at The Laurels, Slaitwaite Road, Lewisham, S.E.

**VOIGTLANDER LENSES** have just obtained another award. At this year's Photographic Exhibition, held under the auspices of the German Photographic Union, the lenses of the celebrated Brunswick firm have again been awarded the first prize gold medal for perfection in material and workmanship.

**WE** hear that Messrs. Holmes Bros. have removed to 41, Oxford Street, Manchester, and that this old and well-known firm intend to devote their attention to the supply of requisites used by the professional photographer.

**MR. HARRY WADE**, of 29, Blackfriars Street, Manchester, intimates to us that he will be pleased to arrange with the secretaries of societies in the Midlands and the North to give his lecture "Recent Advancements of Photography," on behalf of Messrs. Wellington and Ward.

## Exhibitions.

### BRISTOL CAMERA CLUB.

The exhibition opened on Saturday last at the splendid suite of rooms of the Bristol Fine Arts Academy was inaugurated by the Bristol Photographic Club. Being quite a young society, their enterprise in deciding to hold an exhibition on so large a scale is most praiseworthy, and shows an energy and enthusiasm among the members that other societies throughout the country might well emulate. All have worked hard to make it a success, as it most assuredly is artistically, and, it is to be hoped, financially.

For the hanging, Mr. Percy Lewis has been largely responsible, and he shows five of his well-known Venetian scenes in the invitation section. "Venice, the City of Dreams," a characteristically delicate bromide print, full of "atmosphere." "A Misty Morning, Venice," is also a bromide, while the remaining three are in carbon, and well known. Mr. Abel Lewis (Mr. Percy Lewis's father) shows three fine carbons, the one entitled "Portrait," the head of a boy, being specially noteworthy.

The works hung in the principal saloon are exclusively devoted to the competitive sections, and it may at once be said that the standard of excellence shown makes the exhibition compare favourably with the very best of provincial shows. A detailed description of the accepted works would be impossible in the space at our disposal, but special mention may be made of "Mouth Drinks Adventure, Poverty Forgot," by H. Holt, a small picture in dark green, of a young Dutch girl reading. Beautiful in composition, this work suffers only from being too small. "All the Sea of Harvest Rolling Round," by H. Youel Summons, a delightful landscape of lovely quality. "A Corner of the Cloister," by W. A. Clarke. "Hope Deferred," by J. S. Guthrie, a well-posed and well-lit head of a young girl. "At Piéne de Cadore," by R. A. and W. A. Duncan, an excellent Swiss landscape, and good in composition. "The Harbour," by H. Bedell, with its large white vessel and shimmering water. "Winter," by H. H. Blades. Though this has received the highest award in its class, the composition is not quite good, being too one-sided. "Winter's Eve," by J. E. Atham. "Snowdon Veiled in Grey Vapour," by Graystone Bird. "A Relic of the Past," by D. G. Kimber. "The Picture Book," by George Easonsmith. "A Venetian Pearl," by Arthur Marshall; a fine piece of work, which, however, suffers from a want of contrast, though so delicate, some darker point of interest is necessary to relieve the feeling of general flatness. The same remark applies to this worker's "Venice." "The Golden Light of the Early Dawn," by F. J. Phillips.

Passing into the next room we find ourselves among the works of the Champion Class, the principal award being given to "October," by F. Judge, a print of a curious and rather bilious colour by daylight; still, it is a really fine work, and quite upholds the judges' opinion of it. "Gloria," a fine cloud effect, by Graystone Bird. "Aisles of Pleasant Shade," by C. R. Armstrong, a South African exhibitor. "Japanese Anemones," by Dan Dunlop; an exceedingly beautiful and artistic flower study. On screens in the same room is a large collection of prints by R. Dührkoop, some of which are very beautiful, but some very mediocre work, from an artistic point of view, is also shown. Another room is devoted to the loan collection, but as much of the work shown has been seen and reviewed over and over again, it will suffice to mention that the following artists have contributed:—W. Clayden, F. H. Evans, W. C. Crooke, Chas. Job, A. L. Coburn, Abel Lewis, Percy Lewis, F. J. Mortimer, W. A. Duncan, Alex. Keighley, Horsley Hinton, W. Thomas, W. Bennington, and a small collection by the Marshalls Club. The lantern slide exhibits are perhaps not quite up to the level of the prints; still, some excellent work is shown, notably those by F. Little.

Stalls for the exhibition of apparatus, etc., have been taken by a number of well-known firms.

The judges were Messrs. Reginald Craigie, F. H. Evans, and Frank M. Sutcliffe.

The following is the list of awards in the open classes:—  
Champion Class.—F. Judge, "October" subject, silver gilt

plaque; S. G. Kimber, "A November Morning," silver plaque; S. G. Kimber, "A Sunlit Clerestory," bronze plaque; F. Little, "End of the Day, Bristol Harbour," bronze plaque.

Landscape, Seascape, and River Scenery.—W. H. Blades, "Winter," silver; B. H. Bedell, "In Harbour," bronze; F. J. Phillips, "In Golden Light of Early Dawn," bronze; F. J. Tucker, "Whitby," bronze.

Portraiture and Figure Studies.—D. Dunlop, "A Fair Norwegian," silver; H. Holt, "Grim and Stern," bronze; A. Elliott, decorative panel, bronze.

Architecture, Interior and Exterior.—A. Marshall, "A Venetian Pearl," silver; S. G. Kimber, "A Relic of the Past," bronze.

Fruit, Flowers, and Still Life.—D. Dunlop, "Japanese Anemones," silver; A. W. Walburn, "Wild Apples," bronze; H. R. Harford, "Gooseberries," certificate.

Any Other Subject.—F. Marsh, "Nightwork in a Paper Mill," silver; A. Leader, "The Speech of the Trees," certificate.

Lantern Slides.—F. Logan, Leicester, "Street Scene," silver; W. Marshall, Grangemouth, "Evening," bronze.

General, any subject (open to residents within 25 miles' radius).—F. Little, "The End of the Day," silver; H. O. Isaac, "The Evening Train," silver; D. L. Fullerton, "With Ships the Sea was Sprinkled," bronze; A. E. Burnett, "Chantry, Wells," bronze; H. C. Leat, "Mowwinston Church, Cornwall," certificate.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received from September 24 to September 29:—

**FOCAL-PLANE SHUTTERS.**—No. 21,132. Improvements in self-capping focal-plane shutters. William Watson, 45, Chestnut Walk, Walthamstow, London, E.

**FILMS.**—No. 21,189. Improvements in photographic films. John Edward Thornton, Altrincham, Cheshire.

**MOUNTING PHOTOGRAPHS.**—No. 21,229. Improvements in mounting photographs. Peter Peters, trading as the Pictorial Photo. Publishing Co., 8, Quality Court, Chancery Lane, London, E.C.

**ENLARGING APPARATUS.**—No. 21,312. Improved repeating back for photographic enlargers. Albert Edward Terry, and Houghtons Ltd., 88, High Holborn, London, W.C.

**STEREOSCOPIC APPARATUS.**—No. 21,462. Improvements in stereoscopic telemeters. Christian von Hofe, Jena, Germany.

**TONING SILVER PICTURES.**—No. 21,584. Improved process for converting silver pictures into pictures in higher oxides of manganese and for toning silver pictures. Neue Photographische Aktien Gesellschaft, Birkbeck Bank Chambers, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**COLOURED PRINTS.**—No. 22,580, 1905. The invention consists in the production of coloured tones on photographic prints by a series of chemical baths, which tones can be altered more or less by heat. The process is thus described by the inventor for P.O.P. though it is not limited to prints on this paper:—

The P.O.P. is printed to about half the usual depth, and is immersed in a bath of:—

No. 1. Pyrogallie acid..... 1 grain.

Water ..... 3 ozs.

and developed until the required depth of shadow is obtained, after which it is placed in a fixing bath of

No. 2. Hyposulphite of soda..... 2 ozs.

Water ..... 18 ozs.

for about ten minutes, until the image is fixed. It is then washed in water for one hour.



The print is now ready for the colouring process, which is best taken in the following order.

The print is first immersed in a bath of the following:—

- No. 3. Saturated solution sulphocyanide of ammonia..... 15 drops.  
Saturated solution acetate of lead 1 to 2 drops.  
Saturated solution bichromate of potassium ..... 2 drops.  
Chloride of gold solution..... 1 drachm.  
Water ..... 3 ozs.

It is allowed to remain in this bath, until the image assumes blue shadows with pink half tones, and at this stage, if the print is taken out and dried, the colours will be found to be susceptible to change on the application of heat. If desired, however, the pink half tones may be further changed to heliotrope by placing the print in a bath of

- No. 4. Pyrogallie acid..... 1 grain.  
Water ..... 3 ozs.

The high-lights of the picture may now be cleared from the possible staining action of the previous bath, by immersing the print, after washing, in a bath of

- No. 5. Saturated solution ferricyanide of potassium ..... 4 drops.  
Water ..... 3 ozs.

It is then washed and dried.

The colours of the print are now sensitive to heat, which may be applied in any suitable manner, say by means of a hot iron or similar instrument held close over the sensitised surface of the print. The blue colours may, in this manner, be changed to purple, red, brown or crimson, according to the intensity of the heat applied. The heliotrope shades, produced by the No. 4 bath, may be changed in a similar manner by heat to varying shades of red.

Yellow tints may now be imparted to the print by inserting it for about two minutes in a bath of

- No. 6. Saturated solution of any soluble lead salt ..... 1 drachm.  
Water ..... 4 ozs.

after which it is passed through the following

- No. 7. Saturated solution bichromate of potassium ..... 10 drops.  
Water ..... 4 ozs.

The parts already acted upon by heat are not changed to a yellow colour by these baths, but a deposit is formed thereon which must be afterwards washed off. When the print is dry, the yellow shadows may be changed by means of heat to a deeper yellow or orange colour.

If the acetate of lead is omitted from the No. 3 bath, and applied locally on the print, and the bichromate of potassium made stronger in the No. 3 bath, the toned print, after passing through the wall, will have blue shadows with local yellow colourings.

The blue colourings on the print obtained in the way described may be intensified by a bath of

- No. 8. Saturated solution ferricyanide of potassium ..... 4 drops.  
Saturated solution ferricyanide of iron ..... 4 drops.  
Water ..... 4 ozs.

The intensified blues so produced are capable of being changed to green by the application of heat as before described.

Any parts of the photograph, in addition to those acted upon by heat, that may not be required to take a yellow colouring when passing through the baths Nos. 6 and 7 mentioned above, may be treated with a solution of sulphite of soda after the print has been passed through the No. 6 and before it is immersed in the No. 7 bath. Edward John Browne, 2, Chiswick Lane, Edge Lane, Liverpool.

**DARK SLIDES.**—No. 18,413, 1905. The invention consists broadly of a plate or firm carrier carrying the plate or film and provided with a retaining strip over which carrier a light-tight casing of cardboard, also serving as exposing slide, is passed in such a manner as to be held under the sides of the retaining strip which

are bent up on both sides, thereby providing a reliable light-tight slide. The casing serving also as exposing slide is provided with a metal rim to increase its stability, this edge likewise serving for uniting the two slide surfaces. The exposure takes place in a rear, light-tight adapter in which the retaining strip the plate or film carrier is suitably supported so as to prevent from being withdrawn inopportunely. Neue Photographische Gesellschaft, 27, Siemenstrasse, Berlin-Steglitz.

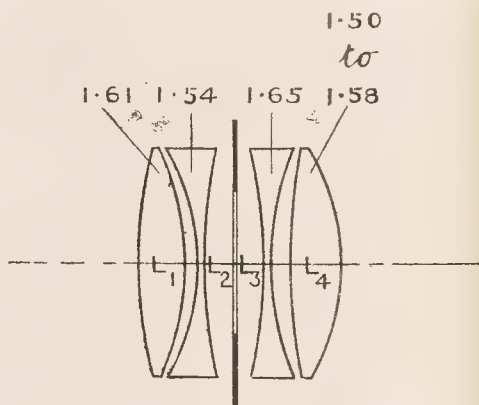
**"COOKE" LENSES.**—No. 24,391, 1905. The claim is for a quadruplet lens consisting of two exterior simple bi-convex positive lenses enclosing between them two simple bi-concave negative lenses the refractive indices being so arranged that while the glass of one negative lens has a substantially lower refractive index than the glass used for the positive lens adjacent to it, the glass of the other negative lens has a substantially higher refractive index than the glass used for the positive lens adjacent to it, while the sum of the powers of the two negative lenses is about 93 per cent. of the sum of the powers of the two positive lenses, a condition necessary to the attainment of a flat image substantially free from astigmatism.

In the combination made on these lines:—

1. The Petzval condition is to be approximately fulfilled.
2. The positive lens to have the highest refractive index in one half of the lens, and the negative lens to have the highest refractive index in the other half of the lens.
3. All lenses to be double convex or double concave.
4. It is desirable, but not essential, that three lenses at the very least shall have high refractive indices.

Owing to the fact that the four lenses are all of different glass the designing of the combination is found a much more difficult thing than the designing of a symmetrical combination in which one-half is simply a reversed repetition of the other, but the following combination yields a photographic lens of an aperture equal to F. 6.7, and covering a plate whose longer side is equal to the equivalent focal length.

The Figure 1 of the Provisional Specification serves perfectly well as an illustration of the finished lens, the radii of curvature given below referring respectively to the surfaces as counted



from left to right, the four lenses also being counted left to right as  $L_1$ ,  $L_2$ ,  $L_3$  and  $L_4$ ; also the three axial air-spaces  $A_1$ ,  $A_2$  and  $A_3$  being enumerated from left to right. The equivalent focal length is supposed to be unity while the curves, thicknesses, air-spaces and diameters for any desired lens of equivalent focal length =  $N$  may be had by multiplying the figures below by  $N$ .

Glasses.

Refractive Indices for Dray.

- $L_1 \mu_D = 1.6058$   
 $L_2 \mu_D = 1.6244$   
 $L_3 \mu_D = 1.5420$   
 $L_4 \mu_D = 1.5902$

Reciprocals of Dispersive Powers for spectrum interval C to F.

- $\gamma = 43.8$   
 $\gamma = 39.7$   
 $\gamma = 46.8$   
 $\gamma = 61.2$

Back focal length measured from vertex of 8th surface = .786

Aperture of stop for  $\frac{F}{8}$  = .1177

Curves, &c.

$L_1$  {  $r_1 = +.2139$  Axial thickness. = .0246  
       {  $r_2 = +.7070$  Finished diameter. = .1600

Air Space  $A_1 = .0107$

$L_2$  {  $r_3 = -.3208$  Axial thickness. = .0032  
       {  $r_4 = -.3278$  Finished diameter. = .1500

Air Space  $A_2 = \text{about } .0267$

$L_3$  {  $r_5 = -.5882$  Axial thickness. = .0032  
       {  $r_6 = -.3417$  Finished diameter = .1500

Air Space  $A_3 = .0086$

$L_4$  {  $r_7 = +.5882$  Axial thickness. = .0246  
       {  $r_8 = +.2166$  Finished diameter = .1600

Adjustments.

As the glasses vary somewhat in different meltings, rendering slight departures from the above figures often desirable, the effect of varying some of the above data should be known.

In the first place each half of the lens should be fixed together in a self-contained mount and may be tried telescopically on a distant point of light with the negative or dispersive lens facing the latter, and using an eye-piece free from spherical aberration. Then the separation between the two lenses should be adjusted until the image of the distant point of light is about free from spherical aberration. Next, after screwing both halves into the mount the lens should be tried as a whole upon the same point of light in the same manner, but with  $L_1$  facing the latter. Then the separation between the two halves should be adjusted until the performance of the lens upon pencils passing obliquely through it, say at an angle of 20 degs., show a slight amount of over-corrected astigmatism, a condition which accompanies a flat image. Also if the spherical aberration of the axial image is not quite satisfactory, the two positive lenses  $L_1$  and  $L_4$  may be either screwed inwards towards the centre stop or outwards, the former tending to over-corrected and the latter to under-corrected spherical aberration. Then the lens may be tried in the camera with  $L_1$  outwards, and the two halves further adjusted until the image is got satisfactorily flat over a length of plate at least equal to the equivalent focal length. Screwing the halves further apart tends to an over-corrected image convex towards the lens, and screwing them nearer together to an under-corrected image concave towards the lens.

Screwing both  $L_1$  and  $L_4$  outwards towards the distant object while keeping the axial spherical aberration constant, tends to produce outward coma in the oblique images, and screwing them both inwards towards the screen tends to produce inward coma. Each half of the lens may be used by itself with the negative lens towards the distant object, but as each half is not in itself either axially or obliquely achromatic, and also yields a lot of outward coma at the foci of oblique pencils, therefore it is necessary to use a small stop in order to obtain anything like good definition. The equivalent focal length of the front half ( $L_2 + L_3$ ) is about 2.5, and that of the back half ( $L_3 + L_4$ ) about 1.6. Harold Dennis Taylor, Stancliffe, Mount Villas, York.

**TRIPDS.**—No. 20,931, 1905. Ball-shaped projections, securely held by suitable means, are placed on the underside of the tripod head. These projections are placed under head, and the legs of the stand, links constructed with recesses of concave form at their upper ends so as to enable them to tightly clasp the ball-shaped projections. The bottom ends of the links are secured to the legs of the stand by bolts passing through the links and upper ends of the legs of the stand, and nuts, and the links are tightened so that the concave recesses in the upper ends of the links clasp the ball-shaped projections on the underside of the

tripod head, by means of a bolt or bolts passing through the links, and provided with wing or other nuts. William Butler, 20, Crosby Road, Birkdale, Southport.

The following complete specification is open to public inspection before acceptance under the Patents Act, 1901:—

**COLOUR PHOTOGRAPHY.**—No. 20,834. Manufacture of composite screens and plates for heliochromic processes. Berthon and Gams.

## New Apparatus, &c.

The "Reynaud" Quick Bromide Printer (Incandescent Gas Pattern), sold by Marion and Co., 22-23, Soho Square, London, W.

The new form of the printer is identical in its essential details with the first model (for electric light), noticed in our pages some months ago. In the gas pattern fitting, the switch on and off of the light is made by the very simple lever movement visible in the

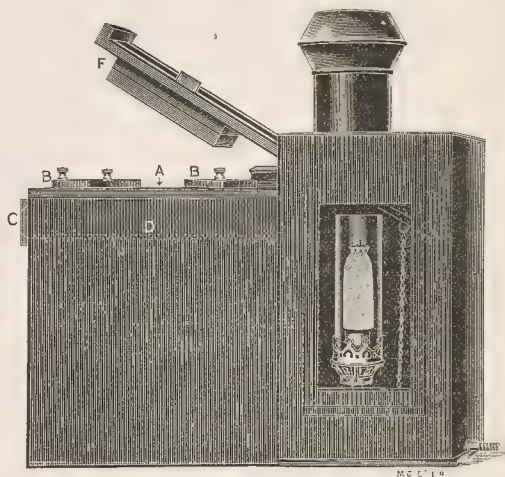


figure. The average exposure for bromide cards is about one second, the price of the printer in this incandescent gas form being 40s., with three masks and pressure boards, in five sizes, from postcard to half-plate, burner, chimney, and mantle.

Since the appearance of our review, a month or two ago, an addition to the Welborne-Piper clock has been made, which distinctly enhances its practical utility. With the extra attachment the clock can (1) terminate a prolonged time exposure in the absence of the operator; (2) give an instantaneous exposure at any pre-arranged time, also in the absence of the operator. This addition can be supplied to any existing clocks at a cost of 12s., or the clock is supplied complete with the attachment for the price of £23 2s. Messrs. W. Butcher and Sons, the agents for the clock, will adapt existing instruments.

**PARAFFIN Incandescent Light.**—A new firm which should be able to do business with photographers in country places is the Invertrol Gas Light Company, Burton-on-Trent, the proprietors of a system of using ordinary paraffin for incandescent (mantle) burners of the inverted type. The company have a series of fittings for sale, particulars of which and of the cost of the light for household and business purposes are obtainable in a booklet just issued.



## New Materials.

Filter-Yellow-K Screens. Made by Wratten and Wainwright, Ltd., Croydon.

The commercial introduction of yellow screens prepared with the new dye filter-yellow-K, the ultra-violet absorptive powers of which are recorded by Dr. Novak in our issue for August '14, and by Messrs. Mees and Wratten in that of September 28, will place in the hands of the operator, both for pictorial and scientific work, a much more useful screen than we have hitherto been able to obtain.

Messrs. Wratten and Wainwright prepare these filters in three series, K I., K II., and K III., the first being suitable for landscape and hand camera work; the second gives full correction, but passing a slight preponderance of blue-green, that particular colour which is so difficult to reproduce correctly, whether in the form of foliage or pigment; the third is specially recommended for picture copying. The increase of exposures with Messrs. Wratten's plates is shown in the following table:—

Used with the	Allochrome	Verichrome	Pinachrome	Pinacyanol	Panchromatic.
Series K I.	... 3	... 1½	... 1½	... 1½	... 1½
Series K II.	... 8	... 5	... 5	... 5	... 3
Series K III.	... —	... 7	... 7	... 7	... 5

Testing these filters with the panchromatic plate on a colour chart, we find the action to be extremely satisfactory, and series K III. gives a perfect rendering of the luminosities of the colours, though probably in many cases series K II. will be preferred, because there is a little more colour contrast—that is to say, with the former an emerald green and vermilion of equal luminosity were rendered of equal tone value, whilst with the latter series there was a distinct difference between the red and the green. The great advantage of the improved rendering with such short exposures is very marked, and to obtain the same correction as was given with No. 1 we had to give four times the exposure with a special tartrazine filter.

The filters may be obtained in gelatine strip form at 4d. per square inch, or as cemented filters in 1½ inch circles, or squares at 4s. 3d., 2 inch at 5s. 6d., 3 inch at 9s. 3d., etc.

Mr. H. W. Green, Crown Photo Manufactory, Rotherham, sends us several neat examples of Christmas mounts issued by him in large variety at moderate prices. His six-page list prices and illustrates the cards, which bear appropriate mottoes.

THE Vanguard Manufacturing Company, Maidenhead, send us a sample of their sepia toner for bromides and gaslight prints, which they have now issued according to a new formula, insuring much more rapid action. We find the bleaching solution to act very quickly, inasmuch that the whole process is complete in little more than five minutes, including a minute or two's wash before the darkening bath is applied.

### CATALOGUES AND TRADE NOTICES.

In sending his current price list of enlargements, finished in black and white or colour, Mr. Robert J. Westley (13, Amner Road, Battersea, London, S.W.), submits to us a selection of his work, without which any quotation of his prices is meaningless. With the enlarged portraits before us, however, we can commend Mr. Westley's work, and recommend application for his price list. He makes a specialty of worked-up enlargements.

MESSRS. A. W. GAMAGE, LTD., High Holborn, notify us of their autumn sale of cameras and photographic sundries. A list will be sent on application.

The Westminster Photographic Exchange, 119, Victoria Street, Westminster, S.W., have issued a more than usually full list of photographic goods. Its 220 pages includes a great variety of apparatus, for which the firm will accept old goods as part

payment. A separate list of such second-hand goods also reaches us, and contains we observe, a number of bargains.

A SPECIAL list of enlarging requisites has just been issued the "Tella" Camera Company, 110, Shaftesbury Avenue, London W., the 36 pages serving to describe a variety of cameras and illuminants.

Lantern apparatus in great variety is described in a new issued by Messrs. Houghtons, Limited, and obtainable from them at 88 and 89, High Holborn, London, W.C.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Oct.	Name of Society.	Subject
13.....	Aberdeen Photo. Art Club.....	Outing to Cova.
15.....	Oxford Camera Club.....	"Clouds." The President, Sir W. Herschel, Bart.
15.....	Luton Camera Club.....	"Mounting and Framing." Mr. Barford & A. Staddon.
15.....	South London Photo. Society..	"Flower Photography." E. Seymour.
15.....	Lancaster Photo. Society.....	"Platinotype Printing." W. Gunson.
15.....	Southampton Camera Club.....	"Corsica: The Isle of Unillustrated." C. B. How.
15.....	Bowes Pk. and Dis. Ph. Soc. ....	Conversations and Annual Ho.
16.....	Manchester Amat. Photo. Soc.	"Platinotype Printing." T. Lee S.
16.....	Hove Camera Club.....	Informal Evening.
16.....	Darlington Camera Club.....	"Enlargement."
16.....	Hackney Photographic Society ..	"Amateur Photographer Slides. Exhibition Prints Judged and Criticised."
16.....	Kelghley and Dis. Photo. Assn.	"Rambles about Yorkshire." G. Bingley.
17.....	Croydon Camera Club.....	"How to Make Lantern Slides." H. P. C. Harpur.
17.....	Woodford Photo. Society.....	Annual General Meeting for Election of Officers, &c.
18.....	Chelsea and District Photo. Soc.	"A Visit to the English Cathedral." H. W. Bennett, F.R.P.S.
18.....	North London Photo. Society..	"Ilford Gaslight Paper and Postcard." Algernon Brooker.
18.....	London and Prov. Photo. Assn.	"Photographic Notes." T. E. F. water.
18.....	Rugby Photographic Society ..	Royal Photographic Society's Fifth 1906 Prize Slides.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—On Thursday, the 4th, the association held their annual supper at the Hotel Boulogne, Gerrard Street, W. Amongst the members and visitors present were Messrs. F. A. Bridge, H. Stuart, J. Burgess, T. Grant, T. E. Freshwater, A. Haddon, E. R. Human, J. L. Tebb, H. R. Rapson, and others. Mr. A. L. Henderson presided. The toast of "The King," proposed by the Chairman, was received with musical honours. Mr. Freshwater proposed "The L. and P. and Mr. Rapson replied, urging members to attend all meetings. The toast of "The Visitors" was given by Mr. Ernest Human, coupled with it the name of Mr. Stuart, the President of the North Middlesex Society. "The Press" was proposed from the chair and "The Chairman" by Mr. Bridge, who said that he had been a friend of Mr. Henderson for 35 years. Mr. Henderson suitably replied and gave a short account of the birth of the Association of which he is the father and founder. Mr. T. K. Grant gave a statement of the evil times Mr. Sandell, of plate and film fame, had fallen upon, saying that it was exceedingly doubtful whether he would ever leave his bed, where he had lain for the last three months, and in an almost destitute condition. The sum of £5 2s. was subscribed for the room, and Mr. Grant said he did not know how to thank the company on Mr. Sandell's behalf. His feelings were too deep for mere words.

SOUTHAMPTON CAMERA CLUB.—On the 8th inst. the members of the above met for a slide criticism meeting. Two slides were projected on the screen, one the work of Rev. H. W. Dick,

other by the hon. sec., Mr. S. G. Kimber, and the members present were invited to make criticism thereon. Fourteen papers were handed in and a vote taken as to their merit, the criticisms of Messrs. W. R. Kay and A. E. Henley being adjudged equal in merit. The evening proved to be a most profitable and interesting one, and further efforts in this direction are projected.

## Commercial & Legal Intelligence.

**The Ownership of a Negative.**—Charles F. Hands, a photographer, of Clapham Road, was summoned last week for detaining four negatives of the South African football team, the complainant being Thomas Hanscomb, who alleged that the negatives were his property. The complainant, who is the manager of the Manchester Hotel, Aldersgate Street, explained that he obtained permission to take a photograph of the South African football team, on the strict understanding that it was not to be published in any newspaper, and was only to be used for charitable purposes. Two of the negatives were taken by himself and two by the defendant, but all the negatives were taken on his plates and by his camera. The defendant asked to be allowed to take away two of the plates to develop them. Subsequently the defendant told him that these plates had been spoilt, and upon being shown the other two said they wanted nothing. He allowed the defendant to have them for that purpose, and the defendant now refused to return them. He had been offered £10 for the two negatives. The defendant declared that three of the negatives were taken by himself, but the complainant denied that statement. Addressing the magistrate, the defendant asserted that it was arranged that the complainant and himself should make the group between them, the distinct understanding being that he was to have the negatives. Mr. Curtis-Bennett ordered the defendant to deliver the two negatives to the complainant forthwith, to pay £10, their value, together with 21s. costs.

**FLASHLIGHT Photograph.**—In the Clerkenwell County Court, last week, Messrs. Houghtons, Ltd., sued Bernard Cooper, Ltd., 31, York Place, Baker Street, for £12 10s. in respect of taking a flashlight photograph, including hire of camera and the operator's time. Frank Marshall, manager of plaintiff's photographic department, said that in accordance with an order received they sent an operator to the Mulhorn Restaurant to take a flashlight photograph of a dinner party. The work was done, but Mr. Cooper declined to pay. Mr. Carpenter (for defendant), producing a copy of the photograph, asked how the several white lines across it were accounted for. Witness: It appears to me that they have been what is called "faked." But I would like to see the negative, not a proof. From the conversation which the operator had with Mr. Cooper I took it that the negative was satisfactory. John Francis Chaplin, the operator who took the photograph, said he developed it in Mr. Cooper's dark room. As to the white lines he could only account for them by the unsatisfactory condition of Mr. Cooper's dishes and the sink. It might have been that some chemicals had fallen upon the negative. Replying to Mr. Carpenter, witness said it was impossible to get all the guests in the photograph owing to the angle at which he had to take it. Mr. Carpenter: But it is a usual thing for all the guests to be included in a photograph? Witness: Yes, but this was a Scotchmen's dinner, and the tables had been arranged to allow a space for them to march up and down. (Laughter.) The corner of the first table was three feet away, and the extreme distance was 150 feet. The lens on the camera will only take a certain amount. I said before taking the photograph that it would be impossible to get them all in. Don't you think these lines might be due to some defect in your lens?—No. It is out of the question altogether. For the defence Mr. Bernard Cooper said he thought the lines might have been caused by the electric light getting into the lens. He complained that the majority of the photograph was out of focus. The judge (examining the proof) looks as if some of the guests have moved. Witness added in his opinion, as the tables were arranged, it was possible to take a full photograph in the same way as it was possible to take a photograph of a whole room. He thought it would have been better if a number of flashlights had been placed round the room. As

the proof was not satisfactory, he told the operator that he himself had better go round to the guests and see if he could get any orders for the photograph. The operator declined to go, so he (witness) afterwards sent someone round. The Judge said he could not say that the photograph was a good one, but the cause of the defect appeared to be somewhat doubtful. It appeared to him that the lines of light were too regular to be caused by chemicals, and he should prefer to think that they were caused by light getting in somehow. Mr. Cooper, however, sent a man round to solicit subscriptions for the photograph, and in so doing he took dominion over it. Therefore defendants were liable to pay, and the verdict must be in plaintiff's favour for the amount claimed, with costs.

## News and Notes.

**LECTURES** at the R.P.S. Exhibition New Gallery.—The following are the next three fixtures: Saturday, October 13—"Corsica: the Isle of Unrest," by Chas. B. Howdill, A.R.I.B.A.; Monday, October 15—"By-paths in India" (unfrequented places in the Madras Presidency, etc.; buildings, people, and scenery), by F. Dunsterville, F.R.P.S.; Thursday, October 18—"All at Sea with a Hand Camera," by F. J. Mortimer, F.R.P.S.

**THE Southampton Exhibition.**—This exhibition, which is the last of the "Southern" shows, is to be held from December 11 to 15. The judges are Reginald Craigie and H. Snowden Ward, F.R.P.S., in the pictorial sections, and F. Martin Duncan, F.R.P.S., in the technical section. Bronze salvers are offered as awards, and under the new arrangements those exhibitors desiring also to exhibit at Southsea and Hove Exhibitions are only required to send one entry form and one payment of fees, the societies paying all carriage expenses between the three exhibitions, and offering a special salver as an award for the best collective exhibits entered. Entry forms can be obtained from the Hon. Sec., S. G. Kimber, Oakdene, Highfield, Southampton.

**NOVEL Cinematograph Show.**—An American novelty for the amusement of the public has started its career at 165, Oxford Street. It is a new method of showing biograph pictures of interesting places. The spectators take their seats in an exact replica of a Pullman car, and through the windows they will view the ascent of a Swiss mountain, or enjoy a visit to any other beauty spot. Realism is to be a feature of "Hale's World Tours," for the Pullman will appear to move. It will turn corners, and its wheels will revolve, while the passengers, free from the dangers of a collision or a fall over a precipice, will admire the scenery through which they seem to be passing.

**THE Photographic and Engraving School** at the Regent Street Polytechnic opens its session on October 16 at 8 o'clock by a lecture by the principal, Mr. Howard Farmer, on "The True Action of the Levy Screen," followed by a display of animated photographs. Mr. Farmer is always original in his treatment of a subject, and if anyone can make the theory of half-tone reproduction interesting he is the man. The full prospectus of the "Poly." classes should be obtained by all those about to take up a business career in photography or thinking of improving themselves in special branches. The classes provide instruction in every photographic process and in photo-engraving and three-colour. The specimen-book of students' work in the printing department of the "Poly." contains some excellent examples of three-colour half-tone by those studying under Mr. Farmer.

A **LARGE** book treating on photography in the popular way will shortly be published by Messrs. Methuen. The title is "The Complete Photographer," and the author, Mr. R. Child Bayley.

An exhibition by a small group of artists is to be seen at present at the Ryder Gallery, 47, Albemarle Street. It consists chiefly of small canvases, and is throughout of sufficiently sound quality to deserve a more than ordinary degree of consideration. The most memorable contributions are the delicate twilight studies. "Moon-rise.—Picardy," "Sand-dunes at Cimiez," and the brilliant little landscape, "The Mill Stream, Montreuil," by Mr. W. Llewellyn.



## Correspondence.

\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE OZOBROME PROCESS.

To the Editors.

Gentlemen,—I was pleased to see the very full and excellent report of the Rev. H. W. Dick's lecture to us on "Ozobrome." There is a little error, which is perhaps a misprint, on page 786, middle of second column. You say: "In the case of subjects with too much contrast (in the bromide print) a little acid added to the pigmenting solution would remedy matters." This should be "a little alum." Additional acid, I find, has the effect of causing the lighter gradations to wash away in development.

With regard to the suggestion to add ammonia to the solution to increase the contrast, I saw Mr. Manly since the lecture, and he tells me he considers it is a mistake to use ammonia for this purpose. He recommends citrate of potash. I suppose the ammonia would have the effect of converting the ferricyanide of potash into ferrocyanide.

I see you suggest that the bromide print and pigment plaster, after being squeegeed together, should be put under pressure, but Mr. Manly, in the book of instructions, says they should be placed upon blotting paper, or hung up until ready for development. I think this is a better plan, as there is no necessity for pressure at this stage, and I suppose that if the adhering papers are put separately between blotting paper under pressure they would dry too much, and the pigmenting solution would not act so thoroughly as if they were left damp. In the transfer process, however, after squeegeeing to the transfer paper, some light pressure is advisable to ensure adhesion.—Yours sincerely,

S. C. PUDDY.

Hon. Sec. North Middlesex Photographic Society,  
Arrington House, Crouch Hill, N.

### AUTOTYPE THREE-COLOUR PRINTS.

To the Editors.

Gentlemen,—We have read with much pleasure the appreciative notice of our exhibit at the New Gallery appearing in your current number, but would call your attention to one little point, which, unless elucidated, may lead to misunderstanding. You state: "Two specimens are shown of the Autotype three-colour printing on the trichrome tissues." As a matter of fact, there is only one; the second coloured picture being the original painting, from which our trichrome copy has been produced.

If your astute reviewer has been deceived into thinking both coloured pictures are trichrome copies, we feel immensely flattered. We believe this is the first time that an original and copy in trichrome tissues have been exhibited together, and we purposely did so on this occasion to demonstrate how closely our process can imitate the original.—Yours faithfully,

C. SAWYER.

The Autotype Company.

[We must express our regret that we overlooked the commendable step taken by the Autotype Company in exhibiting original and copy side by side. In the absence of a catalogue at the time of examining the prints, the close similarity certainly led us to suppose that both were three-colour prints. The Company has at once our regrets and congratulations.—Eds. B.J.P.]

### MR. J. T. SANDELL—AN APPEAL.

To the Editors.

Gentlemen,—I feel sure that many of your readers will be sorry to hear that Mr. J. T. Sandell—the inventor of the "Sandell" plate and cristoid film—is stricken down with a serious illness, aneurism of the aorta, and in need of help. The doctor says that if he does get about again he will never be able to do any work.

His voice is almost gone through paralysis of the vocal chords, he is now lying in a perfectly helpless condition, necessitating constant nursing and attention.

He has a young and devoted family, but only one, the eldest is able to give any pecuniary help, and that (as he is only starting in life) is not sufficient to provide more than the command necessities.

I have known Mr. Sandell many years, and can testify to readiness to help anyone in difficulties, photographic or other, and he never thought it a trouble to travel any distance to a photographic society to give a lecture or demonstration.

If you would be good enough to make this known, through columns of your paper, I am certain that many brother inventors, photographers, and others, who have known Mr. Sandell, will, in his hour of need, to help one who has always been ready to help others.—Yours truly,

J. B. B. WELLINGTON.

The Leys, Elstree, Herts,  
October 4th, 1906.

[We are glad to see that the London and Provincial Photographic Association at its supper subscribed £5 2s. in response to an appeal by Mr. T. K. Grant. We have received one or two donations, and we will acknowledge with others next week.—Eds. B.J.P.]

### THE COST OF PRODUCTION.

To the Editors.

Gentlemen,—Reading through your issue of the 5th inst., paragraphs appeal to me as worthy of consideration, the one relating to the relative cost of "Ozobrome" processes, and the one among "Answers to Correspondents," "Starting in Business."

It seems to me that many amateur photographers have been induced to become professionals through a false idea of the cost of photographic production, and upon entering business they have found their charges upon these notions, and in their turn, more serious and established photographers have been compelled to reduce their prices similarly, so that at the present time the photographic student that pay well are few, and those that have difficulty in making a living are many.

The masterly article given by F. Dundas Todd to the National Convention in the United States, and recently reported in columns, should prove of immense value to many professions providing them with a reasonably accurate guide to what constitutes "cost," and of the little shares of big expenses that have to be borne by the orders that go through, and the proportion of "indirect expenses" will in most studios be found to run up to 50 per cent.

When studied in this connection, the cost of a 15 x 12 negative will be:—

	s.	d.
Material for transparency.....	2	½
Time .....	3	
Material for enlarged negative.....	1	6
Time .....	8	

Proportion of waste (15 per cent.).....	2	7½
Indirect expenses (50 per cent.) .....	5	½
	1	4

Total cost .....

And the bromide enlargement

Material .....	4	4
Time .....	6	½
	4	

Proportion of waste (15 per cent.).....	10	½
Indirect expense (50 per cent.).....	1	½
	5	½
	1	5½

In the above estimate the cost of material in each case is reckoned as the small discounts given to the profession are insufficient to cover the cost of chemicals.

Waste.—I think that 15 per cent. for waste is about an average for an all-round studio which is called upon to do all descriptions of work; but, of course, the waste varies considerably in different studios.

departments. In developing and simple printing about 1 per cent., up to printing portrait enlargements in carbon by double transfer, where this is only occasional work, 50 per cent.

Indirect expenses at 50 per cent. do not seem excessive after considering the article previously referred to, and it will be noticed that the relative cost of the two processes has not greatly changed.

These reflections are intended as food for the professional photographer, as well as those who, like "Starting in Business," have a wrong idea of the photographic profession. Probably many who read this have much more accurate estimates of cost than I have given, and I am sure they will see that it is to the general advantage to disclose them.—Yours faithfully,  
SYDNEY ALF PITCHER.  
College Court, Gloucester, October 6, 1906.

## DIRECT-COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—In connection with your article on Baron von Hübl's experience of our "Uto" paper in this week's JOURNAL, it may interest your readers to know that we have been successful in simplifying the manipulations in connection with our "Uto" paper so that it is now no longer necessary to sensitise the finished paper at all, all the necessary sensitisers being introduced in the paper during manufacture. The colours bleach out very regularly and rapidly; the finished print being sharper and more correct in colour than previously. The importance of this improvement will be recognised immediately by all users of the paper.

It may further interest your readers to hear that we have joined interests with the "Chromophot" group who hold the Szczepanik patents in colour photography, and that all manufactures relating to direct colour photography by the combined Smith-Merckens-Szczepanik patents will be placed upon the market as "Aneto" manufactures.

A direct-colour plate will be placed very shortly on the market, and our "Uto" paper will remain on the market as Aneto Manufacture "Uto" Brand.—Yours faithfully,

DR. J. H. SMITH AND CO.

Zürich, October 6, 1906.

## THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—Mr. Kenneth Mees' letter, I am afraid, does not help me any further with regard to the absence of ultra violet in the acetylene standard as compared to daylight. I quite understand the action of the blue-violet filter in reducing curve B to curve A. This was quite clear from the paper in the "Photographic Journal," March, 1906, but I cannot see how increased depression or absorption of the red end can give us what is non-existent—namely, the ultra-violet. This is my crux.

Possibly my objection is purely theoretical, but it is intensified by careful consideration of the above-mentioned paper, where the "large amount of ultra-violet in daylight" is clearly shown. Again, Eder states that the effect of the ultra-violet is 38 per cent. of the total effect of a daylight exposure ("Beitrag, Theil II," p. 161). Further, the valuable examination and the remarks on the absorption of filter-yellow-K, by Messrs. Mees and Wratten, in your issue of 28th ult., do not tend to make me alter my opinion, for if this dye is such a great improvement the ultra-violet must be of considerable importance.

I am grateful, however, to Mr. Mees for his help, and particularly on the fog question.—Yours faithfully,  
London, E.C.

ARTHUR GASCOIGNE.

## PHOTOGRAPHIC RESEARCH.

To the Editors.

Gentlemen,—The intentions of the Photographic Convention in offering grants of money in aid of photographic research are most admirable, for the want of capital is a very effectual hindrance to research work. The second condition, practically prohibiting the expenditure of the grant on permanent pieces of apparatus, seems, however, to me to afford a very effectual barrier to applications for

the grant, for want of apparatus is just the one thing that most often bars the way in a promising investigation. Surely the Convention do not actually prefer that the money should be expended in impermanent apparatus, or in perishable materials. The acquisition of, say, a spectroscope, or a microscope, or a photometer will not only facilitate the carrying out of some one research but will encourage further work on the same, or, perhaps, quite different lines. From any point of view, expenditure on apparatus of permanent value is a better investment than expenditure on temporary expedients that will be of no further use, or on materials that are destroyed by use. As a matter of fact, the private investigator does not feel the cost of materials and of temporary "fit-ups" very much, for the latter cost little beyond time, while the expenditure in the former is spread over a long period. The thing that checks him most is the expenditure of a lump sum of, say, £5 on a photometer or some other piece of apparatus. Too often he simply cannot do it, and then he either abandons the research or has to publish results in an incomplete and, very frequently, misleading fashion.

If the Convention feel assured that a proposed investigation is worthy of a grant at all, it seems to me that the expenditure of that grant on permanent apparatus that will be of further value in the future should give them cause for satisfaction rather than otherwise. In any case, I believe this is the view taken by others who make grants to facilitate research.—Yours faithfully,  
Blackheath, S.E.

C. WELBORNE PIPER.

## THE STABILITY OF PYRO AND SODA DEVELOPING SOLUTIONS.

To the Editors.

Gentlemen,—The article on pyro-soda developers, by Mr. Bennett, and your comments thereon, have afforded me some interest, inasmuch as your experience coincides almost exactly with mine.

Until a few years ago, I was in the habit of keeping the sulphite and carbonate together in solution, and was insistently worried with negatives varying in colour and quality, as the developer became the least bit ancient. Suspecting the cause, I varied my method, and kept the sulphite and carbonate separately in solution, with very little improvement in results. In each case, after the solution became a few days old, the colour of the negative image would degenerate from the original black to a dirty greenish-brown.

Now, for the past four years I have adopted a formula which, strangely enough, corresponds almost exactly to the one you publish in your editorial note on page 760 (September 28). It is as follows:—

No. 1.—Sulphite of soda .....	6oz.
Metabisulphite .....	1oz.
Pyrogallol .....	1oz.
Water up to .....	50oz.
No. 2.—Soda carbonate .....	12oz.
Water up to .....	50oz.

Using equal parts, either undiluted or with further addition of water, to result desired.

This developer I have found quite reliable after fifteen months, being the longest interval, up to the present, between making up the formula and using up the last few ounces, which, by the way, used side by side with newly-made developer, gave results comparable in colour and showing no abatement in energy.

"An ounce of practice is worth a ton of theory," to use an old saw. I have compared this formula with many of the newer developers, and still prefer it for negative making.

Finally, I am always careful to dissolve the sulphite first in tepid water, adding the metabisulphite when dissolved, and finally, when quite cold, the pyro.—Yours faithfully,  
163, Sumatra Road, West Hampstead, N.W.

S. A. HERBERT.

To the Editors.

Gentlemen,—I have read with much interest your last two articles on the subject of pyro-soda developer, but one or two items somewhat puzzle me (and no doubt others), and I should be grateful for your replies. Bringing the proportions of the developer (as finally advised in this last "B.J." number) down to 1 oz. of solution,



I make out it is composed of 4 grs. pyro, 45 grs. soda carb., 22 grs. sulphite,  $5\frac{1}{2}$  grs. metabi. to 1 oz. water. Is this the usual working strength; 4 grs. pyro per ounce being much above the usually advised strength of the various platemakers, which is from 2 to  $2\frac{1}{2}$  grs. pyro per ounce of developer (mixed)? Though I admit it is the H. and D. standard formula, I have always understood that 25 per cent. to 50 per cent. of the pyro used is the maximum amount of metabisulphite potassium advised, a greater quantity than that slowing the plate; yet your formula appears to contain almost 50 per cent. more than the amount of pyro. The proportion of carb. soda (45 grs. to 4 grs. pyro), even deducting 6 grs. as being neutralised by the potass. metabisulphite is 10 to 1 to the pyro. This of itself would make the developer very quick-acting. I note some of the formulae in general use, such as Seed Plates, Kodak Co., and others, advise a proportion of only 4 or 5 or 6 soda to 1 pyro. For some development, such as the old formula of Kodak machine (1.3 gm. pyro, 6.5 soda, 7.8. sulphite per 1 oz.) at temperature 65 degrees of 6 minutes, is your formula (and if so, diluted to what strength?), and improvement. The time would vary too. Please understand I in no way intend to criticise, but simply to ask your further guidance re the formula. Thanking you.—I am, yours faithfully,  
D. GREENWAY.

Waratah, 107, Dartmouth Road, Cricklewood, N.W.

[The quantity of pyro is increased to 4 grains and the carbonate to 45 to give sufficient density in a reasonably short time. As explained in our notes, the formula is relatively slow compared with others, even though it contains an excess of alkali. Also, though it contains more materials it is more economical, as it can be used many times in succession. None of the carbonate is neutralised by the metabisulphite, which is only used in sufficient quantity to neutralise the sulphite. There is no free sulphurous acid present, and this is one of the essential features of the formula. The effect is probably about equivalent to that of the old Kodak formula—that is to say, 6 minutes at 65 degrees F. is about the right time of development. The results will, however, be absolutely clean black and white, and probably four or five rolls of film in succession can be developed in the same solution, if the time of development is increased by a minute in each case. All should then be equally stainless. If you read our notes carefully you will see that keeping quality and reliability are important features claimed for the new formula, in addition to its non-staining and economical properties. Other formulae that keep fairly well give stain in time, and some that give quite clean images when fresh will not keep. We are doubtful as to metabisulphite slowing the plate, and also very doubtful as to metabisulphite existing at all in our formula. We are not at present prepared to discuss the chemistry of the subject.—Eds. B.J.P.]

#### EDER'S "JAHRBUCH" AND THE "B.J. ALMANAC."

To the Editors.

Gentlemen,—In reviewing Dr. Eder's "Jahrbuch" you say:—"To the more recondite branches of photography, such as photochemistry, Russell effects, spectroscopy, Dr. Eder is prepared to devote a number of pages, which in this country would seem out of proportion to the number of persons able to make use of such information. Our own feeling in preparing the 'Epitome of Progress' in the 'B.J.A.' is that such persons may be presumed to have the original articles for their reading." I beg to submit that a great number of persons in Germany are deeply interested in scientific photography and photochemistry, and that the number of journals, where such articles appear, is too large for any one interested in this matter to read them all. Of course in having the attention turned to any such publication, it will be necessary to get hold of the original article which, without the "Yearbook," might never have come to the knowledge of all interested ones. And then, what precious books of reference those Eder's "Jahrbücher" since 1887! No, let us have by all means these "Jahrbücher" just as they are and the "B.J. Almanacs" as they are. Both of them have their wide several spheres of utility, and I, dear Mr. Editor, for one, would not like to be without either of them.—I am, dear Sir, yours very truly,  
Dresden, October 8, 1906.

RICHARD JAHR.

## Answers to Correspondents.

- \*\*\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \*\*\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \*\*\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- \*\*\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

- J. MacMahon, 502, Union Street, Aberdeen. Photograph of the Tables Set for Banquet in Strathcona Hall, Aberdeen.
- P. Swift, 280, Waterloo Road, Burslem. Photograph of Burslem Port Vale Football Club.
- L. Turgill, 106, New Oxford Street, W.C. Photograph of Mrs. Brown-Potter and her Two Dogs.
- S. W. Babb, 2, Hengist Villas, Southwood Road, Ramsgate. Photograph of a Dog and a Cat, the former Dressed Up and Standing on its Hind Legs, the Feline Paws Resting on the Handle of a Perambulator Containing the Cat, a so-so Doll.
- W. Cooper, Greenfield House, Station Lane, Heckmondwike. Photograph of Dewsbury Football Team, 1906.
- T. A. Brook, Beauchamp Cottage, Habberley Road, Bewdley. Photograph entitled:—"Sunset, Spring Grove Farm, Bewdley."

**COPYRIGHT.**—If a photograph is copyright, can it be printed (or reproduced) in more than one paper without payment for each reproduction? For instance, if I send a photograph to a paper, or magazine, and it is accepted, could other papers have the same photograph in without a payment for same?—H.

Certainly the other papers cannot. Publication in them is an infringement of copyright, and if your copyright has been registered prior to such infringement you can obtain penalties. You will find the whole law of the subject in the ALMANAC for the current year.

**BLUE PRINT.**—I enclose you a print obtained from a formula as follows:—

Citrate of iron and ammonia, 1 oz., dissolved in 4 oz. water.  
Ferricyanide of potassium, 1 oz., dissolved in 4 oz. water.

Take 1 drachm of each.

and shall feel obliged if you will inform me, through your column, the formulae for the other colours, which, I understand, can be produced, such as red, brown, green, and purple.—GEORGE HILL.

The various toning formulae are not at all satisfactory. For greenish-black prepare: Borax, 30 grains; water, 1 oz.; add sulphuric acid, drop by drop, till the liquid just reddens litmus paper, then add 10 per cent. ammonia until the red colour commences to change. Now add 4 grains of powdered catechu. Shake well and filter and tone the blue prints in the solution. For black to brown tones, place the dry print in:—liquid ammonia, 6 mins.; water, 1 oz.; and when bleached place print in tannic acid solution, 9 grains per oz. Both processes degrade the print. Why do you not use carbon for the colours you name?

**COPYRIGHT GROUPS.**—During the month of August I photographed two cricket teams. I received no direct order to do so, but in each case about two members said they would have a copy. I took them, and not a single copy was ordered in either case until I showed a finished copy to one of the members. Then, or at a time, most of the two elevens had a copy, though not all. Is the copyright mine? I ask this because in one or two cases the members are having enlargements done by the — with coupons. Can I stop it? This is a very small place to get a living, and, of course, this hurts my trade.—MAGNET.

If you have registered your copyright you can obtain penalties for any subsequent infringements such as that you name. If you have not registered you can do so now, and stop further copies being made. We should advise you to place the matter in

solicitor's hands, or, if you are a member, in those of the Professional Photographers' Association. So long as it can be shown (1) that you were not ordered to take the group, and (2) that no special favour was made of allowing you to photograph the team—you can sustain your proprietorship in the copyright.

**POSTCARD MACHINE.**—Having very often a lot of postcards (bromide) to print I have devised a hand machine for the purpose. I know there are several machines for the purpose on the market, but this seems to me to be much handier than any I have seen. It certainly could be made much more cheaply, and I have printed at the rate of over 500 an hour. It is simply connected in place of an ordinary electric lamp, and is worked by one hand. Will you kindly tell me if you think there would be a market for such a machine, and if so what steps I could take to sell it? Could you tell me any firms likely to adopt it?—R. H. F.

We should say the market is already over-supplied with apparatus of this kind. The possibility of getting yours taken up depends on its speed of working and on its cost of manufacture. You must know the existing machines, and be better able to judge of the powers of your own to compete than we are.

**ALPHA.**—We do not see that you can do anything in the matter, as the copyright in the picture was not yours. The only advice we can give you is to be more careful in future of the "friends" you employ to make your enlargements.

**COPYING PAPER PRINT.**—I have occasion to copy a print which is made upon a rather rough surface paper. In my enlarged negative the face is most objectionable, owing to the enlargement of this rough surface. Is there any method by which I can prevent the grain of the paper from showing so plainly, or at any rate, lessen the effect.—B. A.

The obtrusiveness of the grain of the paper may be reduced to a great extent by judicious lighting when the picture is copied. Hold the picture at a window at different angles, and at some the grain will scarcely show at all. That is the angle at which the picture should be copied. With very rough papers nearly a direct front light may be necessary.

**DEVILS IN PHOTOGRAPHY.**—I am having trouble with my etching-bath (perchloride of iron, for etching photogravures) in the form of what I believe are called "devils," deeply etched holes, generally fern pattern. I have been told that in some cases this can be got rid of by putting a little ammonia in the etching solutions; but in my case this has made no improvement whatever. I should be glad if you could give me a remedy.—A. COOPER.

If sufficient ammonia has been added to leave just a slight precipitate, then the devils are not caused by the perchloride bath, but they are probably caused by the carbon negative being improperly in contact with the metal, and thus allowing the perchloride, after penetration through the film, to spread in the manner stated. Try squeezing the carbon negative down very carefully, avoiding any air-bells, and allow to remain under pressure for fifteen minutes before attempting to develop.

**WAXY STUDIO ROOFS.**—Could you kindly recommend me a reliable formula for waterproofing leaky studio glass roof?—TROUBLED.

See note on the subject in "Ex Cathedra."

**B. (South Wales).**—Moore, Desaulles and Co., Wordsley, near Stourbridge.

**BRIGHT PORTRAITURE.**—I shall esteem it a great favour if you will be kind enough to help me in my query. I am thinking of taking photographs by gaslight, and wish to know the best and most convenient method for same. The size of photographs I require is 2½ x 1½, say at an exposure of four to five seconds, with special rapid plates.—A. N.

If you write to a maker of apparatus for the purpose, such as Fallowfield, the Tress Co., or Sharp and Hitchmough, you will see the kind of lamp to buy.

**WASHING PRINTS.**—I have occasion to finish 120 postcards at one time, and should be glad if you will answer my query in your next issue if possible. I have a large basin, holding three or four gallons of water, that I use for washing (after fixing) purposes, and I allow running water (through tubing to give force) to run on them for one hour, moving them every few minutes. No outlet to basin, and only over the sides. It is said that hypo is heavier than water, so will sink to the bottom of basin. I

thought I would bore hole in bottom. Do you think it would free them better in this way, of course, allowing water to run the same for one hour?—O. I. C.

There will be no advantage in having the hole at the bottom. The best thing you can do to improve matters is to transfer all the prints every now and then to a fresh basin of water, turn them over, and put them back into your washer, having filled it with clean water in the interval.

**PATENT RIGHTS IN THE MOON.**—Will you please inform us through the medium of "Journal" whether the "moon," as a photo-accessory, is patented, or whether anyone can use it?—J. and E. WILSON.

You are at full liberty to use the moon as a background, either at its full or during any of its phases.

**OLD LENS.**—I should esteem it a great favour if you would kindly give me an answer to this letter in your journal. I have just bought a lens which bears the name of E. Buxton, Church Street, Minorities, London, E., and is named on the box: "E. Buxton's Improved Achromatic Lens." The instrument is about 4in. diameter, with a lens only at the back, which, I believe, is single, but I cannot get it out to see; there is no lens in front, but there is a thread inside the front aperture, which is about 2in. diameter; there is no place for stops, and what I am thinking is that there should be some combination lenses to reduce focus to cabinet and different sizes. Can you tell me if this should be so?—R. T.

Without seeing the thing we can express no opinion upon it. It is evidently incomplete, and is probably a lens that was made some forty or more years ago and quite out of date now. Why not write to the one whose name and address it bears. You will then learn whether he is in business still.

**POSTCARD.**—In our next.

**F. CORE.**—We have had no experience in buying the material, but we may refer you to the paragraph on fireproofing fabrics in "Ex Cathedra" a week or two ago.

**NON-STAINING PYRO.**—I have been greatly interested in your articles and leaders upon the above in issues of September 28 and October 5, and can quite confirm the staining with old mixed sod. sulph. and sod. carb. I had some by me, and thought I would try it upon some negatives after reading your first article; they were interiors, and took rather a long time to develop, and the result was the worst case of yellow stain I have ever seen. The same pyro sol. with fresher mixed sod. sulph. and carb. gave quite normal results upon the same class of subjects. Will you kindly tell me: (1) The best way to remove the dense yellow stain? (2) A chistoid film is stained yellow in places through the parts not being under the hypo. What can be done to it? (3) I had made up the sulph. and metabisulph. sol. as recommended by you on September 28, viz.:—4 oz. sod. sulph., 1 oz. potassium metabisulph., in 40 oz. water, and now I notice this is the wrong strength; therefore I must dissolve 4 oz. sod. sulph. and 1 oz. potassium metabisulph. more in the sol. How is the best way to do this?—as sod. sulph. takes so long to dissolve in cold water, and I think for a sol. of this strength it would be extra difficult. (4) The great recommendation to my mind is that it can be used for amidol. What proportion of the neutralised stock sulph. do you use? It would have been better, I think, had the formula worked to ½ oz. and ½ oz. of pyro, say 120 gr., instead of 160 gr.—i.e., easier to weigh—as two or four would empty the bottle.—

WEDEE.

(1) We should try an alkaline bleaching powder mixture, as given on page 955 of the "Almanac." (2) Nothing, we fear. (3) Dissolve the sulphite in warm water and add the metabisulphite when cold. (4) The stock solution can be used to give 20-25 grains soda sulphite for every 2 to 3 grains of amidol.

**ARMY PHOTOGRAPHERS.**—Will you please inform me through the B.J.P. information as regards getting on the photographic staff of the Royal Engineers.—G. BUTTER.

We are under the impression that the photographic work is mostly done by soldiers who have enlisted. You may possibly be able to get some information on the subject at the recruiting department, Trafalgar Square.



**ARTIFICIAL LIGHT FOR STUDIO.**—I beg to ask if you will favour me by answering the following, as I have taken the above premises, and am afraid I shall not be allowed to build studio at back? I would like to know if I could get satisfactory results for middle-class work by a large gas lamp, as there is no electric light in town. I might say I have a splendid room for same (18 ft. by 11 ft.), or is there any means of working electric by a battery? Would be greatly obliged if you could give me the name of firm supplying lamp suitable, and your opinion.—STUDIO.

It is possible to get the electric light from a battery, but you would find it a great trouble in practice; moreover, the fumes from it would be an annoyance, unless it were placed out of doors. Flash light, also acetylene, could be employed. Gas can also be used. The Tress Company, 42, Oxford Street, W., have a gas-light appliance for studio work.

**E. ABRAHAM.**—(1) We should have thought anyone would know how to manage his own business better than we could tell him. In your long letter you complain that the man you have, who does all the retouching, developing the negatives, the "copying jobs," does the operating, and attends the shop when you are out, etc., is too slow. What can you expect for the princely salary of twenty-five shillings a week? (2) Lady receptionists and retouchers are usually paid from a guinea to a guinea and a half and upwards a week, according to ability. (3) As the water is used for business purposes, the company will require it to be paid for according to its consumption; therefore it will be to your interest not to waste more than can be avoided.

**RATIO OF STOPS.**—I am using a 1.1 plate lens in the studio, maker's name Darlot, Paris; the stops are marked 15-30-40-50-60, sixty being the largest aperture. Now, I should like to find out the equivalent to the F seriate for light-testing; kindly let me know through the Journal.—LENS.

Probably the numbers represent the diameters in millimetres, but the best thing to do is to first ascertain the equivalent focus of the lens and then divide the size of the stops into that, and that will give you the ratios. For example, if the focus of the lens be, say, twelve inches, and the diameter of the largest stop three inches, the ratio will be  $f/4$ , as it is one-fourth the focal length. Other stops are calculated in same way.

**SITUATION IN FRANCE.**—It is my intention to seek a situation in a photographic house in France or Switzerland; could you kindly recommend me the best advertising medium for that purpose?—W.S.

"Photo-Revue," 118, Rue d'Assas, Paris; and "Revue Suisse," 23, Escaliers du Marche, Lausanne, Switzerland.

**DEVELOPER FOR BROMIDES.**—Which do you consider the best developer for bromide enlargements, either ferrous oxalate, metol and hydroquinone, or amidol. I am anxious to get rich blacks and pure whites, and irrespective of the extra trouble, do you think the first one above gives you this better than the other two quoted, and of M.Q. and amidol, which do you consider gives you the richest blacks? I do not like the grey-looking prints one often sees.—BROMIDE ENLARGEMENTS.

For a strong intense black there is no developer to beat ferrous oxalate. If you object to the acid baths necessary, perhaps the ferrous citrate developer of the Rotary Photographic Co. would suit you. Next to iron we should place amidol for vigour and black colour. But it should be used freshly made.

**L. S. (Sydney, N.S.W.).**—1. Shellac or a mixture of laes. 2. Yes. 3. It will be no infringement of the patent to prepare it for your own use. You can obtain it from the Adhesive Dry Mounting Co., 27-28, Fetter Lane, London, E.C.

**GLAZING P.O.P.**—1. Kindly inform me in your next issue the reason P.O.P. prints won't leave pulp-slabs and plate-glass. They have been well cleaned. Do they want rubbing over with some solution? 2. Is there a glazing-slab made from celluloid, and who is the maker?—ROBERTS.

1. It is always advisable to prepare both the pulp-slabs and plate-glass, and one of the simplest things is an ounce of ordinary resin ointment dissolved in half a pint of warm turpentine. Rub this over the glass, then polish with a clean linen pad. The

prints will also strip easier if immersed for five minutes methylated spirit and squeegeed, all dripping on to the glass. 2. A special squeegee pad is made by the Altrincham Rubber Co., Mossburn Buildings, Altrincham, but we cannot say whether this is celluloid or not. Almost any large dealer will supply thick celluloid, either matt or polished, which can be used for this purpose.

**SEPIA BROMIDES.**—Would you kindly let us know through your columns the best chemical for making sepias from bromide prints?—THE AMERICAN ART CO.

Use one of the many sepia tones or the formula on page 978 of the "Almanac."

**PORTRAIT SWINDLE.**—A gentleman at this place has sent his photograph for one of Tanqueray's life-size crayon portraits, with the required amount of 10s. for packing, shipping, and railway charges to his home, and another 10s. for a frame, as it was got damaged without a frame, and when the picture arrived there was 4s. 6d. more to pay for carriage. The gentleman refused to pay, as all the charges had been paid. It was taken back to the station. Would you kindly advise what would be the best course to take in the matter. They value the crayon portrait at £4.—E. MOORE.

Your friend had better pay the 4s. 6d. if he wants the picture. He has been "had" by this ancient fraud, and we would advise him either to resign himself to the loss of the £1, or pay up the remaining charges with as good grace as he can.

**PHOTO INDUSTRIE.**—We do not know that the camera is being made. Your most likely source of information is Messrs. Sang, Shepherd and Co., Gray's Inn Passage, High Holborn, London, W.C.

**TONING BROMIDES.**—Can you recommend a formula for toning bromides a good cool shade of brown, something near "standard brown" of carbons. I have tried several of the made toners on the market, but with all I get such a "sandy" brown. I want a cooler shade than I now get.—AMATEUR.

Several formulæ were given in our issue for August 10 (page 625), which entail the use of uranium, and these followed acidulated sodium sulphide, both give deep browns, which are stated to last at least four years. Possibly the use of hypo-alum bath with silver nitrate would give the desired tone. This is:—

Hypo .....	3ozs.
Powdered alum .....	130grs.
Water .....	20grs.

Dissolve and add:—

Silver nitrate .....	4grs.
----------------------	-------

Heat two or three times to 140 degs. Fahr., and allow to cool. For use the bath should be from 100-120 degs. Fahr. The developer has some little effect on the toning with sulphide and amidol gives the coolest tone, then metol-hydroquinone, then hydroquinone. The sulphide formulæ are given in our issue for August 17 (page 646).

**DEVELOPER.**—We have not used any special formula, usually that of the plate-maker, or the one on page 949 of the "Almanac."

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

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## SUMMARY.

The Royal Exhibition and Salon close on Saturday in next week, October 27.

A Society of Colour Photographers is in process of formation. A preliminary meeting was held at the office of the BRITISH JOURNAL Tuesday last. (P. 851.)

The fund on behalf of Mr. J. T. Sandell amounts, we are glad to say, to £75 14s. 6d. Further donations may be sent to ourselves to Mr. J. B. B. Wellington. (P. 831.)

Professor E. Walter Maunder will deliver the Traill-Taylor Memorial lecture next Tuesday on "Photography in the Work of Greenwich Observatory." (P. 831.)

Herr W. Weissenberger, in Eder's Jahrbuch, records the success attained in preserving sulphite with mannite, etc. (P. 829.)

A German writer has pointed out how certain optical defects may be advantageously employed in portrait photography. (P. 827.)

M. Demachy has worked out and improved on the Rawlins "oil" process. His new method of working is described, from "Camera Work," on page 825.

Still another patent for catatype printing has been taken out by N.P.G., of Berlin. It is to be assumed that a commercial catatype press—that is, one printing without light—will be on the market very long. (P. 833.)

Some notes on the selection of accessories for the studio appear on page 823.

Etching machines for photo-engravers are being offered in several terms. Some notes on the now available machines appear on page 832.

## EX CATHEDRA

### Residues.

Many persons, so we gather from letters we at times receive, find a difficulty in precipitating the silver from the washing waters of prints prior to toning, particularly from gelatine papers. The usual precipitants employed for the purpose are chloride of sodium (common salt) and hydrochloric acid. Now it so happens that both these materials are, to a small extent, solvents of chloride of silver although they are precipitants of it. Therefore if a larger excess of it be used some of the chloride thrown down will be re-dissolved and will remain in solution. As a matter of fact, some P.O.P.s contain very little free nitrate of silver, its place being taken by organic salts of silver that are insoluble in water, and therefore little is to be found in the washing waters. Consequently if a large excess of the precipitant is added that little may be re-dissolved and will remain in solution and consequently be lost. The organic salts, or that proportion of them that is not reduced by light, are dissolved out in the fixing bath, and it is from that they may be recovered. The usual precipitant of the silver from fixing baths is the sulphide of soda—liver of sulphur. This again, if used in excess, is also a solvent of the sulphide of silver thrown down. Modern papers, as compared with the old albumen paper as sensitised by the user, contain but a small amount of silver, though sufficient to produce good prints, hence there is but little to be recovered in the form of residues, and if this little is re-dissolved by the precipitants used it is, of course, lost altogether. Disappointment is frequently expressed at the small return made by refiners for the wastes sent to them for reduction, particularly the ashes from paper. Now, if the paper in the first instance contains but little silver it follows there can be but little to recover from its ashes, and this does not seem to be fully realised by some. It may be a question for the consideration of small consumers of P.O.P.s as to whether the residues are really worth the trouble of saving, seeing the present small value of the silver when recovered. At the present time the price of standard silver is but two shillings and eightpence the ounce, and that is higher than it was a short time ago, and, further, the metal recovered from photographic wastes is seldom so good as that. With those who work on a large scale the case may be different.

### Cost of Production.

Many have been tempted to start in the photographic portrait business with a knowledge of the mere cost of the material, without taking anything else into consideration. They have learnt that the cost of plates for, say, cabinet pictures is so much, and the cost of a dozen pieces of paper is, again, so much, and from that they calculate the profits on a dozen



portraits to be a very substantial one. It is this idea that has led so many to enter the profession, and a very large proportion of them, thus induced, have found things by no means so rosy as they fondly imagined. In our issue of a fortnight ago we estimated the cost of materials alone for making carbon enlargements by the usual method from a small negative, and by the "ozobrome" process. This was for the bare materials; the value of the labour was not, of course, taken into any account whatever. Last week a correspondent estimates the cost of making an enlarged negative, 15 by 12, including cost of material, time, waste, and indirect expenses, at four shillings and fourpence. This we should consider far too low if the work were done, as an occasional thing, by the newly-fledged photographer. We find, by reference to the price lists of those firms that make a specialty of carbon enlargements for the trade, and of making enlarged negatives, and keep operators employed on this class of work only, that their prices for enlarged negatives of that size is ten shillings, and if the negative is purchased it is three shillings more. To carry a fair profit it is a little difficult when first-class work is guaranteed to see how the work could be done for less—or, indeed, for so little unless the wet collodion process were employed, as, of course, it is: Those who contemplate entering the photographic profession will do well to read the article by Mr. Dundas Todd which we published a few weeks ago. His estimates were based on established businesses doing fair trades at various prices, and not on those that had yet to be made. When a new business is started by a novice the sitters are few, and often far between, yet the expenses are going on and have to be met, and too frequently there is little capital to meet them. These matters are too often overlooked by beginners before they start in business for themselves.

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**Photographic Salaries.** Circumstances have recently led us to ask:—"Are the salaries paid to photographic assistants getting lower and lower?" If so, there is but a poor prospect for the many apprentices who are now learning the business. The question is one which should be duly considered by those who think of bringing their sons and daughters up to the business. We are led, in the first instance, to these remarks by the letter of a correspondent to whom we replied last week. In the letter he complains that the man he has is slow, and ought to get through twice as much retouching in the course of the day as he does. The man, he says, does all the retouching, develops all the negatives (about a dozen a day), the copying, does the operating, and attends to the

customers when his employer is away, etc. For this is paid the munificent salary of twenty-five shilling week, and complaint is made that he does not do sufficient work. It may be mentioned that the prices charged the employer for portraits are somewhat higher than for many middle-class businesses. On referring to the advertisement column of last week's issue, "Situation Vacant," we were surprised to find almost ridiculous salaries offered for assistants. For example, a pound week is offered for a development assistant who is "able to take large quantities." A similar sum is offered for a developer who is also to assist in printing and vignetting. Twenty-eight shillings a week is offered for an operator and retoucher to manage a branch. Twenty-five shillings for a dark-room assistant, who must be a competent bromide printer and copyist. If such prices as these are to rule for work that requires a certain amount of skill, the outlook is bad indeed for assistants. However, we hope the instances we have quoted are exceptions.

\* \* \*

#### **Fashion Plate Photographs.**

According to a paragraph that has been going round the daily Press during the past week or two, photographic catalogues are to be the draper's novelty during the coming autumn, but only in the case of articles such as boots on a pretty foot, gloves on a well-shaped hand, arm, embroideries and laces, and umbrellas, gowns, costumes, hats, and the like are still to be illustrated by drawings, and not by photography. It has recently been suggested that photography should be used for fashion plates, since the living models would give a better and more truthful idea of what the garment really was than could be gained from the figures out of anatomical proportions so frequently seen. We are glad to understand that the requirements in dress fashion photography is not truth but exaggeration to emphasise certain points. No living being could be found with the ridiculously slender waists that are sometimes depicted in the drawings, and even the retoucher's knife could rarely produce them. Again, such abnormally tall figures, with large faces, are not to be found in life, and such, we are told, are necessary to show off the essential points of costumes. Furthermore, pretty faces are required to set off the "latest things" in hats, so we are told by those who are supposed to know, and these are difficult to find in persons who will allow their portraits to be used for advertising purposes. It is for this reason, we surmise, that photographic fashion plates are not to be employed except to the limited extent above mentioned. Still, we cannot help thinking that they would be more accurate

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### **THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES,**

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the

ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—Our publishers ask us to inform Agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.

able to ladies generally than the ill-drawn things that are now put before them, and we shall not be surprised to hear that photographers discovering profitable business in this branch of work.

#### Measurement of Focal Length.

In "Photographische Industrie" an apparently new method of determining focal length is given. For a single lens we are instructed to focus on infinity and measure the distance from lens surface to screen. Next reverse the lens and again focus on infinity and measure from lens surface to screen. Call these two distances  $a$  and  $b$ , and measure the thickness of the lens and call that  $d$ . Then the focal length is equal to  $\frac{a+b}{2} + \frac{d}{2}$ . This is obviously correct for a simple

single lens in which the nodal space is equal very approximately to one-third the thickness, and the method is so easy that it is a useful one to remember. With doublets the procedure recommended is much the same. The terms  $a$  and  $b$  are found by measuring from screen to nearest surface of lens with the lens normally placed and reversed. The respective thicknesses of the two lenses are then measured and denoted by  $d_1$  and  $d_2$ , and finally the polar separation of the doublet (i.e., distance between the inner surfaces of the lenses) is found and called  $c$ . The focal length of the whole combination is then said to be equal to  $\frac{a+b}{2} + \frac{d_1+d_2}{2} + \frac{c}{2}$ . The accuracy of this formula is, however, not quite so obvious as in the other case. It appears to be assumed, as before, that the nodal spaces of the separate combinations are always one-third the thickness (which is not necessarily the case in combinations), while it is not clear how the quantity  $\frac{c}{2}$  is

derived. Checking this formula may be an interesting exercise for those of our readers who are interested in optical mathematics. It must be remembered that the construction of modern lenses is very varied. We not only find negative and neutral single combinations in doublets but positive combinations with very differently situated nodes. When the nodes for a single combination are coincident or crossed, as is sometimes the case, it appears most probable that the formulæ given above will break down.

#### Demachy on Oil Printing.

From the issue of "Camera Work," to which we referred last week, we reprint, on another page, M. Demachy's article on the Rawlin's process. It will be found "full of wise laws and modern instances." M. Demachy seems to have put the procedure of Mr. Rawlins far behind, and most of his materials and apparatus also; but his own are set forth in a way that brings conviction, and we feel sure that workers will find his suggestion result in greater convenience and more refinement of work. For example, his improved sensitising solution dries in fifteen minutes against the "hours" of that used by Mr. Rawlins. The use of the roller is all but abandoned; the brushes are of special make and special shape; several inks are used on the same print, varying widely in their degrees from opacity to tackiness, and many other important developments will be noted. M. Demachy notes at what an early stage in the process photography "steps out," and he describes the method very truly as "purely monochrome printing on somebody else's drawing—not photography—and the painter's rules must be followed implicitly, and without proper knowledge, or disaster will follow." What a warning is here! In ninety cases out of a hundred a photographer had better stick to P.O.P. and platinum. Let all processes that take artistic responsibility away

from automatic means to place it with the operator, oil-printing is a capital process to fail in, unless it be in the hands of those to whom the photographic basis is of no value in itself; that is to say, an artist by nature and training.

#### INDOOR ACCESSORIES.

If truth and unobtrusiveness are essential features of a good background, the former, at any rate, and as far as possible the latter, are indispensable in an accessory. The present vogue of pictures without accessories is the natural reaction from the elaborate, gaudy, artificial, and often ridiculous objects used in the early days of photography. There is, however, no reason why natural accessories properly used should not be capable of greatly enhancing a photograph as a work of art. Restraint and skill in their arrangement and selection must be exercised, however, if they do not merely detract from instead of leading the eye to and emphasising the figure.

The use or abuse of the accessory depends entirely upon the operator who uses it, and here we merely wish to talk about the object, not how it is to be introduced into a comparison. As we recently said, some of the objects we have chosen to class under the heading of this article might well have been considered with or as the background. These we will take first.

A door fixed into a wall used as a background and in such a position as to be suitably lighted and to be either included in the picture or left out of it, is an excellent aid to posing if used with discretion. Some charmingly natural positions will be readily suggested by it; the only danger being too frequent use.

The real windows of various picturesque designs that some photographers have been enabled to place in their studios are of great pictorial value. No one could possibly compare them with the painted imitations which have enjoyed such an unfortunate vogue. Were we building a new studio, we should have one of the ends panelled in dark oak of plain and simple design; this would provide a splendid ground for interiors, groups, or figure studies. In appropriate positions—presupposing, of course, that the architectural features of the studio allowed it—we should have a leaded glass window of obscured glass, and a handsome door, each of which would be sunk about six inches below the level of the surrounding panelling. When the whole wall was required without the window or the door, it would be a simple matter to place a facsimile piece of panelling over them made to fit flush with the remainder. It would be advisable that the door should open, but it need not necessarily lead anywhere; a piece of black velvet would be sufficient to give an idea of space beyond it.

Many portraitists will have natural features existing in their studios which, perhaps overlooked, will nevertheless be capable of pictorial use. Real stairs, the stair head, or a cupboard can generally be used for some exposure or another. If they have not been tried before, the photographer will be agreeably surprised at the lack of artificiality and unconventional appearance of the results. Perhaps articles of furniture are the most common accessories, but they do not necessarily give that touch of reality so valuable and convincing in photography. The objects sold ostensibly for studio use are in nearly every case abominable. Even the upholstery is of a shouting pattern, and as for design, the least said the better; it is generally as far removed from art as—well, the products of the "tintyper."

No furniture must be allowed under the skylight that savours in the least of anything but ordinary pieces; it



should be entirely appropriate and acceptable for an ordinary sitting-room. Some of the new style modern furniture is excellent, their straight lines and plain features once more emphasising the fact that simplicity has its own charm. Genuine Sheraton or Chippendale cannot, of course, be beaten; they give an impression of subdued but nevertheless comfortable gentility to any studio, and one also most useful for posing, or as mere accessories. It may be said that only the wealthy can afford these antiques, and therefore for some, or shall we say most, sitters, this furniture will be in bad taste, because inappropriate. This, however, we consider rather too particular, for although these old pieces always enhance the appearance of an interior, yet they are unobtrusive, and it is doubtful if more than one sitter in a hundred can name the style. Moreover, the value of the compliment implied by the use of these expensive accessories in a portrait photograph must not be forgotten. Again, modern furnishers supply examples of antique models which possess all the grace of line and form of the original specimens without the same careful personal craftsmanship which made these beautiful specimens of art applied to utilitarian uses so valuable. These are to be found in many middle-class homes, and the photographer might use them, too, so the question of appropriateness is of no great consequence.

Much of the early Victorian furniture was indisputably ugly, besides being too heavy and cumbersome for studio use. The later models of the era were very ungraceful and, with their wealth of turnings, obtrusive and calculated to give many high-lights. If one has a very fashionable clientèle something more ornate and blatantly expensive than the old English types may be used. The French styles of the last Louis's, for instance. There are many commercial interior grounds painted in the decorative style of the country and the age; with a sitter gowned in satins or silks very sumptuous effects can be obtained without overstepping the bounds of unity.

Small tables, which, of course, must be substantial and good, are alone useful in the operating room. A small oval one, as pointed out by the late H. P. Robinson, is particularly handy. If one turns to reproductions of Academy pictures, one will be surprised to note how frequently the brethren of the brush introduce small settees large enough for two. The photographer will notice how admirably they adapt themselves for graceful posing, either of ladies or groups. The uncommon one with arms and back in one wave, are particularly suitable. This reminds us that the old-fashioned settles are occasionally useful, providing as they do a seat, and with their high backs a background in one.

## THE P. P. A. EXHIBITION.

THE exhibition of photographs by members of the Professional Photographers' Association now being held at the house of the BRITISH JOURNAL OF PHOTOGRAPHY has already attracted many visitors, chiefly professional photographers in London and the provinces, and it is expected that many more will inspect the examples of portraiture before the exhibition closes on November 10. Among those who have already signified their interest in the aim of the BRITISH JOURNAL to promote an exchange of views between professional photographers are:—Frank Brown, Leicester; Martin Jacquette, London; Gordon Chase, Tunbridge Wells; H. A. Chapman, Swansea; H. C. Spink, Brighton; Herbert Allison, Armagh; A. Langfier, London; William Hollier, Dorking; Frank J. Hill, London; Edgar Scamell, London; H. Lang Sims, London; Francis T. Beeson, London; H. Christopher Hadley, Lincoln; William Gill, Colchester; Arthur Winter, Preston; Sydney H. Wood, Darlington; H. J. Comley, Stroud; and Alfred Ellis, London.

In reference to the coloured portrait (No. 23) shown by Mr. Gordon Chase, of Tunbridge Wells, that gentleman is good enough to address to us some particulars of the method employed by him, which we are glad to publish for the information of those inspecting the photograph. Mr. Chase writes:—"I should like to say that, though the picture I show is rather out of the usual groove, it is nevertheless taken from an ordinary order, and is a line I have been doing regularly for the last eighteen months. When I add they readily command 25s. per doz., not coloured, against 15s. same quantity on the ordinary commercial mount, it is a good argument against the present inclination to lower prices to make business.

"The tinting of paper by 'airbrush' or 'aerograph' is itself easily and rapidly to match any colour print or complementary tone, size, etc., and the method in my case has gone a long way towards solving the question as to what mount, size, colour, shape, etc., to order, and at a great saving in cost.

In sending us some further specimens of his work Mr. Chase says:—"In my opinion a present-day photographer, equipped with an aerograph, hot mounting machine, guillotine trim (about 21in. blade), and an 'Ingento' beveller plus his signature, is quite independent of any bought mounts for the best class work. The lever trimmer is also useful for gripping pictures when bevelling.

"The ordinary cartridge paper is cheap, colour most suitable for sepia, and has the great advantage of not being expensive bad stock. I am sure I am not the only photographer who at some time bought a lot of dead mounts, well chosen in estimation, that somehow nevertheless fail to take with clients, and ultimately get thrown aside.

"Another distinct advantage is the picture's position on the mount is decided for each subject, either right, left, or, if uncertain, the centre, whereas in the mounts bought with p.m. or fixed in one corner it generally happens to be the wrong one, or get the correct balance, and if used is decidedly faulty. My mounts are 'sepia,' but red chalk. 'Sea green' pictures with sepia tint and signature are equally effective, and I have generally found that one window filled with set of specimens all of one colour generally attracts better than mixing them. I therefore keep sets of different sizes in each colour for show.

## SOME PRESS OPINIONS OF THE EXHIBITION.

Organised by the Professional Photographers' Association, which is now in the fifth year of its existence, an exhibition was opened at 24, Wellington Street, Strand, yesterday, which should be of general interest to the profession. Each of the eighty exhibitors is a professional photographer, and only one print comes from each studio, of which it is considered an average production.

All the studies were originally made for sale to customers, so that both subject and execution have been restricted by commercial

requirements, but from this very reason a good opportunity afforded friendly rivals of appraising one another's normal workmanship. Most of the subjects come under the heading of portrait, and there are several striking examples of this art from different parts of the country.—"Tribune."

A novel little photographic exhibition was opened on Thursday 24, Wellington Street, Strand, admission to which is free, consisting of eighty prints, each of which is the work of a different man.

of the Professional Photographers' Association, the leading idea of the organiser, Mr. G. E. Brown, Editor of the *BRITISH JOURNAL OF PHOTOGRAPHY*, being to illustrate what are the prevailing types of "show-case" photography in the London and provincial studios. Amongst the exhibitors are to be found the names of Mendelssohn, Langtier, Jacolette, Fellows Wilson, Ellis and Walery, H. P. Robinson and Son, Spink, Percy Lankester, W. and D. Downey, and Harold Baker, with others of similar merit and distinction, from which it may be gathered that some interesting and profitable comparisons are available. Although there are several very fine examples of commercial portraiture on the walls, assuming that the collection as a whole represents what sitters approve, it indicates that the artistic requirements of the public are very easily satisfied.—"The Morning Post" (Mr. Hector McLean).

The exhibition which the Professional Photographers' Association is now holding at the house of the *BRITISH JOURNAL OF PHOTOGRAPHY* in Wellington Street is not an exhibition of special efforts to attain the uncommon in any way; but, in the words of an official, "just every-day work—what the exhibitors are doing daily for their cus-

tomers. All the same, the show is designed to let people, and the country visitor in particular, know what is going on in professional photography, and to elevate the status of the profession. Besides, we are trying to work up to giving certificates of competency to assistants, so that the public will know a good from a bad photographer."

The exhibits are almost entirely portraits. A high level of excellence is maintained throughout. Chief amongst the photographs for artistic beauty is that of a young girl in a carelessly thrown-on wrap, sent by Mr. Henry Spink, of Brighton. It is very delicately hand-coloured, and set in a mount which looks like the edge of a print stained with age. The whole treatment and appearance is a wonderful imitation of a bygone school of portraiture, adorned with every triumph of modern skill and the pose and look of the subject is perfect in its innocent childishness. Miss Caswall Smith has a striking study of a priestly face in a cowl. The features, the atmosphere, and the treatment are alike strong; it is a bold idea well carried out. Several other photographers have sent in fine work, the Elite Portrait Company having a most artistic study of a girl's head.—"Westminster Gazette."

## M. DEMACHY ON THE RAWLINS OIL PROCESS.

From "Camera Work."

The oil process is no novelty. It was invented by Poitevin at the same period as gum bichromate, in 1855, and revived by Mr. H. Rawlins, in 1904. A full description of the working of it is to be found in the October number of the "*Amateur Photographer*" (London) of that same year. The results were not all that could be desired. Since then Mr. Rawlins has amended and simplified his methods. A few months ago I took the process up a second time, in order to give a fairly practical account of its working conditions in a book that the Paris Photo-Club has just brought out, and I have come to the conclusion that oil printing has come to stay, and that it is an extremely valuable addition to the actual processes used by pictorial photographers. In fact, I know of no other method that can allow such freedom of treatment. But the process does not seem to have been specially studied from this point of view—the main point, in my opinion—and the experiments I have been making on different papers, with different inks and varied degrees of exposure, may interest those amongst my readers for whom values and quality of medium have some importance. On the contrary, from the "straight-print" point of view, the process will prove tedious, and quite inferior to platinum. This as a warning.

### "Oil" and Collotype.

Photographers are supposed to know that a thin layer of bichromated gelatine, when exposed to light, in contact with and under a glass negative, will shortly develop a brown image, which, once plentifully washed and then dabbed with blotting-paper, will show a faint relief, and a curious difference of surface between the exposed and protected portions. These last will be damp and shiny, the others matt and relatively dry. This is the first stage of the Rawlins process. At the next one, photography steps out; it has nothing whatever to do with the rest of the operations, which are as follows: If a layer of greasy, coloured ink is spread over the damp film, it will stick to the matt parts, and be expelled by the moist ones—a positive image will result. Not a crude black-and-white image, such as one would think probable, but one with the most delicate half-tones and the most perfect modelling. Spread the gelatine over a thick sheet of glass, and you will have a collotype plate; spread it over a sheet of paper and you will have a Rawlins print. It is simplicity itself.

Collotype printing is used all the world over, so it is but natural that Mr. Rawlins should have chosen at first the collotype inking method—with the roller. But his thin gelatine film spread over wet and spongy paper was often more or less abraded by the repeated passage of the rubber or leather cylinder. And the fatty ink, sinking through the disintegrated gelatine, stained the underlying paper, and spoilt the picture—spoilt it irretrievably. Moreover, the mechanical action of the roller suppressed all possibility of interpretation on the part of the worker. The only difference between the

Rawlins and the collotype processes, was that the Rawlins print was unique, and the collotype print numberless—both were impersonal. But since Mr. Rawlins has used stencilling brushes for inking, new horizons have opened. The picture may be inked locally, whole portions may be suppressed simply by non-inking, other portions darkened to any degree by repeated inking, and the layer of ink being extremely delicate, half-tones or high lights may be introduced at will by brushing the pigmented oil away.

Thus we find that the pictorial photographer has at his disposal a process which allows of absolute control over the values of his picture. He is now wholly responsible for their correctness, and can no longer argue that his negative gave it so, when some glaring fault of relation is pointed out to him. His negative will still be faulty—for he cannot yet exercise sufficient control over his lens and his plate—but his positive image may be true, and we sincerely hope that it will become so, for sins against values are so common amongst the fraternity that one has come to doubt if photographers know that they are there. We have given a résumé of the oil process; it is necessary to describe more fully the methods of Mr. Rawlins, and the modifications introduced by myself in the course of several months' experiments.

### Papers for the Oil Process.

Mr. Rawlins has had a special paper made for his process. It is a good and reliable paper, but up to now the firm that supplies it has not been able to meet the demands made in France, and we have been obliged, much against our will, to shift for ourselves. After a few unsuccessful trials, I have found a brand of double transfer paper somewhat different from that of Mr. Rawlins, but which works well, stands the strain perfectly, and gives results that I find satisfactory. The best samples are the numbers 100, 103, 118 (matt engraving), 118 shiny, and 125, of the carbon double transfer papers T.I.C. (Horseshoe), of English manufacture. Other double transfer papers may give as good or even better results. No. 100 is white, thin, matt, and smooth; 103 of the same style; 118 is made matt, slightly grained, and also shiny—the last cream-coloured; 125 is very thick, matt, and white. They are sold in rolls three metres long and 70 centimetres wide. The best way to avoid the nuisance of cutting out the sheets of necessary dimensions for use, is to saw the roller in a number of different sections of the requisite width. It is then easy to cut the length that is wanted off these reduced rolls, with a sharp penknife, using the roller itself as a guide or ruler.

### Accessories.

The stencilling brushes recommended by Mr. Rawlins are those that are used by painters on porcelain. They are made of bears' hair. Mr. Rawlins uses the same sort of brushes (with flat or nearly



flat surfaces) for inking and for dabbing. I have found that, for inking, the stenciling brushes of the same nature, but of different form, with the hairs mounted in the shape of a stag's foot, are immeasurably superior in delicacy and smoothness of action. They spread out fan-wise, and do not crush the pigment and gelatine together, as the straight ones do. They are made of all sizes, from one-third of an inch to an inch and a half wide. The largest size is most convenient for inking quickly and very slightly the whole surface of the gelatinised sheet. One brush of this kind is sufficient, but it is necessary to get several of intermediate size—half an inch, and two-thirds of an inch, and a few smaller ones—with two or three straight-cut brushes. A series of hogs'-hair oil brushes of different sizes, and a few sable brushes, will come handy for removing the colour in the high light. My first experiments were made with Mr. Rawlins' special ink—a thick, tacky sepia that works very well; but subsequent trials have convinced me that complete liberty of interpretation can only be reached by having at one's disposal several samples of ink of different thickness and composition. I have often found it necessary to use locally, on the same print, two or three different inks, of the same colour, but of various degrees of tackiness, according to the degree of stickiness of different portions of the gelatine relief. One must have actually seen the contradictory effects of two samples of different ink on the same print, to believe that such completely opposite results can be caused by a minute difference in the proportions between oil and pigment.

#### A Selection of Inks.

It is next to impossible to know the composition of the different inks on the market. Each maker has his own formulæ, and surrounds the mixing of his inks with the darkest mystery. I shall never forget the look on the foreman's face, at Valette's, on the Quai Montebello, when I asked him what a certain precious sample he was showing me was made of. The basis of engraving ink is boiled linseed oil, that is certain; but Lorilleux, Valette, Lefranc, and two or three other well-known makers, have their own trade secrets, and their respective inks do not give the same effects. I suppose it is the same thing in New York. Mr. Stieglitz, great expert in printing matters, will know. American workers in oils should experiment first with Mr. Rawlins' inks, then with four or five samples of engraving, lithographic, and common printing inks—with and without siccatives, and with and without thinning medium—and watch the results. The general rule is as follows: Thick, tacky ink causes contrast; fluid ink, such as ordinary oils, flatness. It follows that an over-exposed print will give a good image with thick ink, and no image at all with fluid ink, for it will ink all over—and vice versa, of course.

This is why I insist on the necessity of having different samples of ink handy for use on the same print, for it may happen—as it often does happen—that a false value, for which the negative is responsible, has to be toned down; in other words, that some portion of the picture has been, from an artists' point of view, under-exposed. It must be treated accordingly, and dabbed with fluid or extra-fluid ink, just as thick and tacky ink will have to be applied locally to portions that take too much pigment, and lose their modelling. Patient working with the same sort of ink chosen for the rest of the picture will not produce equivalent results, as experience has proven. For extreme cases, I can recommend a tube of ordinary oil colour and one of siccatives—to be used sparingly.

#### Sensitising.

I have quite abandoned Mr. Rawlins' method of sensitising (immersion in a 10 per cent. acid bath of potassium bichromate). The gelatine takes hours to dry; the paper, soaked right through with chromic solution, requires a long and thorough washing; and in summer the gelatine, unless the bath is cooled down with ice, will become dangerously soft. Instead of this I have adopted the following method:—

Make a stock solution of:

Water .....	100 cubic centimetres.
Ammonium bichromate .....	5 grammes.
Carbonate of soda .....	0.5 cubic centimetres.

For use, take 5 cubic centimetres of this solution, and add 10 cubic centimetres of alcohol of 90 degrees. Pin your gelatine paper on a sheet of thick blotter fixed to a drawing board, and brush the gelatine side of paper right and left with a two-inch wide flat brush of hogs'-

hair dipped in the alcoholic solution. Fifteen cubic centimetres will cover five whole-plate sheets. A few parallel lines may remain on the film just after sensitising, but they will disappear in the course of drying. Desiccation will be completed in fifteen minutes at the most, a formidable gain of time on the previous method. Also the gelatine having alone absorbed the sensitising solution, the elimination of the chromic salts will be much easier than when both gelatine and paper have been impregnated. After a few minutes' washing, the yellow tint of the bichromate will have disappeared, after which half an hour's soaking in cool water or five minutes in tepid water will be sufficient for the unexposed parts of the gelatine to absorb the necessary quantity of water. The print may be pigmented immediately, or hung up to dry, and inked at some later period. In this case it will require, of course, a preliminary soaking, rather more prolonged than the first one, for gelatine that has dried once will be tougher than usual.

Alcohol and ammonium bichromate sensitised papers print very quickly. A transparent negative of the kind that bromide workers would call thin, will not require more than two and a half minutes' exposure in diffused light on a bright summer's day—five or six minutes in winter. This for No. 100 double transfer Horseshoe paper, the coating of which is thin. No. 125 will require, for an opposite reason, double the exposure. But on no account must the opacities of the negative be printed through; in all cases no details, or only faint details, should appear in the high lights. A few intelligently conducted trials with the same negative will soon give one complete control over the printing operations, so much so that one will soon lose the habit of opening the printing frame to watch the results, a glance at the negative will be enough to judge beforehand the proper length of the exposure.

#### Methods of Manipulation.

We already know that the picture we are going to build up will be made by the difference of adhesion of fatty inks on swollen or retracted gelatine. Plain reasoning will demonstrate by simple deduction that the gelatine surface of our print must be damp, and that it must be kept so during the whole period of pigmentation, or it would take the ink on its whole surface; also that it must not be actually wet, because of the presence of even a very thin layer of water over the insoluble parts would destroy the difference of texture between them and the swollen portions of the film. These two important conditions may be fulfilled by gently pressing a sheet of fluid blotting-paper over the gelatine side of print, until every apparent drop of water has been sucked up, and by using as a desk on which the print will be placed during development, a thick pad of soaking wet blotting-paper supported by a sheet of strong glass, which we will prop up at a convenient angle on a support of some sort. This developing-desk or easel must be placed in the full light of a window, the light falling sideways on the print, so as to avoid disturbing reflections. The operator is comfortably seated, with his palettes on one side, and his brushes handy on the other. He will now choose his inks, according to the degree of exposure he has given, and to the effect he is striving after; bearing in mind that tacky ink will produce grain and contrast, fluid ink smoothness and flatness.

The ink may be taken up copiously at the end of the development when things are clear, and the general effect largely indicated, but the initial inking should be faint. So the ink that we will start with will have to be spread over the palette—a slab of porcelain ground glass, or ordinary glass—in a very thin and equal layer, always superior in diameter to that of the brush that is going to be used, or else the hairs will not be uniformly charged with pigment. Dab the stag's-foot stencilling brush five or six times over the thin layer of ink, and transfer the pigment to the print with rapid and light touches, holding the brush nearly perpendicular to the print, so that the wedge-shaped point, which must be kept uppermost, touches the print first, and opens out as you press downward. As to where you will begin your inking, that is a matter of personal taste. As a rule, a landscape may be inked all over faintly, and worked up locally afterwards; but for portraits I prefer to ink the face first—right up to what I intend to keep as a definite value, then I build up the surroundings to harmonise with the face value, taking great care never to introduce an accent as strong, or, worse even, stronger than those I have put in the face and figure. This

system has the advantage of showing clear, decisive work in the face, which is, of course, the centre of interest in a portrait.

For it is the same with the oil process as with water colours or oil, the best bit is the one that has been painted with a quick and sure touch. I do not believe in messing over a face, adding colour, and taking it away. I have done it, of course; but the result has never been equal to what I have accomplished with decisive and quick work. On the contrary, one may not hasten over backgrounds, for it is the value of the surroundings, and the localisation of the dark and light spots, that will make or mar a picture. It is the same in a landscape: after having very faintly developed the whole of the picture, choose your strongest spot, the one intended to catch and retain the eye, and work the rest up as a setting to that particular value; but do not dab haphazard all over your picture, or you will lose the thread of your argument, and end in pure drivel. Have you ever seen an expert ink a collotype plate? To the eye of the uninitiated the action of the roller appears to be identical when its passage adds colour or removes it. The experience of the beginner in oils is somewhat similar. The preliminary inking works quite smoothly, but after a time the brush seems to remove the pigment as fast as it is put on. Yet, after a few trials, one gets to recognise the feel of the springy motion that clears the spot, and of the lingering, insinuating touch that darkens it. Here is a rule that may be of use to the beginner: rapid and brusque action of the brush, be it perpendicular or horizontal, will remove colour from all slightly inked parts, and leave unchanged all parts more heavily covered; it will produce contrast.

### The "Hopping" Process.

The *hopping action*, described by Mr. Rawlins, is founded on this peculiarity. It consists in holding a straight-cut stencilling brush between the thumb and the two first fingers, perpendicularly to the print, which must then lie flat on the table, and in letting the brush fall on the pigmented surface, and bounce up again. It is caught as it bounces, and the movement is repeated over and over again. This is an excellent dodge for correcting any error in pigmenting—over-pigmenting, in fact; but I believe that it is wiser to try and get the proper result by inking progressively, than by forcibly removing pigment that has no right to be where it is. Experience will show that a picture with reserved whites looks infinitely better than one the whites of which have been produced by removal. But in the darker portions of the print, the use of the hopping action is often a necessity. There are half-tones, and also details in certain shadows, that it may not be possible to reserve. They will have to be inked over, and then picked out in the manner described above.

To resume, the result of my experiments in pigmenting seems to show that the less a print is worked upon, the better it will be. But, according to the scheme of tone adopted, the minimum of work may be five minutes in one case and an hour in another. What the worker in oils must bear in mind is that he has every advantage in trying to get his effect by the simplest means.

Mr. Rawlins mentions turpentine as the best solvent to use for removing the pigment down to the gelatine. I much prefer plain water. Absolutely white accents can be produced with a hog's-hair or sable brush (according to the thickness of the layer of pigment), dipped in cold or lukewarm water. And the action is thus limited to the actual portions that are submitted to friction—while turpentine or high-grade benzine will always dissolve more or less of the adjoining pigment, and, however, carefully dabbed away, will still change the normal thickness of the fresh pigment.

If you want to drive away every trace of pigment from the surface of your print, you can do it with a soft sponge, and cold, or slightly tepid, water, when the pigment has not been heavily applied; but in the case of a thickly-inked print, you will have to use automobile naphtha, which has the advantage of drying very quickly. Of course, the print should be soaked again before pigmenting, and it is safer to let it dry totally before soaking it anew, to avoid unequal swelling of the gelatine. Automobile naphtha will also come handy for the cleansing of the brushes, a messy, but all-important operation, which must be performed carefully and completely, before the ink collected on the hairs has had time to dry—at a safe distance from lamp or candle, of course.

Oil prints take a long time to harden, and even to dry, unless they are very slightly inked, and up to now I have not been able to make their surface scratch-proof. I have tried different kinds of varnish, but the really efficient ones show too much for my taste. The best results have been given by Soehnee's varnish for water colours, thinned down to one-third of its normal strength with alcohol of 90 degrees; even this is not entirely satisfactory. There is something to be done in that direction, as well as in several others, for though the process is not new, it has never yet been given a fair trial.

I sincerely hope that it will be taken up seriously by the American school of pictorialists, who will, I am sure, study it from one point of view only, and direct its evolution towards the proper goal. No photographic process exists that can serve as an apprenticeship to the Rawlins process. It is purely monochrome painting on somebody else's drawing—not photography—and the painter's rules must be followed implicitly, and with proper knowledge, or disaster will follow.

ROBERT DEMACHY.

## THE PHOTOGRAPHY OF FULL-LENGTH FIGURES.

From "Das Atelier."

ALTHOUGH the first effect we should strive for in photography is fidelity to nature, under certain conditions deviations therefrom are not only permissible, but even imperative, always assuming that the likeness to the sitter is not destroyed. Details may be altered to this end by retouching, but this is useless when it comes to altering the proportions of the human body. For this the negative must either be modified by optical means or a duplicate negative must be made in a similar way. Experienced photographers are all aware of the effect of printing figures and faces either in the direction of the length or breadth of the paper, according to which way the latter expanded.

Alterations of the proportions of the body during the exposure are only applicable when disproportions of the sitter are noticed before exposure. They are generally effected by causing the image to fall, not in the centre of the ground glass, but as near the edges as possible, so that the axis of the lens lies outside the image. This requires a flat field, such as shown by modern lenses. In this way it is possible to make a thin person look stouter, and also to lengthen or shorten the lower half of the figure in proportion to the upper. It is not possible to make a fat person look thinner or to shorten a figure without alteration of the fatness, or to obtain variations

in between. The possibility of thus altering the dimensions of the body on the original negative is therefore limited.

### 1. Turning the Axis of the Lens on a Horizontal Angle to the Line Between the Lens and the Sitter.

If we call the sitter  $M$ , the camera  $c$ , and the focussing screen  $m$ , Fig. 1, and shift the camera parallel to the focussing screen in the direction  $c'$ , the image will be at  $m'$ , and is broader than at  $m$ , and also differs, because there is another point of view. This is not the case if the image is shifted to  $c^1$  instead of  $c$ , Fig. 2, by merely turning the camera on a vertical axis, so that the position of the image is at  $c//$  and  $m''$ . In both cases the horizontal axis of revolution is  $\phi$ . The first process exactly corresponds to the reproduction of a person on the right or left side of a group taken with a wide angle—2  $\phi$  whereas in the second case the same angle is used, the position and lighting is the same as in a normal portrait, and is therefore preferable to the other. An example of both methods is shown in Figs. 5 and 3, whilst Fig. 4 is the normal position. The broadening in both cases is driven as far as possible with keeping the likeness, so as to show as much difference as possible. In practice one will hardly



ever go so far as this, unless a caricature is wanted, when, of course, the limits here laid down may be overstepped. It should be noted also that the broadening of face and figure is only noticeable when compared with the normal pose, and that a horizontal  $\phi$  has no effect on proportions of the height of the figure.

## 2. Raising or Lowering the Lens Axis.

It will be at once seen that this process—as will be seen from the angle  $\phi$ —corresponds to the second process described under 1, and

## Variations by Duplicate Negatives.

Alteration in the proportions of the body by making first a positive and then a duplicate negative has the advantage that it always has the normal negative for comparison, so that the amount of variation can be more accurately estimated, and also that the effects obtainable by the process described in the above section can be obtained to a much greater extent, and results even secured which are quite unattainable by that method, which range from



Fig. 4.



Fig. 5.



Fig. 6.

as Fig. 6 shows when compared with Fig. 2. Still the effect is strikingly different according to whether the lens is raised or lowered, as will be seen in Figs. 7, 8, and 9, in which Fig. 8 is the normal picture, Fig. 7 that taken with the lowered lens, and Fig. 9 that with the lens raised. In Fig. 8 all the proportions of the body, from top to toe, are normal, in Fig. 7 the upper part and head are considerably enlarged, so that the whole figure, although longer than Fig. 8, appears smaller and almost dwarf-like, whilst in Fig. 9

most delicate correction to the grossest caricature. Results may in fact, be obtained by photography which have hitherto only been attained by drawing.

The necessary modifications can be effected either when making the duplicate negative from the positive or when making the positive from the original negative, or with both. In the first case it is advisable to use the carbon process for making the positive, and the second both must be made in the camera.



Fig. 1.



Fig. 2.

although actually smaller than in Fig. 7, the sitter appears considerably taller and thinner than the others, because of the small head and long legs, and has a distinctly more aristocratic appearance than Fig. 8, to say nothing of Fig. 7. The nearer the head is to the lens axis and the further the feet are from it, is the more advantages for ordinary men in whom short legs are in the preponderance.

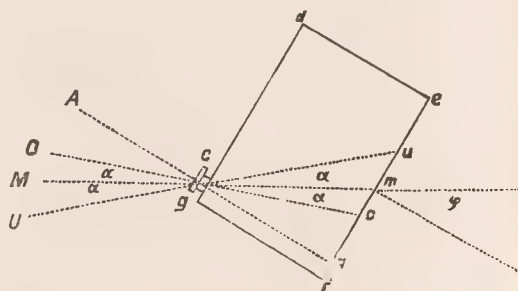


Fig. 3.

To obtain effects as described in Section 1, it is only necessary to place the transparency in the position of the sitter in Figs. 1 and 2, and it is best to place it head downwards; then on the focussing screen the action of the increase of the angle  $\phi$  can be most conveniently observed. To obtain a character a wide angle lens should be used, and if the half of this is  $= \phi$  and  $30^\circ$ , the head will be enlarged 1.5 times more than the feet.

### Enlarging or Reducing Certain Parts of the Figure.

This method is very similar to that used for remedying the distorted lines of a building, only it is the reverse. If in Fig. 10  $oo'$  is the original negative,  $c$  the lens with horizontal axis, and  $rr'$  the transparency, or  $oo'$  the transparency, and  $rr'$  the duplicate negative, the image at  $r$  is smaller than that at  $o$  and that at  $r'$  greater than that at  $o'$ . If the method is used to produce the transparency as well as the duplicate negative, the effect is doubled with equal

sufficiently reduced. In most cases it is advisable to make a carbon transparency and copy this, as one can then see, not only the shape, but the light and shade.

To broaden a thin figure it is only necessary to turn the focussing screen on its vertical axis.

### Combined Corrections.

When a normal transparency has been made it is easy to make one or more corrections in the camera. If the legs are too short the positive, which should be placed head downwards, should be tilted



Fig. 7.



Fig. 8.



Fig. 9.

inclination of the lens axis to the plate. As the inclination of the lens with small stops can be considerable, much greater caricatures may be made than by the method described above. For instance, with a 4 or 5 inch lens on a half-plate the ratio of the head to the body may be  $1\frac{1}{2}$  to  $2\frac{1}{2}$  to 1.

To make a stout figure thinner, a long focus lens should be used, if possible, and if the original negative is placed at double the distance from the lens with the head at the bottom, as for a normal copy, and then the negative be turned on its vertical axis till the figure is

forwards, whilst if the legs are too long it should be tilted backwards. If the figure is too stout then it should be turned on its vertical axis.

The two corrections may be made on the ground glass by swinging it in or out or sideways. Or the one correction may be made with the transparency and the other with the ground glass.

In all these corrections care should be taken that the figure does not fall too near the margins of the plate, otherwise it may be too easily seen.

F. STOLZE.

## SULPHITE SOLUTIONS THAT WILL KEEP.

From Eder's "Jahrbuch."

1903 MM. Lumière and Seyewetz described the physical causes of the decomposition or oxidation of solution of sodium sulphite. The purpose of this article is to draw attention to the chemical means which will so delay the oxidation of the usual 5 per cent. solution of sodium sulphite that for ordinary purposes this problem may be considered solved.

In 1898 there appeared an article in the "Zeitschrift f. Physikal. Chemie" (vol. 26, page 493), by S. L. Biegelow, entitled "Catalytic actions on the rapidity of the oxidation of sodium sulphite by the oxygen of the air." In this the author states that the oxidation of solutions of sodium sulphite by passing air through them is delayed when these solutions contain small quantities of benzaldehyde, isobutylalcohol, mannite, glycerine, phenol, potas-

sium tartrate, or sodium succinate. These substances act in the order given, that is to say, benzaldehyde acts the strongest.

Biegelow's experiments were repeated in a modified way by A. Titoff, and reported in the same journal (vol. 45, p. 641). Titoff did not use air for the oxidation of the sulphite solutions, but solutions of oxygen in water, and studied in a very thorough manner the slow action of mannite. Both authors come to the conclusion that it is absolutely necessary to use distilled water to dissolve the sodium sulphite. The purer the water, the slower the oxidation *ipso facto* of the sulphite.

This treatise of Titoff's directed my attention to this subject, which is photographically of considerable importance, and I decided to test these negative catalysers as regards their action on the usual photographic 5 per cent. solution. As a preliminary experiment, a 5 per cent. solution of crystallised sodium sulphite was made, and



to half of it 2 per cent. of mannite was added. Fourteen days later a test plate was exposed and cut in two. Two amidol developers were prepared with the two solutions, and the plate developed in these solutions. The developer containing mannite gave a normal negative, the other no trace of reduction.

In order to study more accurately the time of retardation of oxidation of the sulphite by mannite the following solution was prepared.

#### No. 1 Solution.

Distilled water .....	1,000 ccs.
Sodium sulphite cryst. ....	50 gms.
Mannite .....	20 gms.

This solution was kept in a corked bottle, and altered in three months, as shown in the following table:—

Date.	Sodium Sulphite, Cryst.
1904.	gms.
14/4 .....	40.95
21/4 .....	39.81
12/5 .....	36.97
19/5 .....	31.46
14/7 .....	12.23

In order to see what was the action of an increased quantity of mannite, a second solution was prepared only with 4 per cent of mannite. The following table shows its behaviour during five months:—

#### No. 2 Solution.

Date.	Sodium Sulphite, Cryst.
1904.	gms.
14/7 .....	30.95
16/8 .....	29.83
15/9 .....	27.32
14/10 .....	11.65
15/11 .....	6.00
14/12 .....	—

This solution contained, after five months, therefore, still 6 g. of sodium sulphite per litre. An amidol developer prepared with this gave, to my astonishment, a dense negative in five minutes.

Corresponding to 50 g. of the crystallised sulphite, 25 g. of the anhydrous salt, obtained from one of the first German makers, were dissolved in a litre of water with 40 g. of mannite. Many will wonder at the small quantity of sulphite used, but this was the quantity adopted.

The following table shows the behaviour of this solution in the course of six months:—

#### No. 3 Solution.

Date.	Sodium Sulphite, Anhydrous.
1904.	gms.
14/7 .....	17.135
16/8 .....	17.030
15/9 .....	16.570
14/10 .....	15.870
15/11 .....	12.690
14/12 .....	9.840
1905.	
17/1 .....	6.520

From the last two tables it will be seen that by the addition of 4 per cent. of mannite the ordinary sulphite solutions will keep for five or six months.

I thought it would be interesting to continue the experiments and to test the preservative properties for sulphite solutions of glycerine

An important change in the postcard trade is the resignation of Mr. F. T. Corkett, who has been studio manager and reproduction expert to Raphael Tuck and Sons, Ltd., for the last six years. Mr. Corkett took over the postcard section when it had very insignificant proportions to the present, and he has been with the business during its immense rise and present great success. Mr. Corkett has resigned, we have been informed, to start in business for himself, but at the time of going to press there is not, we understand, a definite decision on his part.

and isobutylalcohol. A solution was prepared according to following formula:—

Distilled water .....	1,000 ccs.
Sodium sulphite, anhydrous .....	39 gms.
Glycerine .....	50 gms.

The behaviour of this solution during three months is shown in following table:—

#### No. 4 Solution.

Date.	Sodium Sulphite, Anhydrous.
1904.	gms.
16/9 .....	24.40
23/9 .....	22.63
30/9 .....	20.79
7/10 .....	19.01
14/10 .....	17.93
21/10 .....	—
28/10 .....	15.58
4/11 .....	—
15/11 .....	11.35
14/12 .....	7.25

From this table it will be seen that the addition of 5 per cent glycerine will keep sulphite solutions for three months.

To test the preservative powers of isobutylalcohol two solutions were prepared:—

No. 5 solution contained 4 per cent of anhydrous sodium sulphite and 4 per cent. of isobutylalcohol.

No. 6 solution contained 4 per cent. of anhydrous sulphite 2 per cent. of isobutylalcohol.

The behaviour of these two solutions during three months shown by the following tables:—

#### Nos. 5 and 6 Solutions.

Date.	Sodium Sulphite, Anhydrous.
1904.	gms.
16/12 .....	22.71
1905.	
17/1 .....	19.39
17/2 .....	14.61
23/3 .....	11.18
	15.72
	9.84
	5.79

A comparison of this table with table No. 3 shows that man is superior to isobutylalcohol as a preservative.

Finally, the preservative power of mannite on a concentrated solution of sulphite was tested. No. 7 solution contained:—

Distilled water .....	1,000 ccs.
Sodium sulphite cryst. ....	250 gms.
Mannite .....	20 gms

In the course of three months this solution behaved as follows

#### No. 7 Solution.

Date.	Sodium Sulphite, Cryst.
1905.	gms.
23/4 .....	176.70
3/5 .....	176.70
11/5 .....	163.46
18/5 .....	161.10
13/8 .....	151.26

I am indebted to Herr Rudolf von Stern, chemist to the St. Paper Works, for the analyses.

Finally, I may mention that 2 per cent. of mannite has proved to be a good preservative for sulphate of iron solution, as with addition it will keep for about a week. W. WEISSENBERGER

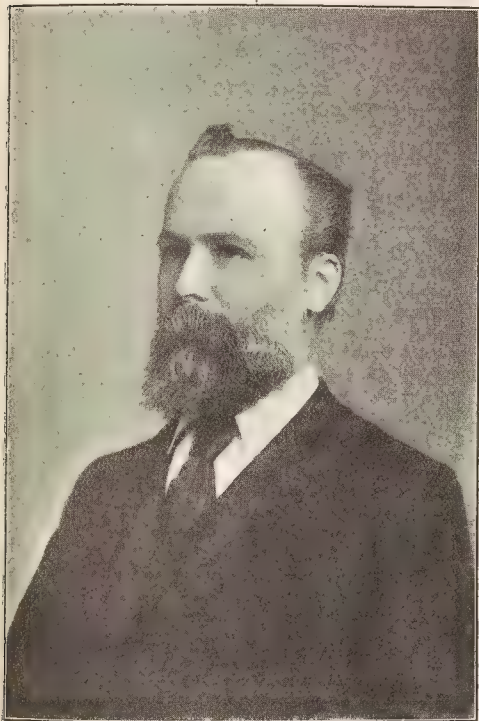
THE Cricklewood Society has been re-formed, and commences session on October 24 at the Windmill Hotel, The Broadway, Cricklewood. Membership and further particulars can be had application to the Hon. Sec., Mr. Reginald J. Layman, 19, York Grove, Cricklewood, N.W.

THE Hackney Exhibition.—At the forthcoming exhibition there will be a class for stereoscopic slides. Entries will finally close on Saturday, October 27.

## THE TRAILL-TAYLOR LECTURER—1907.

EDWARD WALTER MAUNDER, F.R.A.S., who has been invited to deliver the ninth Trall-Taylor memorial lecture, under the auspices of the Royal Photographic Society, at the New Gallery, Regent Street, on Tuesday, October 23, has been for many years in close personal touch with the application of photography to scientific investigation. Entering the Royal Observatory at Greenwich, in 1873, he has been engaged in many branches of astronomical research, chiefly in the examination, both visual and photographic, of the sun's surface. For many years now he has been in charge of this department, which is entrusted with the duty of obtaining a complete record of the sun on as many days as possible, these photographs having subsequently to be carefully and minutely measured on a delicate micrometer.

Mr. Maunder was elected a Fellow of the Royal Astronomical



[Photography by Elliott & Fry.]

Professor E. Walter Maunder.

Society in 1875, and has taken an active part in the work of that institution, serving on the Council, and also as secretary and vice-president.

In 1890 he founded the British Astronomical Association, which has since taken a high position in the initiation of astronomical investigations, and done much to popularise the study throughout the country of this association; he served as president from 1894 to 1896.

Bearing on his solar work, he has visited many parts of the world for the purpose of observing the sun during these few precious moments when our luminary is totally eclipsed. In 1886 he went to the West Indies, Lapland in 1896, India in 1898, Algiers in 1900, Mauritius in 1901, and Labrador in 1905.

Naturally, in so long and varied an experience, he has published many interesting and instructive memoirs, and his two books, "The Royal Observatory, Greenwich," and "Astronomy Without a Telescope," are excellent examples of his clear and easy style of imparting knowledge to others.

Mr. Maunder's subject on Tuesday next is "Photography in the Work of Greenwich Observatory." We shall be glad to send a ticket to any applicant sending us his name and address.

## MR. J. T. SANDELL.—AN APPEAL.

THE letter from Mr. J. B. B. Wellington in our columns last week, appealing on behalf of Mr. J. T. Sandell, has brought, we are glad to say, a number of liberal responses, which will form a nucleus for a fund towards the relief of Mr. Sandell's distressing circumstance. We are glad to publish the following list of donors, and we trust that others will contribute any sums within their power towards the amelioration of Mr. Sandell's lot. Mr. T. K. Grant, of the Lumière N.A. Company, with Mr. Wellington, has interested himself in the fund, and donations may be sent to either of these gentlemen or to ourselves.

The following donations have been received by ourselves and passed on to Mr. J. B. B. Wellington:—

	£	s.	d.
W. J. W. ... ..	10	10	0
J. C. Warburg ... ..	1	1	0
J. D. L. ... ..	2	2	0
G. B. ... ..	1	1	0
Arthur Marshall ... ..	1	1	0
Alexander Cowan ... ..	1	1	0
F. H. ... ..	2	2	0
Fredk. H. Evans ... ..	1	1	0
Miss A. B. Warburg ... ..	2	2	0
X. Y. Z. ... ..	0	10	0
H. Greenwood and Co. ... ..	2	2	0
W. Friese Greene ... ..	0	10	0
Other donations are:—			
S. H. Fry ... ..	1	1	0
Alfred Ellis ... ..	0	10	6
Lumière N.A. Company ... ..	5	5	0
Thos. K. Grant ... ..	5	5	0
John Grant ... ..	1	1	0
G. W. Norton (Oxford Camera Club) ... ..	0	10	0
A. Mackie ... ..	0	5	0
London and Provincial Photographic Association (collected at annual supper) ... ..	5	5	0
The Imperial Dry-Plate Company ... ..	5	5	0
Marshall, Brooks, and Chalkley ... ..	2	2	0
Elliott and Sons, Limited ... ..	5	0	0
H. Snowden Ward ... ..	1	1	0
E. W. ... ..	0	4	0
J. B. B., Wellington ... ..	5	5	0
Wellington and Ward ... ..	5	5	0
Hazell, Watson, and Viney ... ..	5	5	0
A. Horsley Hinton ... ..	1	1	0
L. J. Bolton ... ..	1	1	0
Total ... ..	75	14	6

## THE SOCIETY OF COLOUR PHOTOGRAPHERS.

In response to an invitation issued by Mr. H. J. Comley, of Stroud, Gloucester, a meeting was held on Tuesday evening last at the offices of THE BRITISH JOURNAL OF PHOTOGRAPHY to consider the formation of a society devoted to colour-photography. Those present included Edwin T. Butler, T. Bolas, E. J. Wall, Sidney L. Young, S. G. Yerbury, A. Macpherson, A. J. Newton, E. R. Grills, C. E. K. Mees, George E. Brown, Henry J. Comley, H. Snowden Ward, F. T. Hallyer, W. E. Dalden, S. G. Kimber, Charles B. Howdill, and Bertram T. Hewson. On the proposition of Mr. George E. Brown, seconded by Mr. E. J. Wall, Mr. Snowden Ward was voted to the chair. Mr. H. J. Comley read letters from various persons interested in colour photography, including Dr Grün, Dr. Hutchinson, Dr. Jumeaux, Mr. O. Pfenniger, and others. A telegram was read from Mr. Sanger-Shepherd regretting his inability to be present.

A brief discussion took place on the form which a society for colour-photography might take, in the course of which it was suggested that the members might circulate an experience book with specimens, appoint a committee of advanced workers who would advise those in difficulties, and hold an annual meeting and exhibition. A subscription of 10s. was proposed, but an amendment placing the sum at 5s. was carried. Mr. H. J. Comley was elected secretary and treasurer, and a committee was also elected



to draw up a circular stating the objects and methods of the society. This committee consists of Messrs. E. J. Wall, Geo. E. Brown, F. T. Hollyer, and A. J. Newton, with the secretary.

## Photo-Mechanical Notes.

### Etching Machines.

We are hearing a good deal lately about etching machines. Such machines are required if they can perform the work as well and quicker than it is already being done, and especially if they can do it both quicker and better, a claim which has always been made for the Levy acid blast, and supported by comparative photo-micrographs which show the machine-etched plate to be both smoother and deeper than those etched in the tub as usual. Although we have read of this machine for so long, and it has been promised in England, we have not yet been privileged to see it. From an article in a recent number of the American "Engraver and Electrotyper," the Levy machine does not appear to be always an unqualified success, and reference is made to the introduction of another machine, the "Thorpe," which is being placed on the market by the Ostrander Seymour Company. This machine is arranged to rain the acid down on the plate placed face upwards, in contrast to the Levy, which blasts it up on the plate placed face downwards. It is also stated that a third invention is announced in America as being almost ready.

In Europe we have the Holmström etching machine, marketed by Messrs. Klimsch and Co., but this we do not think has yet been introduced into England. It consists of a large box, having the bottom pitched out or made of porcelain, holding the acid solution, in which one or two paddle wheels, driven by a motor, revolve rapidly, sending a spray of acid solution against the plate, which is placed face downwards under the lid of the box. It is said to be very successful; some of the results shown look excellent. Similar in principle is the Mark Smith etching machine, shown at the recent exhibition at the Agricultural Hall by Messrs. Hunters, Ltd. This is a porcelain box or kind of deep sink containing the acid solution at the bottom. In this an aluminium paddle, something like the screw propeller of a steamer, is revolved rapidly by means of a motor, and this drives the acid against the plate, held face downwards. We have no doubt this will etch deeper and smoother than any hand-etched plate in the same time with the same strength of acid, and an etching machine is only of service in so far as it does this.

Another machine that is to be seen in England is that invented by Dr. Albert. This consists of the ordinary etching tub placed on a stand. Over this is placed a cover, and inside the cover there is a frame to which is fixed a number of blades of aluminium, forming a sort of comb. This frame is fastened to an eccentric, which can be moved by turning a handle. The effect of this is to work the blades to and fro just above the plate, placed face upwards, in the etching solution. It is stated that this introduces air, which is necessary to the etching fluid used by Dr. Albert, the said fluid being made from a secret powder, sold to purchasers of the machine. The principle does not seem so good as that of the machines throwing a spray, nor do the results seem to our mind at all superior to hand-etched plates, either in depth or smoothness. As to speed of etching, we think that violent agitation of ordinary nitric acid solution by brush or other means would etch just as quickly and with the same want of depth and smoothness. The two latter machines are the only two on the market here, and when it is stated that the English machine costs £50 with a motor, while the German one costs £125 without, the latter being worked by hand, it will be seen that in this instance at least the process engraver can easily afford to be patriotic.

### The Royle Catalogue.

Messrs. John Royle and Sons, of Paterson, New Jersey, send us their latest descriptive catalogue of the Royle-Richards ruling machine. Though primarily designed for ruling wood-cuts, in which work, as the Royle catalogue shows, it is capable of superlatively fine results, it may be employed for ruling backgrounds in half-tone cuts, and should be found of great and useful application in the finishing and embellishment of half-tone plates generally.

Photo-engravers may also consider the feasibility of purchasing the machine for the commercial production of wood-cuts, the advantages of which, when finely executed, are, of course, well known to publishers of trade catalogues, etc., and are in evidence to perfection in the list of Messrs. Royle.

### Enamel Blistering Off

A querist of Messrs. Penrose's "Process Work," states his difficulties with the enamel process as follows:—

What is the reason for the enamel blistering up from off the zinc plate while etching? After burning in the zinc the enamel will not bear touching with a graver or anything to rule or touch up; it will splinter off the enamel. I have tried the enamel both thick and thin. The formula I use is:—Clarified glue, 2 oz.; albumen of one egg; bich. ammonia, 80 grs.; water, 3 oz. The fish glue we get from Messrs. Penrose and Co., and this formula we have used for a very long time. Is it the glue? There seems no body in the enamel when burned in. I should be very much obliged if you could help me either with another formula or say what is the matter with what I am using. We have had to discard the enamel for a time.

In reply to which a reader, Mr. S. Scholes, advises the use of the following formula:—

Fish glue reclarified.....	5 ozs.
White of 1 egg .....	
Amm. bichromate.....	120 grs.
Chromic acid.....	5 grs.
Water .....	5 ozs.
To reclarify fish glue take:—	
Fish glue.....	20 ozs.
White of 4 eggs .....	
Water .....	20 ozs.

Mix thoroughly with an egg beater and then put on gas, letting it boil for about three minutes, watching it very carefully to see that it does not boil over, then filter through a flannel jelly bag while hot; allow this to get quite cold and mix up the fish glue as follows:—Add the fish glue, eggs, and half the water together, mix thoroughly, then dissolve the bichromate and chromic acid in the remainder of water, and add this to the fish glue, slowly stirring all the time. Allow the solution to settle, filter well, and it is ready for use. Clean the zinc plate and put into:—

Nitric acid.....	$\frac{1}{2}$ oz.
Alum .....	2 ozs.
Water .....	20 ozs.

for about one minute, place under tap and rub with a piece of cotton wool; this will give the plate a matt surface and will help the film to hold on better; coat the plate in the ordinary way, and whirl dry over a gas. The film should be kept as thick as possible. Put the plate out to print and carry same through, drying it and developing quite clean; now before dyeing it you must put it into a hardening bath which has been made up 48 hours, and put into daylight to ripen:—

Amm. bichromate.....	1 oz.
Chromic acid.....	80 grs.
Methylated spirit.....	2 ozs.
Water .....	17 ozs.

Leave the plate in this for three to five minutes and dry in strong light; when dry it must be cooked up with a very powerful gas burner as quickly as possible, using a grid-iron for it, as the zinc plate is so likely to bend and melt when finished. Put on slab to cool, then etch in the ordinary way. There is nothing wrong with the fish glue, and the reason there is no body in the glue is (1st) twirling too fast, (2nd) cooking up too slowly.

### The Zander Four-Colour Process.

In reference to the recent criticism of Baron von Hübl, Mr. Zander sends us a reproduction of shaped hats, stating that the same is for inspection. This, with other specimens sent, is stated to be "a rough pull from unfinished blocks" by his four-colour process, and it is claimed that such results could not be obtained by three-colour. We are afraid we cannot make this admission, as we have seen plenty of three-colour proofs of equal merit. In any case, this is not a fair example, as few of the hats show the whole of the four-colours printed on them, some of the work being either deep, etched away, or engraved away by hand. This would therefore take more time than ordinary three-colour, and depends upon extremely skilled labour, having very little or nothing

to do with the particular method suggested by Mr. Zander, which, if it is any improvement at all, must justify itself by its mechanical superiority. If work is to be finished by hand to such an extent, it would be better to use special colour-filters and special inks appropriate to the particular subjects to be reproduced. We should like to see some subject reproduced by Mr. Zander's method, in which no work has been cut away, or, better still, without any fine etching at all.

#### PHOTO-MECHANICAL PATENTS.

**ETCHING PLATES.**—No. 20,321. Improved method of etching and apparatus for the production of half-tone, line, and other process printing plates. Harry Guy Bartholomew and Herbert Moir Bussy, 149, Strand, London, W.C.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received from October 1 to October 6:—

**EXHIBITING POSTCARDS.**—No. 21,616. Means for exhibiting picture postcards, and the like. Alfred William Zallop, 14A, King Street, Great Yarmouth.

**IMPROVED MATERIAL.**—No. 21,698. Improved material on which photographers and artists can produce pictures. William Buist Picken, 35, Agamemnon Road, West Hampstead, London.

**STEREOSCOPES, ETC.**—No. 21,743. Improvements in stereoscopes, projection lanterns, and the like. Kingsway Syndicate, Ltd., and William Mountstevens Gillard, 7, Southampton Buildings, London.

**DISPLAYING PHOTOGRAPHS.**—No. 21,842. Improvements in and relating to holders for displaying photographs, picture cards, and the like. George Hayes, 36, Chancery Lane, London.

**FOCAL PLANE SHUTTERS.**—No. 21,877. Improvements in or relating to focal plane and other roller blind and shutters for photographic purposes. Arthur Lewis Adams and Walter George Roberts, Birkbeck Bank Chambers, Chancery Lane, London.

**DAYLIGHT LOADING CAMERA.**—No. 21,881. Daylight plate loading and reloading box camera. Phillip Anton Schmaus, 6, Romilly Street, Liverpool.

**PLATES, ETC.**—No. 21,975. Improvements in apparatus in which photographic articles are treated in liquid. William Laurence Parkinson, 15, Walter Street, Liverpool.

**CAMERAS.**—No. 21,981. Improvement in photographic cameras. Charles Howdell and George Lloyd Moore, trading as the Midland Camera Company, Ltd., Slaney Street, Birmingham.

**ROLL FILM HOLDER.**—No. 22,087. Photographic roll film holder. Arthur Mason, 63, Shepherd's Lane, Leeds.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**SHUTTER.**—No. 21,950. 1905. This invention is for a shutter or screen for exposing a plate in sections, one or more at a time. A strip of opaque cloth or other opaque flexible material is divided into sections by lines drawn across it. Any number of sections may be used of the same size or length, and they are suitably perforated with one or more holes of suitable shape and size, and registered in position so that when an exposure of the plate has been made with each section separately, the whole of the plate will have been exposed. The end of the strip of opaque cloth, paper, or other flexible material is fastened by a hook or any other means to rollers, and the strip wound thereon, the rollers being furnished with a flange at either end

to ensure the strip rolling evenly thereon. The other end of the strip is then fastened to the other roller, enabling it to be wound from one roller to the other. An indicator is fixed to the rigid frame, or may form a part thereof, to enable the sections of the strip to be registered in position, by bringing the dividing lines into alignment with the same while winding the strip from one roller to the other. The distance between the rollers affords room for only section of flexible strip to be in use at a time, the other sections being wound on one or other of the rollers. If the sections are correctly registered in position and all of them used one after the other, the perforations in the same will be so placed and be of such a shape and size, that the whole of the photographic plate or film will have been exposed. The position of the device in regard to the camera should be out of the plane of focus of the lens, so that the edges of the perforations will not be clearly defined on the photographic plate or film. The claims are: 1. A device for enabling photographic plates and the like to be exposed in sections constructed substantially as described. 2. A device for attachment to or insertion in a camera, comprising a frame provided with two rollers, such rollers having a band attached thereto, such band being provided with perforations arranged in such a way that as the band is moved intermittently from one roller to the other all portions of a plate or film may be exposed as required for the purposes set forth. The combination with a camera of a band or screen provided with perforations so formed that all portions of the plate or film may be exposed in divisions intermittently as required, without any portion being doubly exposed. 4. In a device for enabling photographic plates and the like to be exposed in sections. William Boyd Henderson, 108, Westbourne Grove, London, W.

**CATALYTIC PRINTING.**—No. 7,935. 1906. This invention is for an improved process for reproducing pictures by imprinting an original that has been treated with hydrogen peroxide. The catalytic method of multiplying pictures, as in Specifications No. 22,841, 1901, and 13,920, 1903, required the subsequent treatment of the impressed paper with a bath, but in this invention the paper or other surface is itself prepared in such a manner that the hydrogen peroxide produces the colour at once. The advantages are greater simplicity in working and the possibility of obtaining different effect, such as soft or hard prints, by varying the concentration of the solutions. Substances suitable for preparing such papers are manganous salts. Paper impregnated with one of these, after it has been pressed against the original picture treated with hydrogen peroxide, may be developed by ammonia, either alone or mixed with an ammonium salt. The following examples illustrate the process:—

No. 1.—Gelatine paper is impregnated with a solution of a manganous salt of 5 per cent. strength and allowed to dry. The invisible reproduction obtained on such paper is developed with a mixture of 20 c.c. of saturated aqueous solution of ammonia and 100 c.c. of water, or with a mixture of 20 c.c. of saturated aqueous solution of ammonia and 80 c.c. of a saturated solution of ammonium chloride.

No. 2.—A solution made by mixing 200 c.c. of a solution of gelatine of 20 per cent. strength, 20 grams of crystallised manganous chloride, and 200 c.c. of water is poured upon paper, glass, films or the like, and the surface is allowed to dry. The development may be as described in Example 1.

No. 3.—A mixture of 100 c.c. of a solution of gelatine of 20 per cent. strength and 250 c.c. of a solution of borax of 10 per cent. strength mixed with 100 c.c. of a solution of gelatine of 20 per cent. strength and 50 c.c. of a solution of manganous chloride of 25 per cent. strength is poured upon paper. The development may be as described in Example 1. Still more simple is the multiplying process when the paper or the like contains a substance which reacts directly with hydrogen peroxide without further treatment. Thus, cobaltous salts are oxidised by hydrogen peroxide, so that if a surface previously impregnated with such a salt at suitable concentration, be pressed against the original picture treated with hydrogen peroxide, a visible reproduction is produced without necessity for any development. These salts are not sensitive to the action of air, differing in this respect from the ferro-ammonium sulphate



previously used; indeed, they remain unchanged for any time that is likely to come into consideration in practice. An addition of an alkali salt of a feeble acid to the cobaltous salt is advantageous for the strength of the picture. This part of the invention is illustrated by the following examples:—

No. 4.—Gelatine paper is impregnated with a solution of cobaltous acetate of 10 per cent. strength. The paper thus prepared can be used, even long after it has been made, for copying a picture by the catalytic process by pressing the catalytic original that has been treated with hydrogen peroxide, against the paper whereby a visible reproduction is produced directly. If desired this reproduction can be intensified by treatment with solution of ammonia or of caustic soda or some other bath containing hydroxyl-ions.

No. 5.—6 grams of cobaltous acetate are dissolved in 100 c.c. of a solution of gelatine of 10 per cent. strength, and paper, glass, or the like is coated with the solution.

No. 6.—9 grams of cobaltous sulphate and 10 grams of sodium acetate are dissolved in 100 c.c. of a solution of gelatine of 10 per cent. strength, and paper, glass, or the like, is coated with the solution.

No. 7.—8 grams of cobaltous chloride and 10 grams of sodium salicylate are dissolved in 100 c.c. of a solution of gelatine of 10 per cent. strength, and paper, glass, or the like is coated with the solution.

No. 8.—9 grams of cobaltous acetate and 9 grams of sodium acetate are dissolved in 100 c.c. of a solution of gelatine of 10 per cent. strength, and paper, glass, or the like is coated with the solution.

No. 9.—8 grams of cobaltous sulphate and 10 grams of sodium ortho-nitrobenzoate are dissolved in 100 c.c. of a solution of gelatine of 10 per cent. strength, and paper, glass, or the like, is coated with the solution.

No. 10.—A solution of 8 grams of cobaltous acetate in 50 c.c. of a solution of gelatine of 10 per cent. strength is mixed with a solution of 7 grams of borax in 100 c.c. of gelatine of 10 per cent. strength, and paper, glass, or the like, is coated with the mixture. Gum-printing paper and pigment paper may also be prepared by this process by adding to the mixture of gum or gelatine and colouring matter the selected salt, such as cobaltous acetate or another cobaltous salt, or a mixture of a cobaltous salt, with an alkali salt of a feeble acid. By the action of the hydrogen peroxide the gum or the gelatine is made insoluble in warm water.

No. 11.—4 grams of cobaltous acetate are dissolved in 100 c.c. of a solution of gelatine of 10 per cent. strength, which contains a suitable colouring matter, and paper or the like is coated with the solution. Neue Photographische Gesellschaft, 27, Siemenstrasse, Steglitz, Berlin.

**PHOTOGRAPHIC PRINTING APPARATUS.**—No. 9,764, 1906. The present invention has reference to copying apparatus of the kind in which the negative and the sensitised printing paper are pressed against a rotatable hollow transparent cylinder, suitably illuminated, and refers more particularly to improvements in devices of this kind, as described in the prior Specifications 1753/05 and 1757/05, in which is described a copying apparatus comprising a hollow, transparent, illuminated cylinder mounted on a spindle, the negative and the sensitised printing paper being pressed into close contact with said cylinder by means of a number of narrow bands. Vastly superior results are obtained by employing in place of a number of narrow bands an undivided cloth, extending approximately the whole width of the cylinder, and in suspending said cylinder freely in the undivided cloth or band; the present invention therefore consists of a copying apparatus of the kind above referred to in which the transparent hollow illuminated cylinder around which the negative and the sensitised printing paper are passed, is freely suspended in a loop of an endless undivided cloth or band, whereby more perfect contact between the negative and the printing paper is obtained, and the various defects existing in apparatus of this kind as heretofore constructed are obviated. The claim is: In copying apparatus of this kind described, the provision of an endless undivided band or cloth, in which the

hollow transparent illuminated cylinder is freely suspended, hung substantially, as described, for the purposes specified. Hans Viggo, Siim-Jensen, Blegdams Hospital, 1, Blegdams Copenhagen, Denmark.

The following complete specification, etc., open to public inspection before acceptance under the Patents Act, 1901:—

**SCREEN PHOTOGRAPHY.**—No. 11,975. Whole-tone or line, and half-tone or screen photography. Mertens.

## New Books.

**"The Complete Photographer."** By R. Child Bayley. London: Methuen and Co. 10s. 6d.

This popular treatise on photography makes the fourth of a series of volumes, devoted to outdoor sport. We trust that no degradation of photography in the eyes of such of its stalwarts as the critic of the "Globe" will follow from its association under Messrs. Methuen's auspices with golf and motoring. The author, in his preface, rather conspicuously avoids a reference to the companion of his volume, the *raison d'être* of which, he tells us, is dilated upon the application of the endless "photographic formulae" to various enjoyable branches of photography. The sporting side of photography gets no kind of showing at all, save some reference to Mr. Mortimer's big-wave photography, and a reproduction of Douglas English's "Harvest Mouse," the latter representing but tepid form of sport after all. The goal of the serious reader of volume, so we assume, is the pleasurable sensation of success in photography—with aims at artistic expressions suggested as a mountain peak in the background, to which the clever photographer may at last attain. To the task of acquainting the reader with the details of present-day photography the author applies himself on a thorough system and with much lucidity. The first chapter is a sketch of the history of photography, and then we enter upon systematic course of instruction in the functions of apparatus, photographic optics, the fitting of the dark-room, exposure, development and its after processes, and the details of the various printing processes. Lantern-slide making and enlarging have a chapter to themselves, and orthochromatic and colour photography are treated together. Lastly come landscape, architectural photography, portraiture, and a chapter on "pictorial photography," of historical interest only, and noticeable for the omission of any mention of Horsley Hinton from a sketch of the rise of the British pictorial work. One may or may not think well of Mr. Hinton's influence on so-called pictorial photography, but historically he is a fact. The 410 pages of "The Complete Photographer" interests us all as recording what kind of photography is practised at the opening of the twentieth century. There is nothing in it that has not been said before; but, on the other hand, there is perhaps no one volume which so adequately treats of the many branches of photography practised by the amateur. The text pages are relieved by fine plate reproductions of photographs by leading pictorialists, among whom are George Davison, Craig Annan, Puyo, Demachy, E. Holding, Walter Benington, Percy Lewis, W. T. Greathouse, David Blount, Alfred Steglitz, Fredk. H. Evans, and W. R. B. The frontispiece, in photogravure, is Mr. Crookes's magnificent portrait of Irving.

A manual of "Lantern-Slide Making and Exhibiting" reaches us as No. 4 of the "Focus" series. The author, Mr. John A. Horsley, F.R.P.S., has done his best in the space at his disposal, and the volume contains a large number of hints expressed without the usual flow of words. The price is 6d.

**"Photographic Lenses."**—A new edition of this popular treatise on photographic optics has been issued by Messrs. R. and J. Limited, 68, Cornhill, London, E.C. The text has been revised and added to in many respects, which work, we presume, must be credited to the surviving author, Mr. Conrad Beck. For its lucid treatment of the elements of photographic optics the volume has our warmest approval. We especially admire the ingenious diagrammatic illustrations, of which the authors have liberally used in their exposition. The present edition makes good the omission of an index from the book as first issued.

New Apparatus, &c.

the Primus Clamping Table. Sold by W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C.

The above accessory is offered as a remedy for the slipping of the print whilst being trimmed with a circular trimmer. It consists, as will be seen, of a framework provided with two sliding bars, which



hold the print and circular shape firmly in position. The apparatus achieves its object very satisfactorily, and certainly removes a source of failure in making circular prints.

New Materials.

Interior Bromide Paper and Postcards. Manufactured by the Birmingham Photographic Company, Stechford, Birmingham.

These papers have been lately improved, and the samples submitted to us are quite satisfactory, not only as regards surface, but also particularly as to colour and gradation, the latter having a range sufficient for every possible class of negative. Testing the papers on an actinometer of graded densities, from bare glass to a D. density of 3.01 or opacities from 1 to 1024, we find the whole range recorded. When one considers that the density in primary work is at the utmost about 2 it will be seen at once that the scale is very long and suitable for all classes of work.

The developer specially recommended is amidol, but using a normal metol-hydroquinone, the colour is a good rich black, without any tendency to rusty or greenish tones.

The developer specially recommended is amidol, but using a normal metol-hydroquinone, the colour is a good rich black, without any tendency to rusty or greenish tones.

Messrs. Houghtons have brought out a neat *passee-partout* mount for small prints such as the enlargements from the negatives made in the "Tikka" camera. The whole mount measures 9 by 7, and will take five prints, cut-outs being provided of different shapes. The mount is a welcome departure from existing patterns, and we shall not be surprised to learn that, at the price of 9d., dealers do well with it.

Mr. GRAYSTONE BIRD, 38, Milsom Street, Bath, whose lantern slides we have had the pleasure of commending for years past, sends us his list for the season 1906-7. It includes a large number of men, child, and genre subjects, cloud and sea studies, in addition to the North Wales series, and a number of illustrated hymns, the textual portions of which are from Mr. Bird's own negatives, and excellently illustrate and emphasise the words of the hymn. In technical qualities and artistic treatment of the subject the slides are excellent.

CATALOGUES AND TRADE NOTICES.

The Altrincham Rubber Company, Mossburn Buildings, Altrincham, have issued a price list of their various specialities in the English language. They have also issued a circular of testimonials in English, French, German, and Spanish. Either will be sent post free to any address.

Messrs. SALMON AND SON, 52, Mattock Lane, Ealing, London, W., send us their latest price-list for enlargements in black and white and colours. Messrs. Salmon issue a variety of attractive styles.

Meetings of Societies.

MEETINGS OF SOCIETIES FOR NEXT WEEK.

Ocr.	Name of Society.	Subject
20	Aberdeen Photo. Art Club.....	Outing to Hazelhead.
20	Hackney Photographic Society .....	Outing to Wake Valley.
22	Gravesend and Dis. Ph. Soc. ....	"Art Side of Photography." J. T. Dalladay.
22	Southsea Photo. Society .....	"Rise and Progress of Photography."
22	Preston Camera Club .....	"Negative Making"
22	Southampton Camera Club .....	"Amateur Photographer Prize Slides."
22	Luton Camera Club .....	"Study of Vision: Seeing and Seeing." Rev. F. C. Lambert.
22	South London Photo. Society ..	"Cameras and Apparatus." W. F. Slater, F.R.P.S.
22	Lancaster Photo. Society .....	"Picturesque Devonshire." T. Carr Hughes.
22	Caterham Camera Club .....	"Pictures with the Goerz Lens."
23	Leeds Photographic Society ..	"The Avon from Pershore to Tewkesbury." Harold Baker.
23	Hackney Photographic Society	"A Dive into Belgium." W. L. F. Wastell. Latest Date for Exhibition Entries.
23	Bristol Photographic Club ....	"Criticism on the Exhibition." Mr. Fisher.
23	Manchester Amat. Photo. Soc	"Toning Bromides." A. T. Lakin.
23	Hove Camera Club .....	"Telephotography."
23	Keighley and Dis. Photo. Assn	"Alfred Stieglitz."
23	Darlington Camera Club .....	"Trimming." Demonstrated. Members.
23	Monkland Photo Society .....	"Sports and Pastimes with the Goerz-Anschutz Folding Camera."
23	Wishaw Photographic Society	"What can be done with a Hand Camera."
24	Brierley Hill Camera Club ....	"Stereoscopic Photography."
24	Central Technical Coll. Ph. Soc.	"Tabloid" Brand Photographic Chemicals.
24	Croydon Camera Club... ..	"How Development Occurs." C. E. Kenneth Mew, B.Sc.
25	London and Prov. Photo. Assn.	"Here and There in Great Britain." J. T. French.
25	L.C.C. Staff Camera Club .....	"Gaslight Printing." F. C. E. Dimmick.
25	North London Photo. Society ..	"Amateur Photographer Prize Slides."
25	Liverpool Amateur Ph. Assn...	"Japan." The Land of the Rising Sun. Illustrated. John Bushby.
25	Hull Photographic Society ..	"New Features in the Manipulation of Velox." Messrs. J. J. Griffin & Sons.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Ordinary meeting, October 11, Mr. A. E. Smith in the chair. Mr. Ernest Human showed prints made on "Platinchrom" paper, and said that the paper was of a platinum base, which was developed by the aid of steam. If the paper was allowed to get damp, one had the advantage that it printed out, and then only required clearing, which might be done either in a bath of common salt or hydrochloric acid. A further advantage was claimed for it, inasmuch as sepia, brown, red chalk, and blue tones could be obtained by the aid of special baths. At the same time, he must admit that he did not care for the blue, it being too like the old ferro-prussiate print, but the other colours named were exceedingly fine. Mr. A. Haddon gave "A Scientific Chat," which was highly interesting, inasmuch as it showed how science depended largely upon photography for recording its progress. The lecturer said his notes for the subject were largely the result of being asked to help a colleague in photographing streams of dye in conjunction with glycerine, and his trouble was to get a dye that was sufficiently opaque for photography. After some experiments he found that rose bengal, plus glycerine, plus another dye, plus Indian ink gave what was required. Special apparatus was made to show the induction of the "line of force," and in order to show what was meant by the line of force, Mr. Haddon showed various experiments by the aid of a magnetic needle and a series of magnets, showing how the two ends of a magnet repelled or drew the needle to it, whilst upon silver or copper the magnet had no effect. The address throughout was full of experiments, and was fully illustrated by the aid of prints showing the lines of force obtained by the aid of the dyed glycerine. A hearty vote of thanks to Mr. Haddon was proposed by Mr. Teape and duly carried. Mr. Haddon suitably responded. On Thursday, the 18th, Mr. T. E. Freshwater is to read a paper on "Photographic Notes," and on the 25th Mr. J. T. French will lecture upon "Here and There in Great Britain."

CROYDON CAMERA CLUB.—Mr. F. W. Hicks, on the 10th inst., gave a demonstration on "enlarged negatives," in the making of which he is an adept. All the advice given was, therefore, sound



and to the point. The lecturer laid stress on the importance of first obtaining a good transparency; either a slow ordinary plate might be used or a carbon positive, made by contact. In either case it should be fairly thin and soft, without clear glass or dense shadows. A slight spreading action occasionally appeared with carbon, which was undesirable. For the dry-plate transparency he preferred metal as a developer. In the production of the enlarged negative he advocated daylight as affording the best results, despite its tendency to vary, the correct exposure being ascertained in the usual way by successive exposures on a smaller plate of the same batch. A pyro-soda developer was employed, having a Watkin's factor of twelve, but he generally found reducing this number to eight gave him what he wanted; the factor number taken would, of course, depend upon the printing process for which the negative was intended. Mr. Hicks then proceeded to make a transparency, and by means of the club lantern a capital 12 by 10 negative was produced. Focussing was effected on a piece of white card of the same size and about the same thickness as the plate, pins being arranged as stops to ensure the dry-plate subsequently registering.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—On Monday evening, the 15th inst., Mr. E. Seymour lectured before the above society on "Flower Photography." In the course of his remarks he said that simplicity of treatment was the key to success. For background use a drawing-board faced with a sheet of picture-frame makers' cardboard either white, green, or brown in colour, according to the subject. Small flowers should be wired right up the stem; they may then be pinned to the background and gracefully posed without any fear of their shifting. Exposures must be full, and development should be for the high lights. Orthochromatic plates should be employed, but in very few cases indeed is a screen necessary. Print in bromide platinum or carbon. Green carbon is suitable for studies of leaves and grasses. Prints should be made direct from the negative, and not enlarged, as in the latter case a certain amount of fine texture and detail is sure to be lost. Special apparatus or special lighting facilities are quite unnecessary to secure even the finest results.

**SOUTHAMPTON CAMERA CLUB.**—Mr. C. B. Howdill, A.R.I.B.A., of Leeds, paid a very welcome visit to the above on the 15th inst., for the purpose of delivering his illustrated lecture on "Corsica, the Isle of Unrest," and a large attendance of members enjoyed themselves to the full. Round an excellent exhibition of some 150 slides the lecturer wove a tale of travel and adventure, which not only carried his audience with him, but showed the great powers of observation and illustration which he possessed.

## Commercial & Legal Intelligence.

The firm of Friedrich Schneider Nachfolger, mount-makers, of Berlin (46, Gitschingstrasse), has been taken over by C. Bandlow and M. Tragbar, who will carry it on under the title, Friedrich Schneider Nachfolger, Bandlow, and Tragbar.

**DEFALCATION by a Secretary.**—Before Mr. Alderman Burnett, at the Guildhall, last week, A. Ernest Trow, of Newquay, Lathom Road, Twickenham, attended on a summons, charging him with having, in April last, unlawfully, and with intent to defraud, made certain omissions from the "cash received" book of his employers—the Rapid Photo Printing Company, Limited, Bridgewater Square. Mr. S. Myers, who appeared for the prosecution, said the defendant was appointed secretary to this company in 1902, and his salary, at the time of his dismissal in September, was £300 a year. When the books were audited recently it was found that he had been in the habit of cashing cheques that should have been paid into the bank, and putting the money into his own pocket. With regard to a sum of £26 7s. 6d., it would be shown that accused received a crossed cheque for that amount from a customer. He called on the customer, and, telling him he wanted cash at once in order to pay wages, induced him to give an open cheque. This he endorsed, and never accounted for. The proposal was to prove one embezzlement, and, should the defendant plead guilty, to withdraw the charge of falsification. Evidence was given showing that defendant's defalcations

since April last amounted to £236. Accused pleaded guilty to embezzlement, and said he had had a considerable amount of trouble lately. The Alderman: It is my duty to sentence you six months' imprisonment, with hard labour.

**CHARGE against Canvassers.**—Charles Burstein, George bottom, and Alfred Burstein, all described as photographers, charged, at the Spelthorne Petty Sessions, with loitering in Coles Road, Hampton Road, and Anlaby Road, Teddington, at 10.40 a.m. on October 5, supposed for the purpose of committing a felony. Detective Magner said that shortly after 9 o'clock on Friday morning his attention was called to the prisoners in Clarence Road. He watched them for some time and saw one go into several houses while the other two remained on the footway. The last house they entered was The Chestnuts, which was unoccupied. They afterwards went into Queen's Road by North Lane. He followed them into Coleshill Road, where they did the same thing, and then went into Stanley Road. In Anlaby Road and Hampton Road they went to three houses, but did not ring the door-bell. He found they had spoken to a servant in Hampton Road, and from whom she told him he stopped the first-named prisoner and asked him who he was and what he was doing, and he replied that he was travelling for the American Portrait Company, and the other two came up and said they were doing the same thing. He asked them to show him some proof, and one of them handed him a card, which bore the following: "The American Portrait Company, Home Office, 63, Turner Street, London, E. Presented by —." They refused to give him any further information, and he took them to the station. He had made enquiries at 63, Turner Street, which was a private house, and was told that they paid the woman there 3s. a week to take in letters, and had a little room where they occupied for about an hour in reading letters. He had been able to finish his enquiries, and he asked for a remand. Prisoners were remanded for a week, and bail in £10 was granted.

**ALLEGED Stealing.**—At North London Police Court, on Saturday, Henry Cox and Frederick Rainbow, residing in the same house, Turner Square, Hoxton, were charged with being concerned in stealing and receiving four cameras, three dark slides, and a quantity of wooden and brass camera fittings belonging to Messrs. Houghton, Limited, photographic appliance manufacturers, Tudor Road, Hackney. Mr. Herbert Holmes, manager at the works, said Rainbow had been employed by him for the past four years. In consequence of certain information received, he, on Friday, with Detective Saunders, of the J Division, to the Islington Camera Market, where there is a miscellaneous sale every Friday. On the stall he saw a reversing-box, a dark slide, turn-table, and a quantity of other photographic appliances and fittings which he (witness) identified as having been stolen from Messrs. Houghton's store-room. The detective questioned Cox, and he said he bought things in Petticoat Lane from a dealer. But Cox was taken into custody and his house searched, when there was found a camera slide, a camera-holder, and a quantity of brass fittings. And the rooms of Rainbow, Detective Cruickshanks discovered four cameras, two slides, and a quantity of brass and wooden camera fittings, also claimed as Houghtons' property. After this Rainbow was given into custody. Cox declared that Rainbow made him present of the things, and had no payment for them; and he said he did not know by whom Rainbow was employed. The police asked for a remand so as to make further inquiries, and this was granted.

**THE West London Photographic Society**, owing to its large increase of membership, has found it necessary to return to its quarters at the Broadway Lecture Hall, Hammersmith, W., which has been extensively redecorated for its use. The Hon. Sec., Mr. G. F. Perrins, has resigned, owing to pressure of business, and Mr. Jordan R. Lynch, junior, of 160, Holland Park-avenue, V, has been elected Hon. Sec.

**THE Awakening of China.**—A guide to photography in the Chinese language is to be published by the Presbyterian Mission Press, Tientsin, North China. The native author is Mr. Y. T. Woo, who, of Western inclinations to the extent of offering European advertisements space in his work.

## News and Notes.

**R.P.S. LECTURES at the New Gallery.**—The following are the forthcoming lectures at the Royal Photographic Society's Exhibition:—October 20: "A Winter Holiday in Greece," by Albert Cheese. October 22: "Some Churches of Central France" (Details of the Architectural Features taken with the telephoto lens, by Ernest Marriage, F.R.P.S. October 25: "English and Continental Scenes in Colour" will be shown by the triple projection lantern, by Sir W. de W. Abney, K.C.B., D.C.L., F.R.S. The concluding lecture on October 27, the closing night of the exhibition, will be on "Winchester Cathedral," by S. G. Kimber.

**"PHOTO-CHEMISES."**—The "Daily Mail," to which we look for early information of great events, notifies its readers of a new departure in lingerie for which, it appears, photographers are responsible. The innovation is an article of infant attire, called a "photo-chemise." Made of the finest possible lawn, with hand-worked embroideries and lace insertions, it is the design of the head woman of a well-known firm of lingerie purveyors. From time to time she was asked by fond mothers whose babies were about to be photographed for some light little garment that could be worn by small boys and girls whose chubby limbs it were a pity to hide beneath the conventional frock, socks, and shoes. The chemise she invented has a low-cut neck and is sleeveless. Straps of ribbon support it across the shoulders, so arranged that they slip off over the fat little arms. One guinea is the price of a tiny chemise as fine as a cobweb and as soft as thistledown.

**The Linked Ring at Home.**—On Tuesday evening the Linked Ring were at home to their friends at 5A, Pall Mall East. The programme of the evening was, as usual, informal in its statement of the enjoyments provided by the Linked Ring for its guests. It announced—

At Intervals in the Talk, the following Gentlemen .  
will Amuse and otherwise Interest the Audience .  
with Singing: with Piano Playing: by Comic . . .  
and Tragic Reciting: and by other Performings .

the gentlemen being Mr. Arthur Helmore, Mr. Reginald Groome, Mr. Victor Marmont, Mr. Cavendish Morton, Mr. George Parlbly, and Mr. Walter Churcher—the last on the list, with the evergreen "Commercial Value of Art," and the first, Mr. Helmore, with the most delightful imitations of popular actors as they might be in other walks of life; Miss Terry, as an A.B.C. waitress; Mr. Lewis Waller, as a footman; and Sir Charles Wyndham, as a waiter. A large company, which included many well known people in the photographic world, spent the most enjoyable of evenings, and at its close Mr. Craigie, the ever suave secretary of the Salon, was accorded the heartiest expression of thanks by those who once again had enjoyed the welcome hospitality of the Linked Ring.

**Bioscope Serials: A New Departure.**—The Charles Urban Trading Company, of 48, Rupert Street, London, have inaugurated a new departure in the Bioscope profession—the serial publication of "Films." This week are published the first two numbers of "Bonnie Scotland," a pictorial representation of all that is lovely and wild and weird in that land of historic associations. This series will form, when complete, the most comprehensive animated representation of Scotland and its beauties ever published.

**Bristol Photographic Club's Exhibition.**—This exhibition remained open for seven days, and was a notable success, both from the pictorial and the public point of view. The attendance rose steadily day by day until it reached over 1,000 on the closing day. During the exhibition three lectures were delivered, and these proved a most attractive feature. On the Tuesday, Mr. Melton Fisher, the well-known artist, gave a lecture on "Photography in Relation to Painting," a report of which we hope to publish later on. On Thursday Mr. S. G. Kimber, of the Southampton Camera Club, gave a lecture on "Winchester Cathedral." The splendid lantern slides with which this was illustrated, were clothed with life and romance by the interesting (often humorous) discourse which accompanied them. Owing to the large number of people unable to get into the lecture room, Mr. Kimber kindly ran through his slides a

second time. On Friday Mr. Ernest R. Cook, D.Sc., of Bristol, gave an address on "How Photography Aids Science," profusely illustrated by lantern slides. Several lantern shows were given each day, the slides being selected from those sent in for competition, and others lent by "The Amateur Photographer," "Photography," and Messrs. Sanger Shepherd and Co. (in natural colours).

**MATTOS, LTD.,** has been formed to take over the manufacture of Mattos papers, etc. Mr. P. Leuthardt-Thornton becomes managing director, under whose control the company will introduce new lines, such as Mattos sensitised wood, linen, silk, and satin. All materials will be offered from quarter-plate size upwards, so that the amateur will be able to use also the other textures, besides papers, at a reasonable price.

## Correspondence.

*\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\* \* We do not undertake responsibility for the opinions expressed by our correspondents.*

### LEAKY STUDIOS.

To the Editors.

Gentlemen,—I have so often had good advice and information from the B.J. that it is both a pleasure and a duty to give it in return, when I can. There are frequent queries anent leaky studios, and the subject is up again on page 803 of the last number of the JOURNAL.

For years my greenhouse was a source of annoyance from persistent leaking—the old story of putty cracking. A couple of years ago I saw an advertisement of "Carson's Plastine," which was recommended for greenhouse glazing, and, knowing the high character of the firm, determined to try it.

It has been a complete success, and, in spite of heat and drought followed by heavy rain, I have had no trouble. "Plastine," I would add, is a substitute for putty, and is used in the same way. I hope that this information may be of assistance.—Believe me, yours faithfully,

J. E. GUBBINS,

Westward Ho! R.S.O., North Devon.

Lieut.-Colonel.

### THE STABILITY OF PYRO AND SODA DEVELOPING SOLUTIONS.

To the Editors.

Gentlemen,—In view of the present discussion as to the use of sulphite as a preserver and stain-preventive, a brief history of the chemistry of the question may not be amiss. The action of sulphites in this direction has always been more or less "wropt in mystery" since they were first proposed by Berkeley. The conventional view was that the sulphite, in presence of organic reducer, is preferentially oxidised to sulphate by the air, the reducer thus being severely let alone both before and during development. But the following will show that the action is by no means so simple.

Bigelow, in 1898, found that the aerial oxidation of sulphite was greatly retarded by the addition of certain organic substances, as mannite. These were termed "negative catalysts," and their action was confirmed, and the number extended by S. W. Young in 1902. In 1903 Titoff showed that the addition of minute—in some cases extraordinarily minute—quantities of certain metallic salts greatly accelerated the oxidation, whilst the negative catalysis found by Titoff was due to the inhibition of this positive catalysis, those organic substances in question combining with, or altering, the metallic salts. The most active of these were the salts of copper and iron. Further, in 1903-4, a lengthy investigation by Lumière and Seyewetz showed, as was to be expected, that in presence of developing agents (amidol, etc.) the oxidation of sulphite is greatly delayed. Evidently the two substances together exert a mutually preservative action. In 1903-4 the writer, with Mr. C. E. K. Mees ("Zeit. Wiss. Phot.," 1904, II, 5-11), made an investigation of the chemical changes involved, especially in regard to the hydro-



quinone developer. Andresen had previously stated that hydroquinone *plus* sulphite reduced more silver bromide than hydroquinone alone, and apparently considered that a quinone sulphonic acid was formed. We found that the quinone formed by oxidising hydroquinone with silver bromide was reduced to hydroquinone, by either neutral sulphite or alkali separately, or by a mixture of both. With alkali alone the reduction was not complete, there being a separate oxidation by air leading to tarry products. In this case, the alkali is oxidised by the quinone to a peroxide.



hydrogen peroxide being found, whilst with sulphite, hydroquinone and dithionous acid are obtained.



The dithionous acid is then probably further oxidised to sulphate. It will be seen that from this it follows that the preservative action of sulphite is due to its reconvertng, at its own expense, the oxidation product of the reducer. This action has been shown to follow in other cases (Chem. Soc. Journ., 1906, August). We thus have a complete cycle of changes involved, of considerable interest chemically, and somewhat important to photographers. The main practical conclusions so far appear to be (1) that neutral sulphite and pyro (or other reducer) is the most stable mixture; (2) that the sulphite should be adjusted proportionately to the amount of reducing agent; (3) Impure sulphite, etc., is strictly to be avoided, owing to the possibility of metallic impurities.

It may be remarked, that whilst acids tend to preserve organic reducers, yet an acid sulphite is by no means the best preservative, since the strength of the sulphite is continually decreasing. Further, from the writer's experiments, sodium sulphate, *pure*, is a quite neutral substance in development, sulphite, a slight restrainer, when the quantity is very great.

On the whole, I think these facts tend to support the procedure you propose rather than that of Mr. Bennett; personally, my own experience has always been in favour of mixing the pyro with pure neutralised sulphite.—I am, yours, etc.,

Marburg a/L., Germany.

#### PHOTOGRAPHIC RESEARCH.

To the Editors.

Gentlemen,—Mr. C. Welborne Piper's quotation from the second condition under which the P.C.U.K. is prepared to make grants of money in aid of photographic research, is quite correct, as far as it goes. I should be glad, however, if you would allow me to give the paragraph in its entirety:—

(2) A grant must not be expended on the purchase of permanent apparatus, *except by special permission of the Research Grants Sub-Committee.* (The italics are mine.)

The reason for this reservation should be obvious. There is nothing, as far as I am aware, to prevent an applicant asking for this "special permission," and, as the object is to promote research, not to put obstacles in its way, he may rely upon his request receiving every consideration.—Yours truly,

F. A. BRIDGE,

Hon. Gen. Sec. and Treas., P.C.U.K.

East Lodge, Dalston Lane, London, N.E., Oct. 15, 1906.

[Mr. Piper, in his letter, did not pose as a prospective applicant.—Eds., B.J.B.]

#### LANTERN SLIDES OF ENGLISH CATHEDRALS.

To the Editors.

Gentlemen,—The Rev. S. E. Teignmouth Shore, M.A., Magdalen College, Oxford, who is in charge of the Dacca Hostel in connection with the Oxford Mission to Calcutta, will be returning to India early in November, and is anxious to take back with him some lantern slides of London and Oxford, and English Cathedrals.

Will you kindly allow me, through the medium of your journal, to ask if any of your readers, especially members of the P.P.A., have any spare lantern slides of these places.

If they will kindly send them to me, carriage forward, before October 31, I shall be extremely grateful.—Your faithfully,

ALFRED ELLIS.

Ellis and Walery, 51, Baker Street, London, W.

## Answers to Correspondents.

**\*\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.**

**\*\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.**

**\*\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.**

**\*\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, &c. Two unmounted copies of each photograph must be sent with the original.**

#### PHOTOGRAPHS REGISTERED:—

R. G. D. Hood, 41, Wallace Street, Grangemouth. *Photograph of the Opening of the New Docks at Grangemouth.*

J. Bellman, 13, Victoria Road, Whitehaven. *Photograph of the New Carnegie Free Public Library, Whitehaven.*

**STUDIO SIGNS.**—Would you kindly tell me in the Query Column where I can obtain those little cardboard notices bearing such words as "To the Studio," "Dressing Room"?—MANAGER.

From any of the large dealers such as Marion and Co., F. Lowfield, etc., or from shopfitters such as Potter, Aldersgate street, London, E.C.

**GLOSSY BROMIDE.**—Will you kindly let me know how to treat glossy bromide paper to prevent surface markings. We have just started to deal with glossy bromide for postcards in fairly large quantities, and we find it very tiresome having to treat the cards individually to remove the markings. Is it possible to prevent same by special treatment, or the addition of something to the developer? I should be much obliged if you can help us in this matter.—A. F.

Try the addition of a little alcohol (spirits of wine from a grocer who sells Gileby's spirits), or use the "Nobra" developer specially issued for glossy paper by the Kodak Company.

**DEPTH OF FIELD.**—Will you kindly inform me of any tables in which I can find, or how to calculate, the practical depth of focus of a Voigtlander "Heliar" lens of 6½-in. equivalent focal length (full aperture 4.5)?—Toxo.

See the article by Mr. Welborne Piper in our issue of December 22, 1905, in which you will find the formulae. Mr. Piper's "First Book of the Lens" will also give you much information.

**M.Q. DEVELOPER.**—Would you kindly give me receipt for metallic hydroquinone developer for plates and paper which can be used repeatedly?—T. BRISTOL.

No developer can be worked *ad infinitum*, but you will find the following a very satisfactory formula:—

#### No. 1.

Metal	40 grs.	5 gms.
Hydroquinone	50 grs.	6 gms.
Sulphite of soda	120 grs.	14 gms.
Bromide of potassium	15 grs.	2 gms.
Water (boiled or distilled)	20 ozs.	1,000 c.c.s.

#### No. 2.

Caustic potash	180 grs.	21 gms.
Water (boiled or distilled)	20 ozs.	1,000 c.c.s.

For use, take equal parts of No. 1 and No. 2.

**TONING P.O.P.**—In winter, to save washing, I omit the alum bath before toning P.O.P. I wash, tone, fix and wash for two hours, then give alum bath for ten minutes, then wash an hour. Considering its chemical action, would such treatment be better or worse for the prints than the alum bath before toning?—S.

So long as the prints are well washed between treatments

with alum and hypo, there is nothing to choose between the two so far as permanency is concerned.

**INQUISITIVE READER.**—1. The Westminster Co.'s arc lamps are used. 2. Any ordinary curtains are used. 3. Not so suitable as the enclosed arcs.

**LENS QUERY.**—I should feel greatly obliged if you could reply to the following:—Having purchased a Ross 5 by 4 S.A. doublet, should esteem it a favour if you could inform me what it is most suitable for—architecture, portraiture, or copying; also under what conditions it will take a larger plate than the lens is marked.—**LIFELONG READER.**

The lens is now an antiquated one. It was introduced something like forty years ago for general work, except portraiture, and has long since been superseded by other forms of lenses, and has little or no commercial value at the present time. It will cover the size marked upon it, and we don't expect it will do more than that. Why not try it, using a small stop, and see for yourself. "S.A.," we may tell you, means small angle. Three lenses of this kind used to be made, and were designated—small angle, ordinary angle, and large angle.

**POSTCARD.**—The marks on your cards are certainly not due to any impurity or addition to the water, nor are they caused by the prints not being moved during fixation. They are abrasion marks caused by the rubbing of one postcard over the other. As you have met with them on two brands of paper it is obvious that it is faulty manipulation on your part. You give no data as to developer employed nor time of washing, but it is obvious that in some way you have so softened the gelatine that it will not stand much. We should advise you to use the chrome alum fixing bath given on p. 727 of our issue of September 14.

**A. G. B.**—We do not know the article on the British market. Messrs. Maron are the most likely people to tell you of it.

**CARBON TRANSPARENCIES.**—You kindly gave me instructions for the obtaining of stainless images with a process formula for metolquinol which I found quite efficacious, and desire now to thank you. Ever since I took up making enlarged negatives by means of carbon transparencies I have had trouble with the substratum. The lecturer from whom I obtained my instructions stated that he used collodion for that purpose, and mentioned nothing about any preliminary preparation of the glass. My experience was when I used the collodion coated on plain glass, that the collodion washed up in developing in the hot water. I am now using a wash of insoluble gelatine on the glass, after which I coat with the collodion; but this takes so much time to prepare the glasses that I am asking you to say whether I can ensure the collodion adhering in the hot water without such previous preparation, as apparently my informant did. Shall be much obliged for any information.—**J. H. WINGRAVE.**

The usual method of making carbon transparencies for enlarged negatives is to first coat the glass with the following substratum: Nelson's No. 1 gelatine, 1 ounce; water,  $\frac{1}{4}$  pint. When dissolved, sufficient solution of bichromate of potash is added to give the solution a golden tint. The plates are then dried in the light to render the gelatine insoluble. The exposed tissue is also coated with collodion and allowed to dry before squeegeeing it on to the substratum. With this method of procedure the best results are obtained, and there is no fear of the film washing up with the development. There is really very little trouble in coating the glass with the substratum. The only way to prevent the collodion from washing up, when the substratum is not used, is to roughen the edge of the plate all round, about the eighth of an inch, with a piece of ragstone, and use care that the collodion film does not get injured. The roughening of the glass is really more trouble than coating it with the substratum.

**PHOTOGRAPHS ON CANVAS.**—I am contemplating running a line of oil paintings on photographic basis. I am aware that it is quite possible to make this basis on artist's canvas, on stretcher, but I am in ignorance of method of working same, and also of the formulæ. Would you be so good as to supply me with the necessary particulars?—**NOSMADA.**

We believe the canvas is sized twice and coated with ordinary

paper emulsion. We should also think that a celluloid varnish sprayed over the last coat of size would be an advantage.

**PHOSPHORESCENT MATERIALS.**—May I respectfully ask if you can favour me with information regarding any phosphorescent substance which will retain its luminosity for a fairly lengthy period?—**PHOSPHOR.**

Balmain's luminous paint, from any large chemist.

**BROMIDE.**—1. Your experience is unusual. You might try changing the brand of paper. A very soft water supply will cause blisters. Some Epsom salt (say, 20 grains per gallon) would help matters if this is the cause. 2. There is none. Hand washing is the best course. 3. We cannot understand your query. Water alone will not fix.

**SAFE LIGHT.**—In your issue of July 27 you gave particulars of a safe light for colour sensitive plates. Will you advise me in your next issue: 1. Where can I get a Stenger's lamp, and cost of same? 2. Where can the chemicals for making the solution be obtained?—**R. E. WESTON.**

1. The maker of this lamp is Adolf Schuch, Electro Technische Fabrik, Worms am Rhein. The price is 10s. Lamps of similar construction can be obtained from Watson and Sons, High Holborn, W.C. 2. The dyes recommended by Dr. Stenger are those of the Hoechst Works, and the English agents are Fuerst Bros., 17, Philpot Lane, E.C.

**LEAD TONING.**—Kindly let me have formula for a lead toning bath without gold.—**HENRY LONG.**

The usual formula is

Lead acetate or nitrate .....	$\frac{1}{2}$ oz.
Hypo .....	4 ozs.
Water .....	20 ozs.

Dissolve the hypo and add the lead salt previously dissolved in water. The prints may or may not be washed before toning. It is, of course, extremely doubtful whether prints toned by this method are permanent.

**SILVER STAINS.**—Would you be so kind as to let us know the formula for removing silver stains from negatives? We have tried the iodine (cyanide) solutions, and find this reduces the negative without removing the stains.—**F. W. and S. LONGMAN.**

A great deal depends upon the age of the stains. Recent ones will frequently yield to rubbing with pumice powder and subsequent fixation in a strong acid hypo bath. Another method is to rub them with a tuft of cotton wool soaked in a solution of ammonium persulphate, rendered alkaline with ammonia, or it may be rubbed over with a solution of

Potassium bichromate .....	2 grs.
Common salt .....	20 grs.
Water .....	1 oz.

Then wash and fix in a 1:4 ammonium sulphocyanide solution. Possibly also a solution of

Potassium cyanide .....	10 grs.
Sodium sulphite .....	50 grs.
Water .....	1 oz.

will remove the stains without reducing the negative.

**S. and Co.**—We fear it is little use our advising you. We can only tell you that 15s. for each negative and one print plus out of pocket expenses would be charged by many photographers with, say, 2s. 6d. for every subsequent print. We suggest that as a member of the Professional Photographers' Association you might obtain the confidential advice of some of its members.

**SHOP WINDOW.**—Will you kindly give me address of the (clock-work) mechanical arrangement for dropping picture postcards for shop window purposes. Shall look in "Answers to Correspondents" column for reply. In anticipation, thanking you.—**W. E. B.**

Potter and Co., shopfitters, Aldersgate Street, London, E.C. **MIDGET REPEATER.**—We are not familiar with the working of the apparatus. Why not write to the maker of it for the information you desire?

**ENAMELLING PRINTS.**—Could you kindly oblige me by publishing the proper way to do gelatine enamelling, and the solution to use; and also the way to raise the enamel prints when mounting?—**B. R.**

The method has been published over and over again in the JOURNAL and in the ALMANAC, and we cannot afford much space



to again describe it. In brief, it is: Thoroughly clean glass plates and rub them over with French chalk. Coat them with enamel collodion, and when it has well set put them in cold water until all greasiness disappears. Have ready a dish of warm gelatine solution—say, one ounce of Nelson's photographic gelatine to a pint of water. Immerse the plate and print in that, bring into contact, remove, and squeegee in contact, and allow to dry. The prints are pressed up in an embossing press, which may be had of any of the dealers.

**ARTIST.**—We can only say that the prospects in Canada are extremely good. Probably touring photographers would find a lot of business in the North-West, but they would have to rough it.

**COPYRIGHT.**—I have had a 1-1 transparency brought to me, from which I have been asked to make enlarged negative for printing copies for sale. The subject is "Via Dolorosa," and is stated to have been taken from a picture by Raphael in the National Gallery about twenty years ago. Shall I be running any risks whatever in making a negative and printing from same copies for sale?—J. H.

It is impossible for us to say without knowing the precise history of the transparency. All we can tell you is that though there may be no copyright in the painting, there probably is a registered copyright in every photographic copy of it. If you have the original negative made of the painting you will be quite safe, although if it has been transferred to you without assignment of the copyright, the latter is now destroyed.

**COPYRIGHT.**—I have taken two photographs, and I wish to make them copyright; will you kindly let me know how to go about it, and what it will cost?—BROWN.

If you send 1s. 7d. to our publishers, with two copies of the photographs, they will register the copyright for you. You will find other details of copyright in the article on the subject in the current ALMANAC.

**HALF-TONE NEGATIVES.**—Will you kindly let me know, through your next week's issue, which you consider the most satisfactory way to make three-colour half-tone negatives? Is making the negatives with dry plates and then making transparencies from these, or paper prints and copying from them with an arc lamp, or by making the negatives by the direct collodion emulsion the most successful way?—AN INTERESTED ONE.

The simplest and most satisfactory way now is to make screen negatives direct on dry plates. The plate for the blue filter, yellow printer, can be an Ilford "Half-tone" plate, the plate for the green filter, red printer, and red filter, blue printer, can be Wratten's panchromatic plate. Collodion emulsion is far too much trouble in this work, if not done on a large scale, to get regularly. Some things, of course, must be made indirectly, because the contrast will be too great to allow of a cross-line screen to be used at the same time as making the negative; but paper prints should not be made afterwards, but positives on glass, as paper prints are liable to stretch or shrink, and will give bad register.

**BUSINESS QUERY.**—At times there are customers who purposely have sittings, and give an order, or obtain proofs (by some means) that they never intend to pay for. How should such be treated when they are not worth to take to court for debt? I notice one ticketed the photograph in his case with a label on it. Is it judicious to do that with any words at it, or is it *infra dig.* in all circumstances?—S.

If your customers serve you in that way your only remedy is in the county court; there you will recover the money. Although the portraits may not be paid for, the copyright in them belongs to the sitters, therefore you have no right to exhibit them or use them for any purpose of your own. Why not obtain payment at the time of the sitting? You would then be on the safe side.

**PORTRAITURE.**—I should be very much obliged if you could inform me why it is that I cannot get the faces of persons out light. I have tried different exposures, thinking that is the reason, but it makes no difference. I have got a London stereoscopic lens, and I use shop-bought developers ready mixed, 1 and 2. I should be very much obliged if you could give me a good recipe for a developer for studio work.—J. D.

You had better use a developer the formula for which is given by the makers of the plates you use. We cannot, in this column, give elementary instruction in photography. You should get a beginner's work, such as "Elementary Photography," by Hodgkinson. Your dealer will supply it.

**BOOKS WANTED.**—Would you kindly inform me of all the best books suitable for an operator, such as "Art as Applied to Photography," "Light and Shade," "Posing," etc., and from which they could be obtained. Thanking you in anticipation.—H. C. CLARKSON.

"Practical Essays on Art," by John Burnet, three parts, 2s. 6d.; "Artistic Lighting," by James English, 2s. 6d.; "Lighting in Photographic Studios," by P. C. Duchochois, are all good works. You will find a list of other books on page 1064-7 of the ALMANAC for the current year.

**TRADE DISPUTE.**—About three months ago I sent two half-plate negatives to Mr. —. He was to make me two dozen 12 x 10 from same at 1s. each. I received later a letter stating he would advise me to have the extra special quality, and I could depend on getting very best work, and the price would be 1s. 3d. each. I unmounted. This I agreed to, and said I would send on balance in due course. I received the enlargements, but some of them were so dreadfully black my customers would not accept them at any price. So I returned a matter of five or six and explained matters to him, and he said he would do me some to replace them if I would send on balance of account. I do not feel inclined to send money on until I see what those will be like to replace. I have written many times for negatives, as I cannot wait for enlargements. I have also written to the inspector of police, and they say they can do nothing for me.—H. J. M.

We should think the best plan would be to pay the money you owe and then demand the prints agreed to be done, and also the negatives. If they are not then forthcoming sue in the County Court for the value. Yours is a case that the Professional Photographers' Association would quickly settle for you if you were a member.

**J. T.**—You should not take less than 10s. 6d. each.

**RETOUCHING BROMIDES.**—Could you inform me of any good book published on the subject of "B. and W. Finishing of Bromides"? I have tried for some time past to meet with a book treating fully with such a subject, but without success. If you can recommend any work of the kind you would greatly oblige. E. N. C.

The best book on the subject is Johnson's "Retouching Negatives and Photographs," published by Marion and Co.

**THE Invertol Gas Light.**—In reference to our note of last week, the Invertol Company write: "We are greatly obliged by your mentioning our new inverted incandescent light for country districts in your issue of the 12th inst. Your journal has evidently a very wide circulation, for we have received inquiries about this light from all parts of the country, but we have to point out, in reply to the inquiries, that our inverted incandescent light is obtained by vaporising petrol, not paraffin."

[We regret having misrepresented the company's speciality.]

**NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

The Oldest Photographic Journal in the World.

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# THE BRITISH JOURNAL OF PHOTOGRAPHY.

No. 2425. VOL. LIII.

FRIDAY, OCTOBER 26, 1906.

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## SUMMARY

Ten days must elapse before the closing of the exhibition of portraiture by Mr. Fredk. Hollyer at Kensington. A review of the exhibition by Mr. F. C. Tilney appears on page 844.

The Society of Colour Photographers. The rules drawn up by the committee to be submitted to a meeting on November 14 are given on page 849.

The total now subscribed to the Sandell fund is only a few shillings short of £100. (Page 849.)

In reviewing the newly-issued "Photographs of the Year," we call attention to the imaginative writings of Mr. A. C. R. Carter. (Page 850.)

Professor Max Wolf, of Heidelberg, has published the first of a series of stereoscopic photographs of the heavens, showing in wonderful relief the detail of the stars. (Page 854.)

On Tuesday evening last the ninth Traill-Taylor memorial lecture was delivered by E. Walter Maunder on "Photography in the work of the Greenwich Observatory." A report appears on page 850.

How a photographer secured good local advertisement on installing the arc light into his studio is told on page 843.

The considerations which should guide the photographer in using his own or a fancy signature in his business are given on page 845.

Means of introducing red rays into the light of the mercury-vapour lamp or of supplementing its redless light are mentioned on page 849.

Developers for P.O.P., two-colour photography, and a new type of all-size focussing finder are among the patents of the week. (Page 851.)

A pinatype method of making reversed negatives is advocated by an Austrian writer. (Page 845.)

Formulae for a silver phosphate emulsion have been published by Herr Valenta. (Page 846.)

Dr. Lüppo-Cramer announces a sulphocyanide reducer giving the effect of persulphate. (Page 846.)

## EX CATHEDRA

### The Salon at the Royal.

In the newly-issued "Photograms of the Year," reviewed on another page, there is a notorious perversion of fact on the part of Mr. A. C. R. Carter, the author of the "chief critique." Mr. Carter states:—"The Royal is no longer a weak Salon, no longer a warehouse for the despised and rejected of that institution, but an annexe, a complement to hold many examples acceptable by, but crowded out of, the Salon. . . . With a strong leaven of Salon exhibitors . . . the show is enriched, etc." All this implies a state of things that is positively the reverse of fact. It is ill-judged special pleading. Such a back-stairs championing of a society artistically down on its luck is not likely to do it so much good as it will do good to its adversary. Mr. Carter gives a dozen names as those of exhibitors who have been seen at the Salon, and who are here (at the Royal) in welcome force. But most of these have been constant exhibitors at the Royal for years, and six of them are actually members of that society. It is difficult to understand how such a distortion of the facts should have escaped the scrutiny of the editor of "Photograms."

\* \* \*

### Ancient Photographic Lenses.

We suppose there must be hundreds of photographic lenses in existence which were made in the earlier days of photography, for we are constantly being consulted as to their properties by those who have perchance become possessed of them. Many of the instruments have long since become obsolete, yet many are still very useful for some purposes. Last week we replied to a correspondent, who said he had bought a lens on which was engraved, "Ross SA Doublet," a form of lens introduced by the late Mr. Thomas Ross very many years ago under the name "Actinic Doublet." Three series of it were made: "SA," small angle; "OA," ordinary angle; and "WA," wide angle. Its field was somewhat round, and there was a falling off of light at the margins of the plate. The modern "RR" has now taken its place. The old orthographic, many of which are still in existence, was an invention of Petzval. It consists of a large front lens similar to the front combination of the portrait lens, with a small back one, which is a dispersing lens. This lens gives marginal distortion of the pin-cushion form; otherwise it is a serviceable lens, and has an aperture of about f/10. There is also the "Triplet," which is an excellent lens, and is still listed by one of the leading opticians, and one that we are sometimes asked about. It consists of three combinations, the centre one being much smaller than the others, and the back larger than the front. It was introduced some forty or more years ago. In the early



days a French house put upon the market a portrait lens of the Petzval type, in regard to which our advice is occasionally asked. This lens was supplied with two additional lenses which could be screwed in the centre of the mount. The one lengthened the focus of the combination, so that larger pictures could be taken with it; the other shortened the focus. So that, with it, three different foci could be obtained with the same instrument. This lens, we believe, is no longer made.

#### **The Diaphragm as Datum Mark.**

There are thousands of portrait lenses of the Petzval form that were made in the very early days of the art still in existence and use, and many of them are excellent instruments, particularly those bearing well-known makers' names. Those made in the pre-carte and -cabinet days had a much rounder field than those of more modern construction. They were not fitted with Waterhouse diaphragms, as these stops were not introduced till about 1860, and then an additional charge was made for them beyond the price of the lens. But in the sixties fitting of all portrait lenses with these stops became universal. Hence it may be taken for granted that any portrait lens that is not fitted with these stops is at least not less than forty years old, and may be much older. It does not follow, however, that because a lens is fitted with Waterhouse diaphragm that it was made within the last forty years, because many of them have been fitted with these stops since that time. As we have just said, many of these old portrait lenses are excellent instruments, but we would counsel all purchasers of them not to do so without first trying them, particularly if they bear no maker's name. We have more queries with reference to old portrait lenses than any other as to what they should cover, etc. But that can only be ascertained by a trial. There are other kinds of early lenses, but those above referred to are the principal ones that are likely to be met with at the present time.

#### **Sulphite of Soda and Development.**

The interesting letter by Mr. S. E. Shepherd in our last issue confirms what we said in a previous note—viz., that there is a great deal of mystery surrounding the behaviour of the various ingredients of the developer. In the developer it is clear that sulphite does not act in the way it is popularly supposed to do, and, for our own part, we are fairly well convinced that sulphite in solution is subjected to changes of somewhat a different, or, at any rate, a more complex, nature than those commonly assumed. In these circumstances we are not disposed to speculate as to the probable

condition of affairs in the developer solutions we have commended until some direct confirmatory evidence is available. It is interesting to note that others have had the same experiences as ourselves, and Mr. S. A. Herbert's letter of October 12 shows that the keeping qualities of developer are greater than we have ventured to ascribe. Fifteen months is about as long as anyone is likely to wish to keep a pyro soda developer, and very much longer than one can usually be trusted for. We are glad that our notes have aroused so much interest, and shall welcome any further evidence or experiences that may be forthcoming.

#### **Metric Measures.**

All advocates of reform in weights and measures will watch with interest the adoption of the metric system by Messrs. Kynoch, Birmingham, who are to employ it in all departments of their firearms factory, not excepting the counting house and pay-office. Mr. Arthur Chamberlain, the chairman of the company, is convinced of the advantage of the system to the business, and one cannot suppose a commercial undertaking such as Kynoch's making the move except on strict economic grounds. In their opinion metric measures are more effective and less expensive or tedious than the old ones, and we hope they will be adopted. We shall be anxious to see the influence of their departure in other industrial firms, and we hope the step will be one towards the extrication of the tangle of British weights and measures. We are pledged to decimalism as the perfect system for every industry, but we are in hopes of some day witnessing supersession of the many ambiguities which attach to our measures at present in use.

#### **A Matter of Weights and Measures.**

It does not surprise us to see one of our correspondents on the subject of the pyro soda developer becoming somewhat confused with regard to the division of the ounce. He suggests that if our formula showed 120 grs. instead of 160 it would have been more convenient, as four weighings would have emptied the bottle. Unfortunately this is not the case, for 120 grains is more than a quarter of an ounce avoirdupois, which is the ounce by which pyro is sold. An avoirdupois ounce does not cut up conveniently into a number of equal parts, and if it did we should hardly be disposed to advise it being weighed out in such parts, the errors of weighing would invariably leave either too much or too little in the bottle for the last part, and the advantage assumed by our correspondent would hardly be felt in practice. A quarter of an ounce is nearer 110 grains than 120, and if this quantity is taken the solution can be made up to an even convenient number of ounces.

### **THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.**

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### **THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES,**

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the

ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

**\* \* IMPORTANT NOTICE.**—Our publishers ask us to inform Agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.

always best from the economical point of view to so just your solutions that they may fill the bottles available, and when English measures are used all solutions would contain some definite number of grains per ounce. The strength of the pyro solution we have recommended is 8 grains per ounce. This makes 160 grains to a 20 ounce bottle. 110 grains would only make  $13\frac{1}{2}$  ounces of solution, and that is  $2\frac{1}{2}$  ounces less than the capacity of a 20 ounce bottle, which is the nearest size. It is better economy to fill that 16 ounce bottle and weigh out 128 grains of pyro while you are about it, and it is even better economy to use a bigger bottle and prepare a larger stock. In practice we have found 10, 20, and 40oz. bottles to be the most convenient sizes for photographic purposes, and we must all formulæ to fill such sizes. With modern crystalline pyro there is no difficulty in weighing small portions, but if the old variety is used, and the whole ounce dissolved at once, 55 ounces of stock solution results, and a 60oz. bottle is necessary.

#### The Word

The letters from Dr. Murray of Oxford "Photography," some time ago on the origin of the word "photography" are probably within the remembrance of our readers, who will recollect that the earliest discovered use of the word is by Sir John Herschel in March, 1839. There is no evidence of the employment of the word earlier than this, although some writers have assigned the credit of originating the term to Nicephore Niepce. At the time pointed out wherein the error of this assumption lay, and no further research is needed to prove the fact that Niepce did not, in the passage which was cited, employ the word "photography." Yet it may be well to quote a comment in the writings of Robert Hunt, the first historian of photography, which negatives the view that it was Niepce who christened the art of the camera by its present name. It occurs in Hunt's "Poetry of Science," published in 1848, and runs as follows:—"Photography is the name which the art of sun-painting will be for ever known. I regard this as unfortunate, conveying as it does a false idea, the pictures not being light-drawn. Could we adopt the name given by Niepce to the process, the difficulty would be avoided, since heliography involves the hypothesis, and strictly tells the undeniable fact that the pictures are sun-drawn." As Hunt was the writer of the time most intimately acquainted with the writings of the contemporaries, it is clear that the term photography was understood at that time to have come from some other source than Niepce.

#### Opportunity for Advertisement.

We read in a Northern paper how a photographer availed himself of a chance to bring his business to the attention of the public which many would have passed over. Having installed the electric arc in his studio for portraiture, he invited the municipal lighting committee to witness a demonstration of its capabilities. These gentlemen and their friends attended and expressed themselves pleased with what was shown them in the way of an actual demonstration of the powers of the light. According to the local paper, "The experiments proved that the highest class of photography can be achieved at any hour of the day by means of electric light." We do not know what better references to himself a photographer can want than this, and his alertness in taking use of the occasion is worthy of the methods which the professionals such as Mr. J. S. Strauss, of St. Louis, have employed over and over again. We imagine that the expense of entertaining the visitors would be refunded to him in the orders received from those who accepted of it. His example may well be followed by others installing electric light in their establishments.

#### Improvers in Photography.

Last week we had something to say about the exceedingly small salaries at which some photographers expected to obtain experienced assistants—that is, judging from those occasionally offered in advertisements. Apprentices are at times taken for a term of years with premiums or for quite a nominal wage, more with the idea of getting the labour for next to nothing than teaching the trade. When out of the time the apprentice often finds that he or she really knows but very little of the business. Hence we see advertisements for "improvers." Now, improvers are expected to take situations at a very small salary, although at the same time they are expected to be able to do all that is required of them. In some instances which have come under our notice, apprentices after they have served their time, have been kept on as improvers at a few shillings a week, and perform the duties of receptionists. We are now, of course, speaking of females, though the same frequently applies to males. In this way labour is obtained at a cheap rate by some. The question arises, When does a person cease to be an improver? We of course mean When should he no longer be expected to work at an improver's salary? It is fully realised that with extended experience everyone should constantly be an improver, but that is not the point we are discussing. It would be interesting to ascertain the views of some proprietors of photographic studios as to the precise point at which an "improver" ceases to be such and becomes a full-fledged craftsman. We recently read an advertisement to the following effect:—"Vacancy for gentleman improver at operating and retouching; must have had at least 5 or 6 years' first-class practical experience in studio work; those who can work up and colour preferred; only first-class, smart assistants need apply. . . . State lowest salary." The italics are ours. One would have surmised that any gentleman who had had five or six years' first-class practical experience in studio work would scarcely look upon himself as an improver, yet it would be interesting to know the maximum salary which would be entertained from these "improver" applicants.

#### THE SIGNATURE.

The photographer's name, appearing as it does upon every photograph turned out, and also upon his stationery and his advertisements, is to him a trade-mark, and every effort should be put forth to evolve a signature at once dignified and distinctive, so that the public will, unconsciously perhaps, remember it. If the reader has not been blessed with a name striking in itself, it is the more important that its printed form should be forceful and characteristic. If the photographer's name, either on advertisement matter or stationery, appears in ordinary unnoticeable type, an opportunity of making the name and work more easily recalled is lost.

Many well-known photographers, whom one will easily call to mind, have been provided, either by accident of birth or business foresight, with names which, owing to their peculiarities, make a lasting impression on the observer. Others, however, are only able to lay claim to cognomens of the Smith, Jones, and Robinson variety, and these have to put their names repeatedly before the public in a striking way if they are to be naturally associated with them and not with other business men in the same town. We all know "Boots," cash chemists; how that last phrase is inseparably associated with the name. This connection of a signature and explanatory phrase might be adopted by some photographers.

When designing the signature one has to decide between



a facsimile signature or the very clear even ones obtained from the block-makers when a facsimile signature is not stipulated for. When making the draft one's own particular calligraphy must be kept in mind, for it is advisable to have the name on one's letterheads and the signature at the foot fairly similar, an idea of unity being thus created. If one's usual signature does not lend itself well to the idea, very little practice would enable one to alter it to suit the block; but in this case warn the bank.

The sketch, if not for a facsimile block, need not have the perfect appearance one associates with an ordinary cut block, for the carver will round it up and finish it off, so long as he has the idea. A few minutes experimenting with a pen and a glance through the advertisement portion of a magazine will soon enable you to evolve something particularly suitable for one's own name; but do not be in too much of a hurry, for, once chosen, the form should never be altered or deviated from in any way. With the aid of a "J" pen or a quill some handsome results are obtainable, and of such a nature as to show up strongly amongst ordinary letterpress. One most distinctive feature of a good sign manual is the flourish or underlining. It may be either a continuation of last letter curved and drawn back, or a more uncommon method is possible in the case of some capitals when they can be made to supply the line. A, for instance, would have the right-hand leg curved and extended under the word. A stroke entirely separated from the word may be used, in which case it will be preferably thick and heavy. In any case, it should resemble the natural stroke of a pen.

Presupposing that a block of the required description has been obtained, either line for newspaper, relief for stationery headings and folders, or sunk for stiff mounts, its position must be decided upon, though there is plenty of latitude in the matter. Probably the mount is the most important recipient of our names, and the position for stamping depends upon the plate-mark and print. Either the right or left hand side under the space for photograph is usual, but when ordering mounts specify the exact place you fancy, for it may easily enhance and balance up the mount. Should your prints be enclosed in

cover, a good place for name in harmonising colour blend, blocked, is near the edge of front and rather above the centre. The stationery can be made very smart and careful design. A plain line block printed with other matter is cheap, but not nearly such good style as the impression in colour from a relief block. Be careful to make the heading too showy; a simple arrangement type well balanced with the name only standing out is far better than a large name printed in type dead in centre page with a lot of ornamented type rules and printer's ornaments pulled round it.

Some firms with a very exclusive clientèle affect ordinary note-paper of superfine quality for their correspondence, etc.; it is a moot point as to whether the name as well as the address should appear upon it. An unbusinesslike appearance is engendered without it, whilst the professional style is to a small extent lost if it is included. In any case the signature, if used on this class of paper, must be kept small, and preferably plain stamped. A very good position for it is to have address as usual and print name across the left hand top corner. The name may be used on envelopes for ordinary correspondence, but it is more dignified if placed unobtrusively on the flap. Under no circumstances should wrappers enclosing advertising matter be provided with the tell-tale mark of the place of origin.

The signature should be upon stick-on labels, but should not be elaborate. Placed simply in one corner without rulings or ornament of any kind, the reputation of the firm will not be reflected upon. One must remember that photography must be unconfounded with the less refined trades, and the idea of its position is best given by the taste displayed in everything connected with it. Simplicity and lack of symmetry will generally achieve our aim.

It will be obvious that the more people that are familiarised with a name, and connect a certain form of the name inseparably with it the better for the business. For this reason the line block should always be used for the advertisements, as being different from and more striking than names set in ordinary caps. It is astonishing how a signature block stands out and catches the eye amongst the page of letterpress, as a look at the newspaper will prove.

## PORTRAITURE—ANCIENT AND MODERN.

Frederick Hollyer's Exhibition of Portraiture at his studios, 9, Pembroke Square, Kensington, W., remains open until November 5.

It is not too much to say that this highly interesting show of work is in one respect unique. It gives, in photographic medium, portraits of men and women that in the ordinary way do not hang side by side on an exhibition wall. It most resembles the National Portrait Gallery in its make up; only there technical excellence is not the prime consideration, whilst at 9, Pembroke Square the technical aspect is, like Cæsar's wife, above suspicion. From Geoffrey Chaucer to Mr. John L. Sargent, R.A., is a far cry; but that wide historic range is the very thing that makes the exhibition so positively moving in its interest. To a literary man, it must be a perfect feast; to the archaeologist a mine of wealth.

### The Mantle of the Mezzotinter.

Of course, it is quite unnecessary to say that this harvest of faces, gathered from fields through which Time long since left his footprints, is made possible by Mr. Hollyer's life-long work of reproducing the portraiture of past ages. He has stepped in where the mezzotinter stepped out; and although it would be idle to affirm that a platinum or carbon print, however beautiful, can rival the best work of the mezzotinter's art, yet in one respect it may be thought preferable as a

reproduction, namely, in that the photograph is a facsimile in the matter of details, markings, and even of blemishes, which they inherent or acquired. The mezzotinter re-drew, and that process opened the door for all kinds of variation from the original, which to-day must necessarily discount his records as reliable documents. But on the score of beauty merely it is fair to say that Mr. Hollyer's prints, leaving the peculiar velvety quality of the mezzotint out of account, are as covetable as the costly reproductions of a century ago. And they cost but a few shillings apiece!

### Old Masters.

The exhibition is admirably arranged in the cosy room of the old Kensington house, where father and son carried forward their delightful occupations. A chronological order is approximately preserved, and by the guidance of this the progress of portrait painting through the ages is most instructively marked for the visitor. The poet Chaucer leads off, and fitly introduces a company of Italian gentlemen, just as he did six centuries ago in his writings. Ironically enough, however, Savonarola comes next—Time is a leveller, and Mr. Hollyer here lends a hand. There are naturally several

ings of the National Gallery, such as that lovable old by Bellini, and Sarto's portrait of himself. Next we upon the Holbein drawings at Windsor, those stupendous draughtsmanship, at once "nervous" and dead. An amateur photographer once asserted in the Press that "Holbein and Dürer could not draw!" Next are three by Lasquez, for whose supremacy in tone values the reduction by photography affords an enduring testimony. To the four Vandykes, there are no works more delightfully in the gallery. Every photographer in the kingdom should buy copies of these two graceful and accomplished portraits, and hang them, suitably framed, in his studio (not the reception room), as ideals in his craft. That palpitating portrait of Rubens, the "Chapeau de Poile" is perhaps a little too silvery in effect to render the strong colour scheme the original; but there is no loss of the fascinating charm of this full-blooded lady exerts, in whose breast abandon she strives with propriety.

### Old Friends.

Shakespeare, John Knox, Isaac Walton, Bunyan, Milton, Howell, Pepys, looking like a boy, and Cowley, looking like a girl, with Waller between them, looking like a roué—truly a goodly company. We follow the flight of ages, and find Lord Chesterfield, Smollett, Swift, and his "Stella," Pope, and Keats, the latter a particularly rich print, because it happens to be from a mezzotint after Reynolds. Three portraits of the Siddons are here, by Beechey, Lawrence, and another; strangely enough, neither Gainsborough's nor Reynolds's. The great Madame de Pompadour, by Boucher, is more distinctive in the little version here than it is in the original. The hard blue of the dress and the general coldness of colour are distinctly unsympathetic. But it is a fact that reproduction by photography is the making of many an old friend. Two of Johnson and one of Goldsmith swell this lengthy line of notables, which includes artists, statesmen, court beauties, and kings, besides the men of letters. The latter, however, far outnumber the others, and they gain increased value from the fact that they appear in several versions according to different artists. To enumerate them would be simply to write a list of famous names. They are their interest for the photographer when they occur near our own times as to fall into the period of the

photographic era. We then see how the camera tells, not as a reproductive but as a creative agent.

### Where the Camera Scores.

In the case of John Ruskin, we get from Mr. Hollier a far stronger physiognomy than the painters have given. He shows a profile bold and grand, with a fine sweep of beard that leads the eye down to the sensitive hands. This leonine head belongs, of course, to Ruskin's last days, when an occasional snarl in a newspaper was all that the world knew of the former voluminous writer of rhapsodical elegancies. Watts's portrait of himself in the prime of life should be placed in the National Gallery amongst the great Italians; it would not suffer, as the reproduction here reminds us; but it is the Watts of Mr. Hollier's front view which gives intimately the painter-prophet that the world reveres. Similarly, the photographer scores with George Meredith, Hollier's well-known profile of whom is infinitely to be preferred as a likeness of the actual man to the picture by Watts himself, which is but a fine dream of Meredith.

Getting near to the end of the exhibition, and leaving the series of Tennyson and Carlyle, which is of absorbing interest, we come to the present generation with Leighton, Browning, Morris, Rossetti, and others of the same standing. Professor Huxley and Charles Darwin are among them.

Being invited to ascend a staircase, I found there another assemblage of celebrities, among whom was my old friend Fredk. H. Evans, disporting in the company of Mrs. Patrick Campbell and the Rev. Stopford Brooke.

### A Good Idea.

It has recently been suggested that the National Portrait Gallery should augment its records and fill up its gaps by acquiring photographs of this kind. Never was a better idea mooted. A man of such a widely embracing circle of acquaintances as Mr. Hollier should be an inexhaustible mine to the promoters of a gallery of portraits. In many respects the photographic portrait is a truer document than the painted one, and Mr. Hollier has scores of portfolios of them. When he chooses to take his well-earned rest from his long labours, his son is there, artistic and energetic, ready to carry on the work alone in the path of well-proved traditions.

F. C. TILNEY.

## FOREIGN NOTES AND NEWS.

### Reversed Negatives.

Zima strongly recommends, in the current number of the *photographische Korrespondenz*, the following method of making reversed negatives:—A well-cleaned sheet of glass should be rubbed with a 0.5 per cent. solution of silicate of potash and then coated with a 2 per cent. solution of gelatine, preferably hard collotype gelatine, and dried. It should then be sensitised in a 2 per cent. solution of ammonium bichromate and dried. It is then to be exposed under the negative, the duration of exposure being controlled by a photometer, in which should be used a strip of gelatine paper, sensitised in the above bath. After exposure the plate should be well washed in running water till the film is free of colour, and to remove the reduced chromium salt it can be immersed in a very dilute acid sulphite solution or a 2 per cent. solution of metabisulphite of potash. The plate should then be immersed in a solution of platinschwarz M, a dye made by Meister, Loeb and Brünig. This dye only stains the unhardened gelatine of the negative is thus obtained, which is absolutely free from colour. This process should be particularly useful for collotype and lantern workers. If a transparency be used the result will, of course, be a transparency, and as bright and dark blue, green, and brown are obtainable, this process will be a welcome method for making lantern slides, for the latter, possessing no grain, show very well on the screen.

### Filtration of Colloids.

Since recent researches, notably those of Steintopf and Szigmondy, the inventors of the "ultramicroscope," have taught us that colloidal solutions are of the nature of suspension of particles—ultramicroscopic in size—in a non-colloidal fluid, it appeared reasonable to conceive that filtering media might be found that would strain off these exceedingly minute particles from the fluid in which they floated, or rather some of them, so as to fractionate the colloids into different portions according to the several degrees of fineness of the filters employed. The task of constructing such filters has been taken in hand by Dr. Bechhold, of Frankfurt-on-Main, with a considerable measure of success. According to the report of the Stuttgart Conference, in the "British and Colonial Druggist," using paper and other tissues impregnated with jellies of several degrees of concentration, and submitting the colloidal fluids to a pressure of 0.2 to 0.4 atmosphere, he has effected separations of various kinds, both inorganic and organic colloids being tested; of the former, arsenious sulphide and ferric hydrate are mentioned. He has concentrated albumin and hæmoglobin—the filtrate being free from albumenoid—globulin has been separated from the sodium chloride which dissolved it. Particularly significant is the behaviour of ferments and toxins under the new filtering test; while ordinary albuminoid bodies proved to be tolerably "indifferent" towards the filtering medium—i.e., they did not interact, the toxins and ferments showed a tendency to combine



or "dye" it, this expression being employed to denote a process of fixing akin to that of a dye upon a fabric but without colour; hence he calls toxins and ferments "colourless dyestuffs." The author emphasises the importance of the new principle to the investigation of the sizes of colloidal particles, and there are numerous problems in biological and medical chemistry to the resolution of which it should render valuable aid.

### Keeping Emulsions in Jelly Form.

Dr. Homolka summarises the various methods of keeping emulsions in jelly form, and states that far preferable to any is the use of pure benzole. The melted emulsion should be poured into a large stoppered bottle or vessel, and placed in ice so as to set it quickly, and stirred so as to prevent the bromide settling out. When thoroughly hard, a thin film of pure benzole should be poured on the top of the emulsion and the vessel closed and placed in an ice chest. When required for use the benzole should be poured off, and the last traces allowed to spontaneously evaporate, and then the emulsion melted, as usual. Dr. Homolka states that he has kept even extremely rapid emulsions by this method.

### The Lippmann Process.

Dr. Lehmann, in Eder's "Jahrbuch," states that all processes hitherto given for sensitising the emulsion for this process are based on an accurate proportion of the dyes, so that without a filter compound colours could be correctly rendered. Abandoning this method, the dyes are added in such quantities that each exerts its maximum action, and Dr. Lehmann uses a compensating filter, which enables all colours and even pure whites to be obtained. For the filter three stock solutions are required:—

1. Cyanine .....	0.4 gms.
Alcohol .....	200 ccs.
To be dissolved cold.	
2. Erythrosine .....	0.4 gms.
Alcohol .....	200 ccs.
To be dissolved cold.	

3. Aesculine .....	0.4 gms.
Hot distilled water .....	10 ccs.
When dissolved add:—	
Alcohol .....	190 ccs.
Ammonia, sp. gr. 0.91 .....	3 drops.

To make the filter, stock solutions Nos. 1 and 2 must be diluted with 30 parts of water or alcohol. The actual filter which is used in 5 mm. width is:

No. 1 solution (1:30) .....	2½ parts.
No. 2 solution (1:30) .....	5 parts.
No. 3 solution undiluted .....	1 part.
Alcohol or water .....	1½ parts

This solution must be kept in the dark, as the cyanine bleaches in light. A useful substitute for the cyanine has not yet been found, though the following filter is the nearest:—

Methyl violet (1:15000) .....	0.6
Erythrosine (1:15000) .....	2.5
Aesculine (1:500) .....	1.0
Alcohol .....	7.0

The above is a brief extract from a book, "Beiträge zur Theorie und Praxis der direkten Farben-Photographie mittels stehender Wellen nach Lippmann's Verfahren," by Dr. Lehmann, which is shortly to be published.

### The Young-Helmholtz Theory and Three-Colour Photography.

Dr. Pfandler, of Graz, in order to explain the above theory, compares the seven spectrum colours to seven bells, and gives them various numerical values, and shows by tables that the sum of the sounds caused by ringing the bells in sets of three may be likened to the fundamental colour sensations, red, green, and blue-violet. He states that A. König has proved that the eye can recognise about 160 tints in the spectrum, and as the diameter of the smallest sensitive surface of the retina is 0.004 mm., it is impossible that 160 nerve fibrils can be fastened to such a small area, and therefore the division of these tints into several groups of different strengths is the most satisfactory and economical solution of the problem. The author concludes by stating that a study of the curves of König and Deterici are of extreme importance in colour photography, and it is only by obtaining plates or filters which shall have similar overlapping curves that a reproduction of compound colours true to nature can be obtained.

### A Simple Photometer.

Dr. Stolze suggests the use of two right-angled prisms  $cd$  and  $cf$ , fastened to a thin sheet of opal glass. Assuming the sources to be at  $a$  and  $b$ , the prisms have only to be shifted right or left till the illumination is even, and then measure



Fig. 1.

tances,  $ac$  and  $bc$ , then the intensities of the lights will be  $a^2 : b^2$ . This arrangement can obviously also be used to compare the actinic power of the two lights.

### Silver Phosphate Print-out Emulsions.

Professor Valenta gives the following method of making the

Raw collodion (3 to 3.5 per cent.) .....	1,500 ccs.
Phosphoric acid (20 per cent.) .....	20 ccs.
Citric acid .....	60 ccs.
Alcohol .....	100 ccs.

Dissolve the acids in the alcohol and add to the collodion. add:

Silver nitrate, powdered .....	60-80 gms.
Liq. ammonia .....	q.s.
Warm alcohol .....	250 ccs.

The ammonia should be added gradually to the powdered silver nitrate till a perfectly clear solution is obtained, and then the alcohol added to the emulsion after this addition should be added:

Ether .....	250 ccs.
the whole filtered through cotton wool and then	
Glycerine .....	10 ccs.
Alcohol .....	10 ccs.

added. This gives brilliant prints, which can be either printed out and toned in the usual way or else faintly printed and developed with an acid metol developer. The tones obtained by the process are rich brownish blacks, with pure whites.

### Developing Platinotypes.

Dr. Jacoby states that the following developer will give blacks with absolutely pure whites on ordinary black tone platinotype paper:—

Potassium oxalate .....	250 parts.
Zinc oxalate .....	100 parts.
Water .....	1,000 parts.

Heat to 77 deg. Fahr. If the colour obtained is too warm zinc oxalate should be used. To obtain sepia tones, he recommends the use of ammonium monophosphate,  $NH_4$ ,  $H_2$ ,  $PO_4$ , with a cupric sulphate.

Potassium oxalate .....	200 parts.
Ammonium monophosphate .....	50 parts.
Cupric sulphate .....	2 parts.
Water .....	1,000 parts.

The prints should remain in this developer at least five minutes.

### A New High-light Reducer.

Dr. Lüppo-Cramer states that a mixture—

Nitric acid .....	50 ccs.
Water .....	30 ccs.
Ammonium sulphocyanide 20 p.c. sol. .....	20 ccs.

—will reduce the high lights of a negative exactly in the same way as ammonium persulphate. The action is rather slow, and it is advisable to immerse the negative before treatment in a 2 per cent. solution of chrome alum and dry. On the other hand, he states that a mixture of a 5 per cent. acidulated solution of ammonium persulphate with 2 per cent. solution of ammonium sulphocyanide like Farmer's reducer, and attacks the shadows first.

### Coloured Illuminants for Three-Colour Work.

W. Gamble states, in Eder's "Jahrbuch," that the exposure can be considerably reduced if an original be illuminated with the necessary coloured light instead of using filters, and that he has devised

patented an electric lamp, in which are two carbons, which can be alternately brought into play. The one gives an orange red light and the other the ordinary violet of the enclosed arc. So far he has not been able to obtain green illumination, though there should be no difficulty in this, considering the number of chemicals which

give green lights. The exposure with the orange red carbons is 50 per cent. less than that of the open or enclosed ordinary carbons. The lamp is constructed by Penrose and Co.. The author disclaims any originality in the idea, and states that Warnerke recommended coloured illumination many years ago, in a paper before the R.P.S.

## DOUBLE CARBONATES AS DEVELOPERS.

### I.

In the articles entitled "Development with the Alkaline Carbonates," which appeared in the numbers of this JOURNAL for August 5 and 21 and September 28, 1894, I gave some account of the ordinary carbonate developers in every-day use, and attempted at the same time, from data obtained experimentally, to classify these according to their properties, with the object of exhibiting the special character of each.

Among the developers which thus received attention, particular reference was made to the pyrogallol-ammonium sesquicarbonate bath, a re-agent which, as I showed in my summary of results by a comparison of its merits and defects with those of the other carbonate baths described, was found to possess qualities of a high order and of no little practical importance and utility. Having afterwards made a careful and special study of the properties of the developer in question, I gave a full account of my investigations in Volume XLII. of the JOURNAL, in the numbers for March 1 and May 6 and 10, 1895. These latter papers, in view of the facts elicited, attracted a considerable amount of notice, and gave rise to an interesting discussion, in which the late Mr. W. B. Bolton and other leading photographic authorities took part.

In the autumn of the same year I made some further experiments with this developer, these having been undertaken chiefly with the object of finding a means of improving the keeping qualities of the aqueous solution of the ammonium salt. Whilst so engaged, the idea suggested itself to me that the stability of the developer might be increased by substituting for the simple sesquicarbonate a double carbonate containing the same base in the form of one of its numerous compounds with the heavy metals. I decided then and thereupon to test whether such was the case, and accordingly selected the double carbonate of copper and ammonium as a suitable salt for the preliminary trial.

A slight difficulty of a practical nature here, however, interposed itself. In order to prepare the double carbonate, copper carbonate must first be obtained. But the so-called carbonate, as usually prepared—by precipitation—is, as is well known, not the pure salt, but a mixture of carbonate and hydrate in variable proportions. Instead, therefore, of attempting to prepare the double salt by precipitating the copper in this dubious form, and dissolving the mixture of compounds in a solution of the sesquicarbonate, I thought it better to avail myself of a valuable property which that re-agent, in virtue of its acidific character, possesses, viz., of acting as a solvent of metallic bases.

Ammonium sesquicarbonate, as I may remind my readers, possesses a chemical constitution expressed by the formula  $(\text{NH}_4)_2\text{H}_2(\text{CO}_3)_3$ . When, however, the salt is dissolved in water, it is decomposed, and converted into two new compounds, viz., the neutral carbonate  $\text{NH}_4\text{CO}_3$ , and the hydrogen carbonate,  $\text{NH}_4\text{HCO}_3$ .

The change which the sesquicarbonate undergoes on solution is represented by the chemical equation here given:—

$(\text{NH}_4)_2\text{H}_2(\text{CO}_3)_3 + \text{aq.} = (\text{NH}_4)_2\text{CO}_3 + 2\text{NH}_4\text{HCO}_3 + \text{aq.}$   
The hydrogen carbonate thus produced possesses properties of an acid character, and is found, among other things, to dissolve metallic oxides and hydrates, there being formed in every such case a double carbonate of ammonium and the particular metal employed.

In order to prepare my stock developing solution of the double carbonate of ammonium and copper I dissolved, in the first place, 51 grains of crystallised ammonium sesquicarbonate in four fluid ounces of water. I then added to the solution thus obtained 40 grains of cupric oxide, and, after stirring, set the two aside to digest together for a week, during the whole of which time the contents of the flask containing the mixture were freely exposed to the air.

The clear, colourless supernatant liquor gradually assumed, on standing, a rich, deep blue colour. At the expiry of the week I filtered off the blue solution from the black insoluble residue. The latter, after washing and drying, was found to weigh exactly 32 grains. Eight grains of cupric oxide had, therefore, been dissolved by the ammoniacal solution. The formula of the stock developer as prepared by this process was thus:—

Ammonium sesquicarbonate .....	12.75 grains.
Cupric oxide .....	2 grains.
Water .....	1 fluid ounce.

This stock solution was made up for use during the week September 11 to 18, 1895.

For the purpose of testing the developing properties of the copper bath, I exposed, a few days afterwards, during bright sunshine at mid-day, a slow gelatino-bromide plate on a landscape subject, the stop used on the occasion being  $f/14$ , and the exposure given, four seconds. To develop, I prepared a second aqueous solution of ammonium sesquicarbonate of the strength of 12.75 grains per fluid ounce. To this I then added an equal volume of the stock copper-ammonium carbonate solution, and to each fluid ounce of the mixed solutions 2.25 grains of pyrogallol and half a grain of potassium bromide.

The plate exposed as above was immersed in the bath for development. After nine minutes had elapsed the first faint outlines of the image began to appear, these being visible when the film was viewed by transmitted light. The subsequent growth in density was very tardy and gradual on account of the abnormally slow action of the copper solution, and it was not, indeed, actually until seventy minutes had elapsed from the start of the developing operations that the image had acquired a degree of vigour sufficient to justify the removal of the plate from the bath. After a brief washing in water, the picture was transferred to the usual thiosulphate bath, from which, on the completion of fixing, it was removed to the washing trough.

The finished negative so produced was of striking beauty and excellence, and in certain respects presented an appearance altogether unique. The colour of the image was an orange-pink of singular brilliancy and richness, resembling in its lighter shades the hue of pure burnished copper, or that of the freshly-prepared suboxide of the same metal, and inclining in its darker tints towards an agreeable ferruginous or ochre red. The gradation of tone obtained with the developer was of the utmost delicacy, whilst the density of the image, alike in its highest lights and in the deepest shadows of the subject, was as nearly perfect as could well be imagined.

A very interesting optical peculiarity of the picture was its uncommon sharpness of focus, which was such that the minutest details, and even those lying in different planes, were reproduced with a microscopic fidelity of effect truly remarkable. The image, in point of fact, much resembled in its pictorial qualities the best class of work produced by means of the wet-plate collodion process, and bore little or no likeness to a gelatino-bromide negative of the ordinary type.

In the course of further experiment it was conclusively shown that this variation in the appearance of the image must be attributed to the chemical action of the copper solution. With the view of settling this point, several dry-plates from the same batch as that already used were exposed on the same subject under like physical and optical conditions. These were then treated in a pyrogallol developer in which dilute ammonia was substituted for the copper-ammonium carbonate solution. In no case, it was found, did the resulting image exhibit the peculiar qualities of tone and focus which



characterised the negative obtained in the manner above described. On closely examining the film of the latter, directly after the removal of the plate from the copper-bath, it had been noticed that through the action of the developer the pores of the gelatine had undergone contraction, the change being rendered apparent by a marked increase in the smoothness and tenacity of the colloid surface. An important practical consequence of this change of physical state was that the film was found to have acquired a degree of toughness so considerable as to permit of the process of washing before and after fixing being carried out without the usual risk of frilling or abrasion. It seems exceedingly likely, also, that to this contraction produced by the action of the copper bath on the gelatine vehicle should be assigned the special sharpness of focus to which I have above referred as such a noticeable feature of the finished negative.

Several prints on gelatino-chloride paper were afterwards taken from the negative, which were greatly admired for their unusual delicacy and softness of effect. The printing of these, on account of the pronounced non-actinic qualities of the image, was a somewhat lengthy and tedious operation.

The success of the experiment with the copper-ammonium carbonate bath was regarded as specially interesting and important, as serving to demonstrate the practicability, and, under certain conditions, desirability, of employing a solution of a double carbonate as a substitute for the ordinary carbonate bath in development. It was thought advantageous, therefore, to investigate the matter further, and, in particular, to experiment with the object of finding whether other salts of the double carbonate class were suitable for use in this description of photographic work. It was not, however, until the month of August, 1905, that the proposed inquiry was proceeded with.

Of the various double carbonates then examined a considerable number were rejected as unsuitable for developing purposes. The majority of these were compounds regarded as objectionable only on the score of their insolubility or very limited solubility in water. Of the remainder, several were deemed unfit for use as developers by reason of the fact that their aqueous solutions were found to be precipitated on the addition of pyrogallol, whilst a third class of these salts—of which argentic-ammonium carbonate may be cited as an instance—could not be employed in the manner proposed, owing to their deleterious action on the gelatine film.

The carbonates finally selected—excluding, however, from the present enumeration copper-ammonium carbonate, which was also included in the list of serviceable photographic re-agents—were five in number, viz., those of cobalt-ammonium, nickel-ammonium, zinc-ammonium, magnesium-ammonium, and uranium-ammonium.

These compounds were prepared for experimental purposes by precipitating by the addition of a suitable carbonate, aqueous solutions of salts of the respective metals required, washing the insoluble carbonates so obtained, and thereafter dissolving the precipitates in a solution of ammonium sesquicarbonate.

For the preparation of the cobalt-ammonium carbonate developing bath, thirty minims of a saturated aqueous solution of cobaltous nitrate were diluted with three or four times their own volume of water. A solution of sodium carbonate was next made up of the strength of 100 grains of the common crystallised salt ( $\text{Na}_2\text{CO}_3 \cdot 10\text{H}_2\text{O}$ ) to each fluid ounce of water. Part of this solution was then added gradually to the first, the addition being carried a little beyond the stage at which the last of the cobalt was seen to be precipitated in the form of carbonate. The curdy violet precipitate so obtained was allowed to settle, after which it was thoroughly washed by decantation in repeated changes of water. The washing having been completed and the bulk of the residual water withdrawn by means of a syphon, three fluid ounces of an aqueous solution of ammonium sesquicarbonate of the strength of 12.5 grains of the crystallised salt per ounce were added to the flask containing the moist precipitate. The contents of the flask were well shaken at intervals during the next forty-eight hours, the result being that about two-thirds of the precipitate were dissolved, and a fine crimson solution of the double carbonate was produced. The undissolved portion of the precipitate was allowed to digest in this solution for five months. An additional ounce of the ammonium sesquicarbonate solution was then added, the addition being made a few days before the bath was employed for development, and the

flask was again well shaken and set aside. When the bath was required for use the insoluble matter that still remained after the second digestion was removed by filtration.

The nickel-ammonium carbonate bath was prepared in the following manner. Ten grains of hydrated nickel sulphate ( $\text{NiSO}_4 \cdot 7\text{H}_2\text{O}$ ) having been dissolved in water, sodium carbonate solution was, before, added in slight excess to effect the precipitation of the metal. The vessel was then allowed to stand for a few hours until the pale green precipitate formed had completely subsided, after which the soluble products of the decomposition were withdrawn by decantation, and washing was proceeded with until the last trace of these impurities had been removed. The water was then drained off, and a solution of ammonium-sesquicarbonate (37.5 grains of the salt in two fluid ounces of water) was added to act as a solvent of the nickel compound. On shaking the flask, nearly all the precipitate dissolved, there being formed a rich blue-green solution of the double-salt.

A few drops of the green liquid were withdrawn and tested with an alcoholic solution of pyrogallol. A precipitate was instantly formed, of an intense purple-black colour. On adding thereto a little of an aqueous solution of sodium sulphite, the precipitate was dissolved and a solution of a dirty-grey colour was obtained.

In view of the facts just mentioned, there appeared a necessity for the addition of sodium sulphite to the stock nickel bath in order to prevent the formation of a precipitate during the operations of development, and 75 grains of the crystallised salt were accordingly dissolved in one fluid ounce of water, and added to the stock developer a few days before this was required for use.

To prepare the zinc-ammonium carbonate bath, 50 grains of chloride of zinc were dissolved in half an ounce of water, and the zinc was duly precipitated in the form of basic carbonate, a solution of sodium carbonate being again employed to effect the decomposition. The white flocculent precipitate which resulted was washed by decantation in the usual way, and after the removal of the bulk of the water was treated with an aqueous solution of ammonium sesquicarbonate of the strength of 12.5 grains per fluid ounce. The flask was well shaken and set aside to digest. When five months had elapsed, and immediately before the bath was required for development, the contents were filtered to remove from the saturated solution the undissolved residue of basic carbonate that still remained.

In making up the magnesium-ammonium bath a different system of procedure was adopted. Eighteen grains of hydrated magnesium sulphate ( $\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$ ) were dissolved in water, and from the solution thus obtained the magnesium was then precipitated in the form of hydrate by the addition of an excess of strong ammonia. The precipitate was washed by decantation as usual, after which it was dissolved by the aid of a gentle heat in a weak solution of citric acid made up to the volume of one fluid ounce and containing 15 grains of the crystallised acid. After cooling, 25 grains of ammonium-sesquicarbonate, previously dissolved in one ounce of water, were added to the newly-formed solution. A slight effervescence ensued, which was due to the partial decomposition of the carbonate by a small residue of acid that had hitherto escaped neutralisation.

The last of these stock developers, the uranium-ammonium carbonate bath, was made up for use by adding gradually to a concentrated solution of uranium nitrate, containing 7 grains of the crystallised salt, two fluid ounces of an aqueous solution of ammonium-sesquicarbonate of the usual strength. As the yellow precipitate that was formed on the addition of the carbonate speedily re-dissolved, the double salt could not be purified by decantation and subsequent washing in the ordinary way. The bath, accordingly, as prepared for use, contained as a by-product a considerable percentage of ammonium nitrate, a constituent which, however, as will hereafter be shown, did not appear to impair its developing properties in any marked degree.

For restraining purposes, eight grains of potassium bromide were dissolved in an ounce of water, and this stock solution, which was added, usually, in one-grain doses to the developer, was employed as circumstances demanded.

A concentrated stock solution of pyrogallol in alcohol and glycerine was used in the developing operations. Of these I propose to give a particular account in my next paper.

MATTHEW WILSON.

THE MERCURY-VAPOUR LAMP.

In the current number of the "Journal of the Franklin Institute" there appears a fairly exhaustive paper, by Dr. Weintraub, on the mercury arc, from which the following notes are extracted.

The structure of the mercury arc shows a positive column proceeding from the anode and a relatively dark cathode space exactly as seen in any Geisler tube; there is also a cathode spot which is always in irregular motion over the face of the cathode. If the mercury vapour pressure gets above certain value the positive column does fill the entire section of the tube, but concentrates itself in the middle, and is surrounded by a space of relatively equal luminosity.

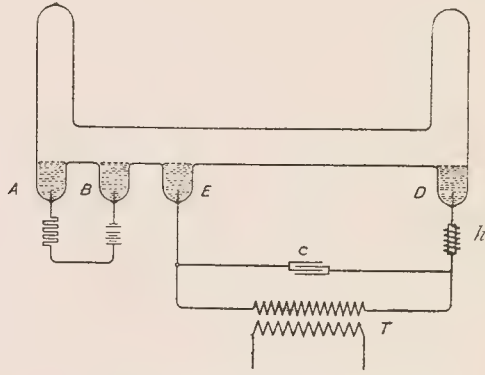
The formation of the arc in the vapours of other metals, such as potassium, sodium, lithium bismuth, lead, zinc, cadmium, and their alloys, and as amalgams has not, unfortunately, lead to any satisfactory results, as the amount of light is small and the efficiency small. The methods attempted for improving the quality of the light were as follows:—(a) The use of ordinary incandescent lamps in series with the mercury arc. The General Electric Company, U.S.A., has developed the so-called orthochromatic mercury arc lamp, in which a number of incandescent lamps in multiple are placed in series with the mercury arc, the incandescent lamps burning at a normal efficiency. The whole is enclosed in a holophane globe, which serves the purpose of blending the two lights of different colours. This system has, of course, a lower efficiency than the mercury arc alone, and also leads to somewhat larger units.

(b) The use of amalgams of the alkali metals and of the metals of the alkali earths.—By adding metals like potassium, sodium, lithium, calcium, etc., to the mercury, the spectrum of the arc can be changed. The practical application for the purpose of improving the colour of the mercury arc meets, however, with considerable difficulties and disadvantages of which I mention the attack on the glass by the alkali metals, the lowering of the efficiency, etc.

(c) Use of fluorescent bodies which have the property of transforming the violet and green rays into those nearer the red end of the spectrum.—Unfortunately none of the substances known possess

this property in a degree sufficient for practical purposes; also this transformation is very wasteful.

(d) Change of the nature of the discharge through the mercury vapours.—The spectrum of the light emitted by the discharge through vapours or gasses depends on the nature of the discharge. Work in this direction for the purpose of improving the colour of the mercury arc has given promising results. One of the experiments, showing the essentials of the phenomenon, is illustrated in the sketch.



T is a transformer of not too small a capacity, C condensers, h a small inductance; AB is a direct current arc which supplies ionised vapour, this ionised vapour filling the space between the two other electrodes, E and D. Under proper conditions the discharge of the condenser between the electrodes E and D has a spectrum rich in red rays, the arc ED giving a brilliant white light.

MR. J. T. SANDELL—AN APPEAL.

Since the appearance of the list of donations last week the following has been sent to us in response to the appeal of Messrs. T. K. Grant and J. B. B. Wellington:—

E. J. Wall .....	£ s. d.
E. G. Richardson .....	10 6
	10 6

The following sums have also been subscribed:—

J. T. Chapman .....	£ s. d.
W. Hughes .....	1 1 0
Croydon Camera Club (1st donation per W. H. Smith, President) .....	1 1 0
G. W. W. ....	5 10 0
S. H. Wratten .....	1 1 0
F. C. L. Wratten .....	1 1 0
Devonport Camera Club (per A. J. Catford).....	5 5 0
Sir J. W. Swan .....	1 1 0
W. A. Vinden .....	5 5 0
Amount already acknowledged .....	1 0 0
	75 14 6

Total ..... 99 0 6

The response from the two photographic societies named above represents, we understand, the interest at present shown by the three or four hundred societies in the kingdom, very many of whom have been indebted to Mr. Sandell for demonstrations. We hope that the example of Croydon and Devonport will not be disregarded by the majority of associations in the country. Many no doubt will be influenced by the action of the larger bodies in Birmingham, Manchester, Liverpool, Leeds, and Glasgow and Edinburgh. We hope this reminder of the appeal already made by Mr. T. K. Grant will meet the eyes of the officers in these centres.

THE SOCIETY OF COLOUR PHOTOGRAPHERS.

The Committee appointed by the preliminary meeting of the above Society held on the 16th inst., have drawn up the following code of rules and working propaganda, which will be placed before a General Meeting of Members for confirmation, on November 14th.

RULES.

- (1) *Title*.—The Society shall be called "The Society of Colour Photographers."
- (2) *Objects*.—The objects of the Society shall be to further the progress of Colour Photography.
- (3) *Membership*.—All interested in Colour Photography are eligible for Membership.
- (4) *Nomination*.—Ladies and Gentlemen may be admitted to Membership on the nomination of a Member, or upon their own application. The Committee shall decide any question as to eligibility.
- (5) *Subscription*.—The subscription shall be 5s. per annum, payable on admission. Subsequent subscriptions shall be payable in advance on the 1st of January in each year. The subscriptions of Members joining after October 1st shall be considered as paid up for the following year.

No Member shall be entitled to any of the privileges of Membership if their subscription shall be three months in arrear.

(6) *Meetings*.—Ordinary meetings shall be held from time to time, fourteen days' notice of which shall be given by the Hon. Secretary. The Committee may call extraordinary meetings as they may think advisable. At each Annual General Meeting, which shall be held in October in each year, a balance sheet shall be presented, and Officers elected, and any other business that may require the decision of a General Meeting. Special General Meetings shall be called within fourteen days of the receipt by the Hon. Secretary of a requisition



signed by five Members, stating the purpose of the Meeting, and no subject shall be discussed thereat but for which the Meeting was called.

(7) *Alteration of Rules.*—Alterations of the rules of the Society shall only be made at the Annual General Meeting or a Special General Meeting. The alterations proposed shall be stated in the notice convening the Meeting.

(8) *Officers.*—The Officers of the Society shall be a Committee of four Members, a Treasurer and Secretary. The Officers shall retire annually, but shall be eligible for re-election.

(9) *Books of Accounts.*—Proper books of accounts shall be kept by the Treasurer, and a book of minutes shall be kept by the Hon. Secretary.

(10) The payment of a subscription by a member shall be taken as indicating acquiescence in these rules.

The Activities of the Society are:—

(a) The mutual interchange of ideas and experiences in Colour Photography by means of a circulating portfolio of specimens and MSS., which shall include questions and replies. This portfolio shall be circulated every three months, and shall not be retained by any member longer than five days.

(b) To obtain for members assistance by correspondence from more experienced workers, through the medium of the Hon. Secretary.

(c) To hold an Annual Exhibition in London open to members and non-members, at the time of the General Meeting.

(d) To form a permanent collection of Specimens, Apparatus, etc.

A most cordial invitation to join the Society is extended to all who are interested in the advancement of Colour Photography; membership is not confined to practical workers. Nomination forms may be obtained from the Hon. Secretary, Mr. Henry J. Comley, Surrey House, Stroud, Gloucestershire.

#### THE TRAILL-TAYLOR LECTURE.

ON Tuesday evening last, under the auspices of the Royal Photographic Society, at the New Gallery, the ninth Traill-Taylor memorial lecture, "Photography in the Work of the Greenwich Observatory," by E. Walter Maunder, was delivered. Sir H. Trueman Wood, in taking the chair, said that he did so only by reason of the unfortunate illness of the President of the Royal Photographic Society, General Waterhouse. Mr. Maunder said he had been a member of the staff of the Greenwich Observatory for a third of a century, and, being able to speak of certain features of the work done there from inside experience, he hoped to interest his audience—as he was certain that Mr. Traill-Taylor would have been interested—in the part which photography played in that work. Astronomy was the first of all the sciences to make use of photography since Daguerre attempted, at the request of Arago, to photograph the moon in 1839. The result was imperfect, but J. D. Draper, an American, obtained a series of Daguerreotypes of the moon in the March following, with exposures of twenty minutes, and in 1845 a Daguerreotype of the sun was obtained. Not long afterwards Greenwich Observatory pressed photography into its service, but Airy, the Astronomer Royal, elected to work by Fox Talbot's process of "photogenic drawing" on paper as being more suitable in many respects.

The purposes to which photography is now applied at the Observatory are, first, the recording of the changes in certain instruments; next, the pictorial representation of certain objects; and, thirdly, for the purpose of accurate measurement. Under the first head, Mr. Maunder showed by slides how photography was used in recording the movements of the magnetic needle, showing the changes in its intensity, and the changes in the direction of the earth's magnetism. The recording of the changes in meteorological instruments was another section of the same work. Slides made from early records printed on paper, prepared by a modification of Fox Talbot's paper, were shown.

Photography of the spots and faculae on the surface of the sun, of solar eclipses, etc., was not at first considered to be part of the Observatory's work, and it was not until the well known Kew heliograph was removed to Greenwich, in 1873, and placed under the lecturer's charge, that this work was carried out systematically. Referring to the sun spot photographs shown, Mr. Maunder said that the type of group which is most commonly observed begins its

life as a single small dot on the surface, and is usually joined by another spot close to it. The two spots grow rapidly in size, and separate as they grow, the movement being parallel to the sun's equator, and at the rate of about 8,000 miles a day. In the observation of nebulae and comets, photography enabled phenomena to be recorded which would otherwise be quite invisible.

The third head comprised work which had always been considered as coming within the original programme of the Observatory, and was the rectifying of the tables of the motions of the heavens and the positions of the fixed stars. Although the original purpose was the purely utilitarian one of assisting navigation, the progress of science had carried the work far beyond the limits of the warrant which defined the duties of the Observatory. Among the slides which illustrated this section of the work was one which showed how a planet, practically invisible, was differentiated from the fixed stars which surround it. Four exposures were given, the plate being shifted between each in such a way that the four images of each star formed a square, while the images of the planet, by reason of its movement, formed an irregular figure.

The chairman proposed a vote of thanks to the lecturer, and presented him with the Traill-Taylor Memorial Medal. Mr. Maunder responded briefly, and the proceedings terminated.

#### THE SALON AT THE ROYAL.

THE curious distortion of fact indulged in, quite innocently perhaps by Mr. A. C. R. Carter, in the critique of the Royal Photographic Society's Exhibition in "Photograms of the Year," deserves to be demonstrated by actual figures. Mr. Carter talks about the Royal being reinforced by the Salon, and instances twelve people represented this year at the Royal, who have "been seen at the Salon." We give the actual facts as to these twelve exhibitors for the past six years, from which it will be seen that it would be more accurate for Mr. Carter to congratulate the Salon on its reinforcements from the Royal:—

	1906.		1905.		1904.		1903.		1902.		1901.	
	Sal'n	Roy'l	Sal'n	Roy'l	Sal'n	Roy'l	Sal'n	Roy'l	Sal'n	Roy'l	Sal'n	Roy'l
Mrs. Barton.....	1	4	4	5	4	3	5	11	2	4	0	0
Mrs. J. E. Bennett	4	6	0	0	1	2	5	0	2	0	1	1
E. G. Boon .....	3	2	3	1	0	1	1	5	1	4	0	0
W. J. Clutterbuck	3	2	1	1	4	0	0	0	0	0	0	0
R. Dührkoop .....	3	5	5	4	0	5	0	0	0	0	0	0
E. Garroue .....	2	4	0	0	0	0	0	0	0	0	0	0
E. O. Hoppé .....	3	4	0	2	0	0	0	0	0	0	0	0
S. G. Kinter .....	3	1	0	0	0	1	0	0	0	0	0	0
Arthur Marshall ...	4	5	3	4	1	4	0	2	0	0	0	0
J. C. S. Mummery	1	2	0	3	1	2	2	4	1	2	1	1
T. Lee Smith .....	1	2	0	3	0	2	0	0	0	0	0	0
J. M. Whitehead ..	1	5	2	5	0	4	0	7	0	4	0	0

## Exhibitions.

#### ROTHERHAM PHOTOGRAPHIC SOCIETY.

THE Rotherham Exhibition was opened on Wednesday in last week at the Drill Hall, and during the four days it remained open attracted large numbers of visitors. The loan collection of photography by Herr R. Dührkoop placed at the society's disposal "The British Journal of Photography," was proved a special feature of the show. The awards in the competition classes were as follows:—

#### OPEN SECTION.

Photograph, any subject (previously medalled). Silver plaque. Fred Judge, Hastings.

Portraiture and Figure Studies.—Equal bronze plaques, Mrs. Dunlop, Motherwell, N.B.; F. A. Tinker, Sheffield; James Clark Ealing; Henry Holt, Rochdale.

Flowers, Fruit, Still Life.—First bronze plaque, D. W. Kyte, Glasgow. Second ditto, A. W. Walburn, West Hartlepool.

Landscape, Seascape, and River Scenery.—Equal bronze plaques

W. Cooper, Preston; Hy. Lindoe, Sunderland; Richard Harrison, Warrington; Charles E. Walmsley, Ambleside.  
 Architecture.—Bronze plaque, Alfred Roffey, Birmingham.  
 Lantern Slides.—First bronze plaque, A. G. Thistleton, Newton Heath. Second ditto, Graystone Bird, Bath.

## MEMBERS' SECTION.

Landscape, Seascape, River Scenery.—Bronze plaque, A. E. Dawson.  
 Architecture.—Bronze plaque, W. Firth.  
 Miscellaneous.—Bronze plaque, W. Firth.  
 Best board of exhibits.—Bronze plaque, H. L. Pontis.  
 President's prizes.—Bronze plaque, Miss Tillotson; bronze plaque, studies in three colour work, James Tasker.

## FORTHCOMING EXHIBITIONS.

September 14 to October 27: The Photographic Salon.—Sec., Reginald Craigie, 5a, Pall Mall East, London, S.W.

September 20 to October 27: Royal Photographic Society.—Sec., McIntosh, 66, Russell Square, Bloomsbury, London, W.C.

October 24 to November 14.—West of England Exhibition (Photographic Section). Entries close October 1. Sec., A. D. Breeze, 41, Lion Street, Plymouth.

October 31–November 1.—Watford Camera Club. Last day for entries, October 25. Secretary, Edwin H. Jackson, 5, Lower Derby Road, Watford.

November 7 to 8: Bedford Camera Club.—Sec., W. H. Hodge, 58, Baconfield Street, Bedford.

November 7–10: Motherwell Camera Club. Entries close October 5. Exhibits must be sent by November 2. Secretary, Jas. Dunlop, Rydebank, Motherwell, N.B.

November 7 to 10: Hackney Photographic Society.—Sec., Walter Hife, 70, Paragon Road, Hackney.

November 14 to 17: Rugby Photographic Society.—Sec., R. H. Myers, 13 Bridget Street, Rugby.

November 15 to 27: Burnley Camera Club. Entries close November 10.—Sec., Fred Whitaker, Mechanics' Institution, Burnley.

November 16 to 21: Southsea Amateur Photographic Society.—Hon. Sec., F. S. Hoyte, "Lismore," Stafford Road, Southsea.

November 20: Sefton Park Photographic Society.—Sec., A. W. Warr, 34, London Grove, Liverpool, S.

November 27 to 30: Hove Camera Club. Entries close November 1. Hon. Sec., G. W. King, 29, Wilbury Gardens, Hove.

December 5–8: North London Photographic Society.—Entries close November 26. Sec., Chas. Roberts, 33, Riversdale Road, Highbury, N.

December 6 to 8: South Manchester Photographic Society. Entries close November 21.—Secs., J. H. Haywood and M. W. Thompson, 45, Lapwing Lane, West Didsbury.

December 11 to 15: Southampton Camera Club.—Sec., S. G. Chamber, "Oakdene," Highfield, Southampton.

1907.

February 13–15.—Northern Tasmanian Camera Club. Last day for entries, December 31, 1906. Secretary, F. Styant-Browne, 112, Brisbane Street, Launceston, Tasmania.

February 23 to March 2: Birmingham Photographic Society.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 11 to 14: Cripplegate Photographic Society.—Sec., J. B. Ashham, "Chagford," Old Church Road, Chingford.

February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge, Norwich.

March 2–9: South London Photographic Society.—Sec., W. L. White, Bank House, Ladywell, London.

March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.

April 29 to May 14: Photographic Society of Ireland.—Sec., R. Benson, 35, Molesworth Street, Dublin.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between October 8 and 13:—

PRINTING FRAMES.—No. 22,144. Improvements in photographic printing frames. Frank Ingram, 88, High Holborn, London, W.C.

PRINTS FOR COLOURING.—No. 22,196. Method of preparing or treating sensitised photographic surfaces which are afterwards to be coloured. Bernard James Cooper, 60, Queen Victoria Street, London, S.W.

COLOUR PHOTOGRAPHY.—No. 22,310. Improvements in cameras suitable for colour photography. John Snell Chenhall, 24, Southampton Buildings, London, E.C.

FOCUSsing.—No. 22,338. Improvements in focussing means for photographic apparatus. Walter Thorner, 111, Hatton Garden, London E.C.

CAMERAS.—No. 22,393. Improvements in photographic cameras. Frederick Hook and the Service Company, London, 23, Southampton Buildings, London, E.C.

PHOTOGRAPHIC ADVERTISEMENTS.—No. 22,394. Photographic apparatus, combined with a clock, barometer, or thermometer, for the purpose of photographic talking public advertisements. Umberto Majoli, 52, Chancery Lane, London.

CINEMATOGRAPHY.—No. 22,429. Arrangement for the centring of images in cinematographic projection apparatus. R. W. James, 1, Queen Victoria Street, London, for Compagnie Générale de Photographes, Cinématographes, et Appareils de Precision, France.

DAYLIGHT DEVELOPMENT.—No. 22,460. Apparatus for the daylight development of roll-film. Henry Masters and George Wishart, 96, Buchanan Street, Glasgow.

## COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

DEVELOPING P.O.P.—No. 13,032, 1905. This invention has for its object a new or improved process for printing and developing silver chloride paper whereby much greater speed of operation is obtained, the cost is very much lower than in the gold process, and the results are more brilliant, and show greater detail.

The invention consists mainly in using cyanides or sulphocyanides in the developer. One tablet of the developer is to contain 4 grains of pyrogallol acid with or without inactive material, and the other to contain one-thirtieth of a grain of bichromate of potash, one-fourth of a grain of sulphocyanide of potassium, and one grain of citric acid with or without inactive material, such as sugar of milk. These two pellets or tablets are dissolved in about five ounces of water.

Another formula giving excellent results can be obtained by a combination of the pyrogallol acid and metol in the one tablet,



and the bichromate of potash, sulphocyanide of potassium, and citric acid in the other tablet. The proportions are as follows:—

Pyrogallie acid .....	3½ grains.
Metol .....	½ grain.
Bichromate of potash .....	1-60th grain.
Sulphocyanide of potassium anhydrous .....	½ grain.
Citric acid .....	½ grain.

with or without inactive material, such as sugar of milk. In place of pyrogallie acid about the same weight of metol may be used. If metol be used it gives a blacker tone, and increases the speed of development. One and a half grains of metol and three grains of hydroquinone give a tone midway between pure metol and pure pyrogallie acid. There are other reducing agents, similar to these, which can be used in substitution of them, but not with such good effect. The bichromate of potash is used to increase the speed of development, and other alkaline bichromates can replace the bichromate of potash, but there is no advantage in using any of these over the potash salt.

In place of anhydrous sulphocyanide of potassium an alkaline iodide, sulphocyanide of sodium or even of ammonium could be used, but the ammonia salt discolours quicker. Alkaline cyanides can also be used to a certain extent, but none of these salts are equal in value to the anhydrous sulphocyanide of potassium. Although the hydrated salt will work equally well, the anhydrous salt can be made into tablets, and is not so deliquescent, whereas the hydrated salts are very deliquescent, and therefore it is difficult to keep them in pellets of exact weight and quantity.

The quantity of sulphocyanide too can be considerably varied; thus where a considerable amount extra is added, and the pinning is carried deeper in the first instance, a fine Bartolozzi red tone is obtained. The citric acid is specially pure and free from sulphuric acid and lime, and is deprived of its water of crystallisation. One grain of it equals 1.120 grains of ordinary citric acid crystals. It is used to make the developer work more evenly and to remove the bichromate stain. It can also be substituted in whole or in part by tartaric and other vegetable acids of a like nature; but citric acid is decidedly the best.

To obtain the address side of a postcard absolutely clean, addition is made to the developer of ¼ to ½ a grain of metabisulphite salt, of which potassium is the most suitable. This prevents the address side staining without interfering with the action of development.

The great difference between the process and any other is:—That whereas in all other known processes for developing silver chloride papers, as soon as the photograph is placed in a solution, the free silver which has not been reduced by action of light is washed out of the emulsion, is instantly attacked by the reducing agent, pyrogallie acid, metol, or whatever is used, and reduced to the black metallic state. This is deposited both on the dish and on the print, whereas with this process, by the addition of a cyanide salt to the developer, as soon as this free silver is washed out instead of being reduced to the metallic state by the reducing agent, it has a far greater affinity for the traces of the cyanide salt, and instantly flies to the traces of the cyanide salt and forms tiny yellowish white grains of cyanide of silver which will not stick to anything. Herbert John Mallabar, 59, Deane Road, Liverpool.

**TWO-COLOUR PHOTOGRAPHS.**—No. 22,725, 1905. The invention consists of the following process of printing from two-colour negatives taken through orange-yellow and blue screens respectively. From the orange-yellow negative a positive is made upon chloride of silver gelatine paper and fixed with ammonia whereby an orange-yellow monochromatic positive is produced.

A backing of celluloid is coated with a detachable emulsion such as used for gaslight paper, from the blue negative a positive silver print is produced upon this sensitised film, and is toned blue in a bath prepared somewhat according to the following directions: 50 parts of a solution of 1 gram of ferric-ammonio citrate in 100 grams of water are mixed with 10 parts of glacial acetic acid and 50 parts of a solution of 1 gram

potassium ferricyanide in 100 parts of water; the printing is placed for a short time in 2 per cent. hydrochloric acid and washed in water until the lights appear white.

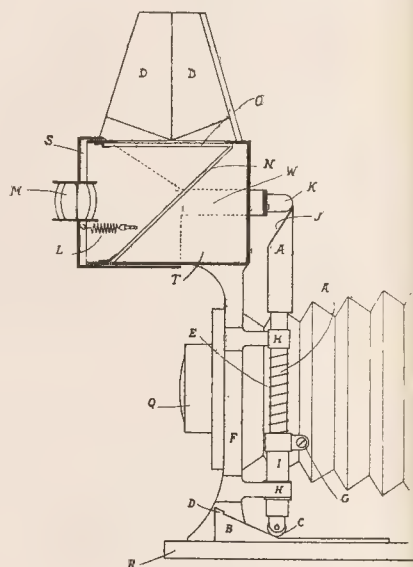
The picture side of the still moist blue print is placed upon a celluloid backing, made to coincide with the yellow print produced under 2, having regard to the transparency of the backings, can be removed without loss of time and without difficulty. After dry celluloid backing can be easily stripped from the finished photograph, which moreover rests upon the paper by August Zimmerman, 3, Lloyd's Avenue, London, & Chemische Fabrik auf Actien (vorm. E. Schering).

**FOCUSSED FINDER.**—No. 25,948, 1905. The claim is for the construction of inclined planes or wedges as the mechanism of focussing finders may be made to perform their function when the lenses pertaining to such finders are of dissimilar length, as compared with their respective taking or lenses.

In the figure:—

A is a vertical rod sliding freely in sockets H H, which are attached to the camera-front or lens-board F.

A slight downward pressure is maintained on the vertical rod A by the spring E, so that a relatively uniform touch



A A by the spring E, so that a relatively uniform touch wheel C is maintained.

B is an inclined plane attached to the camera baseboard and a stop D at the top to prevent the wheel C from oversteering the end of the inclined plane.

I is a hollow tube, or collar, gripping on to the vertical rod A by means of the screw G, and is so designed that it is in contact between the face of the wedge J, and the focussing as well as between the face of the inclined plane B and the face of the wheel C can be readily maintained.

Q is the taking lens, while M is the focussing-finder lens.

N is a reflecting mirror at an angle of 45 degrees or thereabouts, and O the focussing screen of the finder, while DD is for the purpose of excluding extraneous light during the focussing.

S and T are the front and back portions respectively of the focussing finder, and these slide within one another telescopically.

The sliding movement to the body may, as an alternative, be accomplished by means of bellows, thus tending to greater portability. The front and back portions of the finder body are kept gently pressed towards each other by spring L, attached to the respective parts by lugs or

Harold William Hood, F.R.P.S., The Willows, Linthorpe, Middlesbrough.

**Patent No. 17,425. 1905.** The invention consists in the employment of a flexible cord across the centre of the dish, which passes through apertures in the sides of the plate at the centre; and in use, the plate or film will lie above the cord, and when resting on the bottom, this cord will lie within a transverse channel in the bottom of the dish.

In using the cord, the one or the other end, which has a knot or stop on it to prevent it running through the hole in the sides, is pulled by the finger and thumb, the effect of which is that the cord comes up against the bottom of the plate or film, and lifts it. William Laurence Parkinson, 3A, Imperial Chambers, 62, Dale Street, Liverpool.

**DIFFRACTION COLOUR PROCESS.—No. 6,825, 1906.** The invention consists in the improved form of the diffraction process, already described in the *BRITISH JOURNAL* for August 3, 1906. The first claims are:—

1. The process of making a diffraction colour photograph consisting in projecting on to a sensitive surface through three successive and different continuously-ruled diffraction gratings and three successive and different dispositions of clear spaces in a line screen or screens which may be arranged at an angle to the diffraction lines, rays from three successive images, each representing one of the primary colour sensations; substantially as hereinbefore described.

2. In the process of making a diffraction colour photograph a line screen having opaque spaces twice as wide as its clear spaces, rays from three successive images, each representing one of the primary colour sensations, and shifting the line screen between successive exposures to the extent of the width of each of its clear spaces. Herbert Eugene Ives, Woodcliffe-on-Hudson, Weehawken, County of Hudson, State of New Jersey.

**PHOTOGRAPHY.—No. 19,272, 1905.** The invention relates to Patent No. 29,057, 1904, and relates to a device for displaying a double series of pictures by aid of a single light, and with or without the use of revolving or other shutter mechanism. A single source of light is provided, and at a suitable distance in front of the light two mirrors are placed one beside the other at right angles to the light and at right angles or some other suitable angle to each other. Robert Thorn Haines, 26, Osna-  
burgh Street, London, W.

The following complete specifications are open to public inspection and acceptance under the Patents Act, 1901.

**Patent No. 22,338, 1906.** Focussing methods and means for photographic apparatus. Thorner.

**PHOTOGRAPHY (U.S. Pat.).—No. 287,188. July 31, 1906.** A suitable paper is coated with an emulsion of an animal glue (e.g., fish-glue), containing a red dye stuff, for which alizarine is recommended. It is slightly hardened by means of alum solution, and sensitised by treatment with an alkali bichromate solution. An image is printed from this paper from a negative taken through a suitable screen, and this image is coated with transparent sensitive coating, which receives a blue image of the same object.—W. C. South, Berwyn, Pa.

**Old Lens.—**A correspondent writes:—"If your inquirer will get the lens again I think he will find the name on it is Burton, London. Burton was a very good working optician who kept all shop at the east end of Church Street, Minorities, London, E., near the little church of Holy Trinity (where, by the by, I was organist at the early age of 15). He made some very good Petzval lenses of the Petzval type, but I never knew of his making binoculars. He was particularly good at binocular opera glasses, and made for me one of the finest pairs I ever used (and which I unfortunately, at the Handel Festival of 1865). He has been dead many years."

**Late P. M. Laws.—**Mr. Peter M. Laws has just died at Newbury in his seventy-fifth year. He took up photography when it was in its infancy, and was a pioneer in the use of artificial light.

## New Books.

"Photograms of the Year." 1906. London: Dawlarn and Ward. 2s. and 3s.

This hardy annual comes in a new guise this year. Its cover is perhaps a trifle old-fashioned in design, but, on the whole, it is a handsome book. The publishers disarm criticism by explaining their aim to reconcile quick production with good printing. Certainly they have not entirely achieved the latter for the pictures, in spite of the "art paper," the necessity for which all publishers nowadays seem to make a virtue of. The text, however, is a typographic triumph. The matter, too, is both entertaining and instructive. For the most part it is made up of reports as to pictorial progress in America, Canada (a nice distinction to the ordinary Britisher), Australia, Spain, France, and of course, England; but of Germany and Austria we are told nothing.

Roland Rood's article on America is fresh and level-headed. It says that the "winning of the recognition of the painters" is the chief aim there. Mr. Rood commends their Salon for its sanity, its freedom from "purism," eccentricity, and decadence. This fact he attributes to the work "having passed before a jury of artists, and not before a body of youthful art-students and amateurs." In the special exhibits that followed the show the French elicited interest and amusement; the German were much more appreciated; but of the English (D. O. Hill, Craig Annan, and F. H. Evans) only Hill's was well received. Craig Annan's was too various in style to make an impression, and Evans's lacked the exaggeration that appeals to the emotions—"the audience wanted to be amused, not instructed." Steichen is said to have the secret for the master-stroke. His "Rembrandts" and their "empty shadows" "touch the right spot," but as soon as he puts something into these shadows "Rembrandt goes, and so does the charm," "to be made to feel, that's fun, but not to think." We should have thought all that a pretty bad look out for America.

H. Mortimer Lamb sounds a doleful note. The Toronto Camera Club is congratulated upon its "having cut out the high-sounding title of 'Salon'"; but one of its highest achievements is A. S. Goss's 'Child and Half-Nurse,' now at Pall Mall. So much for Canada! We like the pessimism of Mr. Lamb's article; it argues good taste.

On the other hand, A. Hill Griffiths writes with exciting optimism about Australia. "We have had glimpses of the various fads and fancies which have been introduced under the heading of 'Pictorial Photography,' but fortunately no one has been persuaded to adopt them." The British Affiliation comes in for rebuke, on the scores of both manner and matter. Speaking of the pictures sent out from England, Mr. Griffiths says: "O deliver us from any desire to express ourselves in such gloomy sentiments." He prognosticates a great artistic future for the colony, to be arrived at by doing its "own lonely road." "Plainly speaking," he says, "there is practically nothing to be learnt from our gaze into British pictures. . . . I think we can do better." A praiseworthy, typical, colonial sentiment.

M. Mendez Leon informs us that Spain has her "Velasquez of photography" in the shape of a hitherto obscure professional. There is no "crowd of amateurs" in Spain. As to him who takes up snapshotting with "small apparatus," which weighs very little, "his results are not, as a rule, exhibited." What a happy place is Spain! There appear to be, however, countless exhibitions in which prizes are awarded, the prize-winner having to surrender his rights in everything he exhibits, which all become the property of the promoters of the show. In spite of this drawback, however, "there appears to exist a rooted preference for actual prizes instead of honourable mention." So after all the plan seems to be mutually satisfactory. M. Leon concludes in these words: "Work has been done in Spain but not on the surface (we have heard, indeed, that dark rooms are sometimes subterranean in that happy land), and will not be produced until the worker is assured of securing an honoured position." America had then better "watch out."

A brief but excellent article from M. Robert Demachy sums up the state of things in France, where printing methods that admit of



control have ousted "straight" photography. He says all those who do not know how and where to improve and correct a straight print are "dropping, one by one, out of the race, and they are aware of it."

As usual, Mr. Carter supplies the appreciation of the Salon and Royal shows; but struggles this time with the Herculean task of making out a bright case for the former and a sorry one for the latter. "I must make it clear," he says, "that the present reduced Salon is more preferable to me than any I remember." He implies, further, that the excellence of the Royal show is due, in some mysterious way, to the Salon. These opinions have the merit of being unique.

We can heartily recommend the book as being a perfect compendium of all the best photographic work done during the past year, whether exhibited or not. It contains nearly one hundred and sixty reproductions of work done at home and abroad, and is by no means a mere réchauffé of the London exhibitions. Readers will find a very large proportion of pictures which are new to them, and which they will probably see nowhere else.

"Stereoskopbilder vom Sternhimmel." Series 1, Von Prof. Max Wolf, Heidelberg. (Leipzig: Johann A. Barth, 1906.)

Some months ago Herr Prof. Max Wolf, of the Königsstuhl Observatory at Heidelberg, made the interesting announcement that he had been able to construct true stereoscopic charts of the sky, and very soon following the preliminary announcement a picture was issued showing a variable star on the starry sphere. Viewing this with an ordinary stereoscope, it was marvellous how any slight changes in the positions of the various stars were rendered manifest, and it was found not only possible to demonstrate the actual proper motion of a celestial object in space, but to measure its amount with extreme accuracy. Now this is an accomplished fact it appears as simple as it is beautiful, but it has involved the greatest refinement of patience and accurate manipulation on Prof. Wolf's part to secure its accomplishment. The distances of most of the celestial objects are so nearly infinite that the two stereoscopic component pictures cannot, of course, be obtained by any change of position of the camera, so what Prof. Wolf did was to take one picture and then, after the lapse of several years, a second; the instrument must of necessity be at the same adjustment in the two cases so as to maintain the scale constant.

The small collection of stereograms under review—twelve in number—is in itself excellent testimony to the thoroughness of the work. The plates show a variable star, R. Coronæ—one view taken 1903 (May 28), the other 1905 (May 7); the planet Saturn, with its satellites; the asteroid Svea (329), for which the exposures were fourteen minutes apart on the same evening, each exposure being about two hours; a meteor or shooting star; comet Perrine (1902); proper motion of a star in Orion; the Nebula of Andromeda, taken at four years' interval; the Orion Nebula, with two years' interval between the component photographs; two regions of the moon, with the lunar Apennines and the crater Albategnius.

To one accustomed only to the usual single pictures of these celestial objects it is a revelation to see the extra detail brought out by this new method of observation. The photograph of the Andromeda Nebula, projected on a background of brilliant point-like stars, is a most beautiful object. As these photographs become more widely known they promise to be of great value in cosmical determinations, and they should also prove useful to teachers of astronomy in giving concrete proof of various matters difficult of direct explanation.

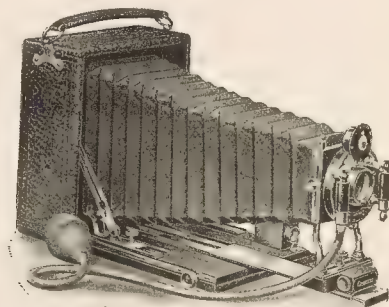
A LANTERN list from the Kodak Company, Clerkenwell Road, London, E.C., is offered free to applicants, and will be found to contain descriptions of a great variety of lantern and enlarging apparatus.

MANCHESTER Amateur Photographic Society.—The 21st annual exhibition will be held at the Manchester Athenæum, from November 5 to 10. A programme of lectures has been arranged for the period of the exhibition. Particulars are obtainable from the secretary, Mr. F. W. Parrott, Elm House, Elm Road, Altrincham.

## New Apparatus, &c.

Century Cameras. Sold by Kodak, Ltd., 57 to 61, Clerkenwell Road, London, E.C.

A series of about a dozen patterns of cameras has been introduced to the British public by the Kodak Company, on the assumption that, despite the immense variety of apparatus already obtainable, there is yet room for another series of instruments of sufficient distinctive features. These latter in the Century cameras are of some considerable practical importance, and of a kind also which, should judge, will be appreciated by the dealer who desires to maintain a full stock.

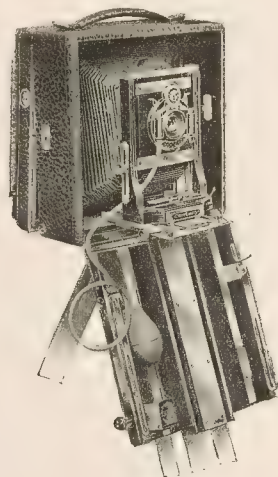


the best possible case for the camera to purchasers at the counter. The Century cameras have

- Revolving reversing back,
- Swing bed,
- Focussing screen in automatic register,

and are fitted with finders which can be easily taken to pieces, cleaned. Such are the salient features of the new introduction. Perhaps we can best describe them in reference to two particular instruments, selecting for this purpose the "Petite Century, No. 1" and the "Century Grand Senior."

The former is shown in the drawing, from which it will be seen



that the cameras are of the hand-stand pattern, the particular of the series being with double extension, fitted with automatic clamp for the lens front, by which the focus is fixed in an instant and the front released with equal ease and rapidity. The finders has rising and cross movements, in both cases actuated by rack and pinion. It carries automatic shutter, reversible finder, and

in appearance as good-looking an instrument, as we consider it to be well equipped for practical work. The prices are: £3 18s. in quarter-plate, £4 15s. in 5 x 4, in each case including one double dark slide.

In the "Grand Senior" model, all the most varied requirements of the photographer have been studied. The camera is of triple extension (16½ inches—5 x 4 size), and is also fitted for the very shortest wide angle work by the provision of an extra detachable bed to support the front, the baseboard falling down completely out of the way, as shown in the illustration. The camera has swing front of the usual pattern, but for this wide angle position an additional swing is provided. All the other usual movements, such as rise and cross movement of front, are available, and, for the price of £11 in the 5 x 4 size the camera is fitted with superior R.R. "Centar" lens. The price in 7 x 5 is £13, and in 8½ x 6½, £16 15s.

## New Materials.

The Wellington S. C. P. Lantern Slide. Made by Wellington and Ward, Elstree, Herts.

Appropriately at the commencement of the lantern season, Messrs. Wellington and Ward introduce their gaslight emulsion as a lantern slide. Under the title S.C.P. they are issued at the standard prices for lantern slide plates—viz., 1s. per dozen, ¾ x ¾. These are packed in pairs, face to face, being held together by unsevered film of emulsion. Testing a sample on some fairly quick-printing negatives, we found an inch of magnesium ribbon burnt at about 4ft. distant approximately right for correct exposure. With this degree of exposure and using the maker's normal developer of:—

Water .....	20 ozs.
Metal .....	20 grs.
Sodium sulphite .....	200 grs.
Sodium carbonate .....	800 grs.
Hydroquinone .....	20 grs.
Potass bromide .....	20 grs.

we obtained fine black tones. The plates develop very quickly, in less than a minute, and the image is of very fine grain and great transparency.

By giving exposures up to twice or three times the normal and adding 1 to 2 drachms of the following restraining solution, tones from warm brown to red are obtained:

Ammonium carbonate restraining solution .....	1 oz.
Ammonium bromide .....	1 oz.
Water .....	10 ozs.

Development, of course, is slower in this restrained bath, but the range of colours obtainable pleased us extremely, and no one can be pardoned for inflicting a series of monotonous black slides on an audience when there is the Wellington S.C.P. plate at his disposal. We congratulate Messrs. Wellington and Ward on their new introduction.

"Zigas" Gaslight Paper. Made by Thos. Illingworth and Co., Ltd., Willesden Junction, London, N.W.

Messrs. Illingworth have introduced a companion to their "Zigo" self-toning paper in the person of "Zigas," which is a gaslight paper, made in four qualities: ordinary matt and glossy, and portrait matt and glossy, the two latter brands yielding softer prints, but resembling the "ordinary" paper in surface. As a result of preparing prints in all four grades, we have seen that "Zigas" is a very clean working gaslight paper. Its disposition to fog is noticeably small, and we were satisfied by our trials that the new introduction may take its place among papers of acknowledged quality without fearing comparisons.

To stimulate interest in "Zigas" the makers have arranged a competition for prints made from it, in which £50 in prizes will be distributed.

Falla-Gray Gaslight Papers. Made by the Falla-Gray Photo-Paper Company, Park Road, Tunbridge Wells.

Our paragraph of a week or two ago, alluding to the exhibit of the Falla-Gray Company's exhibit at the New Gallery, has brought us a sample of the paper from the makers, who draw our attention

to its two special qualities—rapidity of (1) development, and (2) fixation. In the course of making a dozen or two of prints upon the paper we were at once impressed with the almost instantaneous manner in which the image attains full vigour. In fact, we found that it was best to adjust exposure so that the print developed thus quickly; the slightest forcing of development led to general fog. In regard to the second claim, the makers in their circular state that fixation is complete in a (fresh) bath of hypo, 4 ozs. per pint, in one minute. This point we confess did not interest us much, since we cannot imagine any working condition in which this speed of fixation would be of any great value. Theoretically, the fact may be of interest, and we hope to make some further prints, fix them exactly for one minute, and note the results of exposure to light and air. The makers state that in case of a longer fixation than one minute a proportionate time of washing must be allowed. We suppose they mean longer, but we cannot quite enter into their reasons for the advice. However, worked in the ordinary way Falla-Gray is a very good gaslight paper, and we can recommend it. For tones in imitation of P.O.P. the makers give the following process:—

### Solution 1.

Mercury perchloride .....	2 drms.
Ammonium bromide .....	1 drm.
Common salt .....	4 drms.
Water .....	10 ozs.

### Solution 2.

Soda sulphite, pure .....	½ oz.
Water .....	10 ozs.

The prints, after being well washed, are immersed in the mercury bath until bleached, then thoroughly washed and placed in the sulphite bath until the desired colour is obtained, care being taken not to tone too far as they dry much colder. They are then washed for five minutes, and rinsed and finished in the usual way.

### CHRISTMAS STATIONERY AND ACCESSORIES.

Chic Christmas Mounts.—These mounts are the special issue of Messrs Kodak, Ltd., who for the last year or two have offered attractive series of mounts at Christmas under the above title. The specimens before us of the present year's styles include some of the most truly artistic productions we have seen. They are all of a matt or rough surface, produced in varied shades of greys, greens, and other colours. Some, of a marbled surface, are very effective, and we can quite recommend application for the four-page circular in which the mounts are priced and illustrated.

Christmas Motto Mounts.—Messrs. Houghtons, Ltd., remind us of their series of Christmas mounts by sending us the catalogue and circular of trade terms for the various series published by them. The list is fully illustrated in half-tone, a help to the purchaser who cannot personally inspect the cards. A book of specimens is issued for half-a-crown, which sum is refunded on receipt of an order of £2 10s. and upwards.

Seltona Christmas Postcards.—The Leto Photo-Materials Co., Ltd., Rangoon Street, London, E.C., have ready their well-known Seltona emulsion on postcards bearing suitable mottoes for the Christmas season. This special issue of the self-toning cards applies to both the matt and glossy varieties. A packet of twelve cards and two masks is sold for one shilling.

Christmas Motto Negatives.—Mr. H. W. Green sends us samples of new Christmas motto negatives, which are sold by him in assorted packets for 7d. post free. The negative allows a motto to be added to a photograph without an extra operation in the printing.

A further selection of Christmas mounts reaches us from Jonathan Fallowfield, of 146, Charing Cross Road, London, W., accompanying a forty page illustrated list. This latter is the most extensive piece of literature dealing with this type of goods, and contains particulars of a special offer to dealers and professionals in the shape of specimen packets of mounts made at 5s. and 7s. 6d., made up in sizes specially to suit customers' requirements. Of the cards themselves we can only select one or two which we specially like, while referring the reader to the illustrations in the list: No. 664, rough art paper, like Whatman drawing paper, tied with silk bow; No. 676, white ivory card, embossed in gold with motto;



No. 1,051, single card with strut back, oval opening and surrounded by ribbon design; No. 1,009, rough cream art paper with deckle edge, and embossed design with motto in gold, green and red, a very handsome card. We are glad to see the firm offering their accustomed variety.

**ENTENTE CORDIALE POSTCARDS.**—Mr. E. Alexander, the agent for the "Aristophot" Co., sends us a series of postcards just issued by him apropos of the visit of the Lord Mayor to Paris. The cards are apparently hand-coloured glossy bromides and extremely effective. Prices, etc., from 104, Southampton Row, London, W.C.

**MOUNTING PAPERS.**—We have received samples of art mount papers from Messrs. Barton, 114, Golden Hillock Road, Birmingham, which should interest all those who read Mr. Gordon Chase's letter in our last issue. The papers include a number of canvas-like surface, others resembling linen, and in all respects are of excellent appearance and colour.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Oct.	Name of Society.	Subject.
26.....	St. George Co-op. Soc. Cam. Cl.	"What Can be Done with a Hand Camera."
26.....	Photo. Society of Ireland .....	"The Pictorial Possibilities of P.O.P." Alfred Waring. "Dry Mounting." Demonstrated. H. C. Draper, F.C.S.
27.....	Aberdeen Photo. Art Club.....	Ourling to Bieldside.
29.....	Forest Gate Photo. Society...	"Hford Lantern Plates," A. Brooker.
21.....	Oxford Camera Club.....	An Exhibition of Novelties in Apparatus.
29.....	South London Photo. Soc'ety...	"A Lantern Slide-Making Competition." Gideon Clark
29.....	Southampton Camera Club .....	R.P.S. Affiliated Societies Prize Slides
29.....	Preston Camera Club .....	"Outdoor Figure Work." T. H. Greenall.
29.....	Caterham Valley Photo. Soc.	"Latest Kodak Productions."
30.....	Glasgow Southern Photo. Assn.	Members' Lantern Slide Competition.
30.....	Darlington Camera Club .....	"Lettering and Titling." R. W. Chapman.
30.....	Manchester Amat. Photo. Soc.	"Velox Printing." J. J. Phelps.
30.....	Hackney Photographic Society .....	"Combination Printing." J. Linley.
30.....	Glasgow Southern Photo. Assn.	Last Date for Sending in Prints for Federation Portfolio.
31.....	Croydon Camera Club.....	"The Carbon Process." Mr. Braham.
31.....	Bideford Camera Club .....	"The Photographic Lens." C. P. Goerz.
31.....	Woodford Photo. Society .....	"Velox." Demonstrated. A. W. Green.
Nov.	Chelsea and District Photo. Soc.	"Pictures with the Goerz Lens."
1.....	Rugby Photographic Society .....	"The Theory and Practice of Self-Toning Papers." Messrs. J. J. Griffin & Sons.
1.....	Hull Photographic Society .....	"The Cathedral of Winchester." S. G. Kimber.
1.....	Liverpool Amateur Ph. Assn....	"The Photography of Flowers." Demonstrated. Dr. A. T. Lakin.
1.....	North London Photo. Society....	"Old Inns and their Story." J. H. K. Todd.
1.....	London and Prov. Photo. Assn.	"The Rendering of Colour and Colour Contrasts." C. E. Kennerth Mees.
1.....	Blenheim Club .....	"Forest Life." T. Martin Duncan.
1.....	Richmond Camera Club .....	Members' Slides.
1.....	Chelsea Photographic Society....	"Pictures with the Goerz Lens."
1.....	Small Heath Photo. Society .....	"Telephotography." C. P. Goerz.

**HULL PHOTOGRAPHIC SOCIETY.**—In dealing with cristoid films and their possibilities last week, Mr. W. Whitlam sent round negatives (with prints from them), many of which were quarter plate exposures stretched during manipulation to 5 x 4 and up to half plate, yielding that soft and desirable falling off of pinwire sharpness so objectionable to pictorial workers. In demonstrating upon an exposed spool it was first placed in the hardening bath of 2oz. formalin to 1 pint water. The film became so limp as to have the appearance of a dish-cloth, and it seemed impossible to harm it, and there appeared to be no chance of scratching or finger-marking it. This done it was thoroughly washed and placed fold over fold in the developer, which was completed quickly, to the surprise of many. The six exposures dealt with had received upon the same subject from a fraction of a second up to four seconds, and they had been given as much as seven times the normal exposure, and excellent results secured as against hopeless failure

with glass plates. A half plate film was successfully enlarged to whole-plate size during the evening by the aid of hydrochloric acid and water.

**CROYDON CAMERA CLUB.**—Mr. H. P. C. Harpur, on the 17th inst. gave a demonstration on the making of lantern slides, and a most complete exposition of the subject could hardly have been wished for. At the onset an inspiring touch was afforded by the strain of a powerful brass band outside, which competed severely at times with the lecturer's voice. Mr. Harpur, in opening incidentally deplored the existence of the musicians, and also the fact that poorer and poorer slides were shown each year. This he attributed to the reluctance of members exhibiting their slides more than once, and a lot of trouble was therefore incurred for very little return. Prints, on the other hand, could be framed and be always in evidence. For the production of first-class slides, cleanliness in working, purity of chemicals, and standardisation of methods were in his opinion, essential. Even the fixing bath should be filtered and personally he invariably used fresh hypo solution for each plate. He preferred warm tones by restrained development, adopting the following formula:—A pyro tabloid (grain 2), was dissolved in drachms of water, 40 drops each of 10 per cent. solutions of carbonate of ammonia and bromide of ammonium, were added, and finally 21 drops of a 1 in 10 solution of ammonia .880. The bottle containing these solutions were numbered from 1 to 3, by sticking on punched-out black discs, one disc for No. 1, and so on. These showed clearly in the dark-room, and prevented mistakes. He developed for a fixed time, the correct exposure being ascertained by slip tests in the usual way. The most suitable negative, in his opinion, was one which would enlarge well by artificial light. One number of capital slides by Mr. Harpur were then shown. One entitled "Reflections" (about seven-eighths of its area consisting of somewhat frozen reflections, and the remaining one-eighth terra firma), in the opinion of the majority looked best the wrong way up. The lecturer then passed on to a consideration of slides by reduction and combination printing, which operations were much facilitated by most ingenious appliances of his own design. During the evening the President, Mr. W. H. Smith, read the letter appearing in the current issue of THE BRITISH JOURNAL OF PHOTOGRAPHY, from Mr. J. B. B. Wellington, appealing for assistance on behalf of Mr. J. T. Sandell. He cordially endorsed its contents, and hoped all photographic societies would try and help a little towards the alleviation of one who was so sorely stricken. Messrs. G. W. Watson, L. Kough, and E. A. Salt also spoke in terms of sympathy for the sufferer and his family, and a sum of £5 5s. was subsequently collected from those present.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.** Meeting October 18, Mr. J. S. Teape in the chair. Mr. Freshwater read paper entitled "Photographic Notes," in the course of which he alluded to the many things of interest which are daily passed by without notice by the majority of people. He referred particularly to the phenomena to be observed in any English meadow or on sea-beach. Lantern slides were projected showing the home of the frog and the frog from the spawn to the full-grown old stager. Sections of the agate, the diamond, etc., and yet again of various parts of the coast, showing its formation, of snails, caterpillars, spiders, frost on glass, each of which were accompanied with full description. A hearty vote of thanks to Mr. Freshwater was proposed and carried.

**ROYAL Photographic Society.**—On Tuesday week, November 6, the session of the Royal Photographic Society will be opened by a reception by the President and Council at 8 p.m. This function (which it is intended should be an evening dress one) will mark the re-opening of the society premises after the alterations to the lecture room. A short address will be delivered at 8.30. A house exhibition of photographs, by Mr. H. W. Bennett, will also be opened, and, in addition, there will be on view:—Examples of work done with the Pulligny anachromatic lens, by R. Demachy, C. Puyo, G. Besson and A. Hachette; portraiture by the Schott-Genossen mercury-vapour lamp, by A. W. Isenthal; selected objects under microscope, by R. and J. Beck, Ltd.; printing by the mercury-vapour lamp, by O. Sichel and Co., Ltd.

## Commercial & Legal Intelligence.

**BERNARD COOPER, LTD.** (Photographers, London).—A third debenture for £100, dated September 29, 1906, charged on the company's undertaking and property, present and future, including uncalled capital, has been registered. Holder: Mrs. M. M. Hadfield, 28, Victoria Mansions, Willesden Green.

**THE Barnet Seaside Competition.**—Messrs. Elliott and Sons, limited, inform us that the last day for receiving entries for the above competition is Wednesday next, October 31.

A MEETING was held in Manchester, on October 17, of the creditors of Frederick Arthur Brown, a photographer, of The Cliff, Higher Broughton. The total liabilities amounted to £157, and the deficiency £78. The matter was left in the hands of the Official Receiver.

**HENR Husband's Portrait.**—One of Mr. Plowden's numerous visitors last week was a woman who complained that a photographer, who had undertaken to make a copy of a photograph of her husband for a sovereign, had spoiled the picture, and now wanted to charge her an extra 3s. 6d. to make another copy. Mr. Plowden: Well, of course. He has gone to extra trouble, extra time, and extra skill to do justice to your husband. Applicant: What! 23s. for one picture? Mr. Plowden: He is worth more than that, isn't he? Applicant: No, it isn't worth that. Mr. Plowden: Well, you know him better than I do. The applicant then withdrew, and as she left the Court she muttered, "I'll lose the 16s. I've already paid before I'll pay any more."

**PICTURE Postcard Dispute.**—At the Croydon County Court, last week, the Photo Printing and Publishing Co., of London Road, Croydon, claimed from J. Tufnell, stationer and newsagent, of Church Parade, Newbury, the sum of £23 10s., the price of certain picture postcards. Defendant counterclaimed £25 as damages, alleging that for a certain quantity of postcards he was given the sole right of sale, whereas plaintiffs let another tradesman have a supply subsequently. The case occupied a considerable time. Plaintiffs admitted giving defendant the sole right to the sale of certain albums of postcards supplied to him by them, but produced the signed contract for the supply of 2,500 coloured postcards, each of 12 subjects, which contained no clause giving him the exclusive right of sale. That was the agreement on which defendant alleged that plaintiffs were committing a breach. As to plaintiff's claim, defendant alleged that a second contract was substituted for the first. The Judge, in giving his decision, said as regards the plaintiff's claim a perfect binding contract had been shown, whilst the story of the case did not entitle defendant to maintain his counterclaim for the counterclaim. He gave judgment for plaintiffs on the claim and counterclaim.

**PHOTOGRAPHER and Circus Troupe.**—An exceptional charge of false pretences was brought at Blackpool yesterday morning by W. Koeppe, a German travelling with Novello's troupe of elephants, against Fred J. Cawsey, principal partner in the firm of Cawsey and Burtonwood, photographers, of Skipton Street, Morecambe. Mr. Callis, who represented the prosecutor, said that although the summons was issued for false pretences he thought they would find that the technical offence with which he charged him was stealing money by a trick. Prosecutor wrote to the firm for three large photographs and twelve post-cards, and in reply received a letter stating: "I may say that owing to having such a lot of money lying me from the profession we have to make a rule of cash at time of ordering," and quoting three large photographs at 1s. 6d. each—(4s. 6d.), twelve post-cards (3s.)—7s. 6d. Having got the money a letter was received as follows:—"We are in receipt of postal order value 7s. 6d. in part payment of photographs sent to the King's Theatre, Gateshead-on-Tyne, on June 16, 1906 (three months before) as per arrangement when you were in Morecambe." Then followed "six photographs at 1s. 6d.—9s., paid on account, September 20, 7s. 6d., balance 1s. 6d." The meaning of all that, said Mr. Callis, was that the money sent was put to the credit of a bill of 9s., which prosecutor had never heard of. Mr. Butcher, who appeared for the defendant, said that defendant's case was that shortly after Whit-week, whilst Mr. Novello's troupe was appearing at Morecambe Winter Gardens, he had them photographed.

Koeppe gave an order for six cabinets to be forwarded, and this was done. He still owed them 1s. 6d. At the conclusion of the evidence Mr. Callis said that if defendant would return the prosecutor his 7s. 6d. and pay the costs of the prosecution he would not ask anything further. Mr. Butcher did not agree to this course, and the Bench fined the defendant 5s. and costs, and ordered the return of the 7s. 6d. paid by Koeppe.

### NEW COMPANIES

**MATTOS, LTD.**—Capital £24,000, in £1 shares (2,000 preferred ordinary and 2,000 deferred ordinary). Objects: To acquire the process of P. Leuthardt-Thornton for the preparation of paper for photographic purposes, and to acquire the business of a manufacturer of photographic paper carried on by the said vendor. The first directors are E. W. Hunter (chairman), H. N. Hunter, and P. Leuthardt-Thornton. Qualification, £250. Remuneration as fixed by the company. Registered office, 36, Arundel Square, London, N.

## Correspondence.

*\*\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—In reply to Mr. Gascoigne's letter in your issue of October 11, it appears to me that there is some slight confusion of terms. I expressly stated that our screen was only correct to 3,700, and that it would be better, if possible, to go below this. But the large amount of ultra-violet in daylight, which is active, is mainly between 3,700 and 4,000, and this amount is corrected by the screen. Mr. Gascoigne's statement that the ultra-violet, even beyond 3,700, is non-existent in acetylene, is incorrect. The ultra-violet is simply weak compared with the red, and the correction can be made to any point fixed, by absorbing the red. We fixed that point at 3,700. The ultra-violet of daylight is absorbed by most lenses at 3,500 (Newton and Bull, P.J., July, 1906), so that the uncorrected portion remaining is the excess of ultra-violet in daylight over screened acetylene between 3,700 and 3,500.

The absorption of "Filter Yellow K." as compared with tartrazine is chiefly notable between 3,700 and 4,100, which weak tartrazine screens pass, this, while in the ultra-violet, is also in the portion corrected by the screen. Moreover, reference to Newton and Bull's paper will show that the strongest band in the enclosed arc is between 3,700 and 3,900.

Personally, I think that the main value of this screen is in testing strongly colour-sensitive plates for speed. Mr. Ferguson, who is at present away from books and references, has asked me to reply to Mr. Gascoigne in reference to his factor 0.4186 in his letter of July 27. This is the  $\frac{1}{2.41}$  of the line above converted into a decimal, but apparently converted wrongly, for it should be 0.4651, probably an arithmetical error. The rest of the calculation should be altered to correspond. Permit me to agree with Mr. Piper as to the undesirability of restricting research funds from expenditure on permanent apparatus. The cost of permanent apparatus frequently causes the publication of most unsatisfactory and inaccurate results, simply because the means of making those results accurate were not at hand.—Yours faithfully,  
C. E. KENNETH MEES.

Croydon.

### THE STABILITY OF PYRO AND SODA DEVELOPING SOLUTIONS.

[NOTE.—Through a clerical error last week the name of Mr. S. E. Sheppard, B.Sc., was omitted at the foot of the letter by him on the chemistry of sulphite in developers.]

To the Editors.

Gentlemen,—In your comments on my last letter on this subject



you asked for the actual composition of a working developer, and the time taken for attaining full density, in my ordinary work.

For a subject of normal contrast the developer would be:—

Pyro .....	1½ grains.
Potassium meta-bisulphite .....	1 grain.
Potassium bromide .....	1 grain.
Sodium carbonate .....	12 grains.
Sodium sulphite .....	12 grains.
Water .....	1 ounce.

and the time necessary for attaining sufficient density and contrast to give a strong and vigorous platinotype print would be from six to seven minutes, at a temperature of 65 degrees Fahr.—I am, Sirs, yours truly,

HENRY W. BENNETT.

To the Editors.

Gentlemen,—I have been very interested in the articles, and your notes and advice re pyro-soda developer, and having had difficulty with deterioration when using a certain standard formula, I have just adopted your recommended new formula, which I intend to give a good trial and closely watch. I should value your advice as to an economical developer expressly for use, with very short exposures. In the formula I use pyro-metol. Sodium carbonate and sodium sulphite are in one solution, which I wish to avoid. If possible I would rather modify your formula above mentioned, to use in cases of very quick exposures.—I am, dear Sirs, yours faithfully,

1, London Road, Grantham. A. M. EMERY.

October 20, 1906.

[We have not tried our formula for very brief exposures, but see no reason why it should not answer. We should be disposed to use it diluted and give plenty of time. As it is clear and not inclined to give great density, it should be well suited to prolonged development. The pyro metol formula you mention can easily be altered by transferring the sulphite from solution B to A. Dissolve the sulphite first, then the metabisulphite in about 20 ounces of water. Add the pyro to this solution, and dissolve the metol separately in 15 ounces of plain water; then mix the two solutions. We shall be glad to hear if our pyro-soda developer works well with brief exposures.]

#### THE P.P.A. EXHIBITION.

To the Editors.

Gentlemen,—The criticism (?) which appears in the "Times" on the exhibition by the Professional Photographers' Association, now open in your offices, is of such a nature that some little comment is called for. The writer, whoever he may be, states that "in most pursuits amateurs are unable to hold their own against professionals. The one class usually brings a certain amount of perfunctory zeal to bear on the subject, while the other, under the pressing necessity of gaining a livelihood, misses no opportunity of improvement. It would seem, however, that photography is an exception; for here it is the amateur who undertakes experiment and works for advancement, while the professional lingers far in the rear. . . . They continue to produce portraits of people who are obviously sitting for their portraits. . . . It is stated that they are 'fettered by commercial limitations'; but this is a plea that should scarcely be used by conscientious craftsmen who wish to give the public of their best. Moreover, the public would soon learn to distinguish between an artistic and 'commercial' photograph if the professionals combine to raise the standard of production."

Let me, at the outset, state that I am not an exhibitor, and therefore am not suffering from any personal feeling in the matter; I am merely craving for enlightenment. Being under the pressing necessity of gaining a livelihood, although one philosopher at least has told us that this is unnecessary, what am I to do whilst the public is being educated to distinguish between the artistic and "commercial" photograph?

Surely, when I produce portraits of obviously sitting people of such a quality and quantity that I can live comfortably and educate respectably a family of five, so that they shall in turn earn a livelihood, I have fulfilled my duty as a citizen of the State. Am I to follow the lead of some of the amateur workers, who exhibit at the R.P.S. and the Salon and produce things which require a title to explain what they are? Will the public buy these things as "likenesses"? If not, am I to sit on my hunkers and wait till they learn to appreciate them?

My experience, though "fettered by commercial limitations," for

the last twenty-five years is that I have to sell what the public like, and not what I like. This I take it is to a great extent the reason of the success of most businesses outside our own profession—the difficulty is to find what the public like.

For some years now I have made it part of my duty—in fact, place the expenses in my books as business expenses—to attend each year the autumn photographic exhibitions; there is something to be learnt from them, but so far I have not learnt that the public will purchase what they do not want, nor have I learnt that it is my province to educate the public and neglect my duty and throw my family on the parish.

Liverpool.

A COUNTRY PROFESSIONAL.

[The writer of the review in the "Times" appears to overlook the aim of the present exhibition, which is to allow photographers to compare their work with that of others, and for the worse to learn from the better. Regarding our correspondent's speculation as to the identity of the writer, we may point out that precisely the same review, unacknowledged to the "Times," appears in last Tuesday's "Amateur Photographer."—Eds. B.J.P.]

#### PHOTOGRAPHIC RESEARCH.

To the Editors.

Gentlemen,—I am much obliged to Mr. F. A. Bridge for his explanatory letter, but I must point out that I did not make an quotation from the conditions. I referred to the second condition, its entirety, without quoting it either in part or completely, so Mr. Bridge's amendment of the quotation I did not make has involved waste of good and useful italics. I am glad to learn that no obstacle is to be put in the way of the experimenter, but in this case I find to see why any special reference to permanent apparatus need have been made. The first condition requires "a general statement of the way in which it is proposed to expend the grant," and the second condition, read in the light of Mr. Bridge's letter, seems unnecessary. It is, I still think, likely to deter applicants, and, moreover, it raises the question of what is permanent apparatus. I take it that even a test tube may be classed as permanent apparatus until it is broken, while a camera is more or less impermanent in some hands.

The reason for the reservation is by no means obvious to me though Mr. Bridge seems to consider it should be so.—Yours, etc., Blackheath, S.E. C. WELBORNE PIPER.

CORRECTION.—A misprint in a reply to a querist last week may have misled some unacquainted with patent law. A reader asking us if the home manufacture of adhesive tissue was an infringement of the Adhesive Dry Mounting Co.'s patent, should have been told that it was. The company, we understand, have taken steps to protect their patent rights, and are prepared to proceed against those who employ tissue not of their manufacture.

THE Photographic Convention.—Owing to the great success of the last "social evening" another is to be held next January on the same lines. A special committee has been appointed for this affair matters connected with the Hereford meeting (as last year) consisting of Messrs. Alfred Ellis, E. J. Ward, Walter Potter, H. Snowd Ward, and George E. Brown.

CATATYPE Printing Papers.—Referring to our note in last week's "Summary," the Rotary Photographic Company inform us that "Catatype" printing, as a commercial process, will shortly be heard more of. The company has taken over the English patents, and as soon as a certain amount of still necessary experimenting is complete, the process will be placed on the market.

A SPECIALTY.—According to a morning paper, a photographer in London is taking portraits in a new way. He poses his subjects sitting by the fire, and reproduces the scene with all the cosy glow of a drawing room in autumn, before the electric lights are switched on. The photographs are costly, but a bill of something like seven guineas a dozen does not dismay the woman who admires originality.

PHOTOGRAPHING Fortifications.—The "Echo de Paris" reports that the judicial authorities have been informed of another affair of espionage. A Bavarian artillery captain, who said he was Captain K., of the 11th French Artillery Regiment, and pretended that he had been sent on a tour of inspection, last summer succeeded in penetrating the forts and batteries of the north, and taking photographs there.

## Answers to Correspondents.

\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.

\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

H. Williams, 70, Cross Roads, Elvedon Estate, Suffolk. Photograph of a Hall stand made of Brass Cartridge Cases.

E. Pickup, 1, Ivy Grove, Rawtenstall. Photograph of the Goodshaw Brass Band.

R. Woods, 11, Eye Bridge Street, Norwich. Photograph of Mr. and Mrs. Potter.

Lacroix, 111, Hallam Street, Portland Place, London, W. Photograph of Mr. Carl, in front of Empire Theatre, Leicester Square, with four of his bills.

A. Careton, 2a, Bells Arcade, Burnley, Lancashire. Photograph entitled:—"Three Orchids."

John A. Bradbury, 5, Cathedral Yard, Manchester. Two photographs of the Rev. C. Harpur.

A. Hanson, 3, St. James' Street, Guernsey. Two photographs of the Guernsey Fire Brigade.

A. W. Isenthal, 85, Mortimer Street, W., and O. Sichel and Co., 32, Bunhill Row, London, E.C.

**MICRO-PHOTOGRAPHS.**—A reader of the "B.J." I would esteem it great favour if you would kindly give a little of your valued assistance. I wish to try my hand at making a few micro-photographs. The "B.J." ALMANAC, 1899, page 365, gives some directions. (1) Can you tell me if collodion cotton in 2nd formula is pyroxylin, if not what it is? (2) Also what is meant by ammonia in the 3rd formula? (3) Should also be very grateful if you know of any further hints on the production of micro-photographs, or if I could obtain any further literature on the subject. (4) Can you tell me where I can obtain the small cylindrical pieces of glass they are mounted on?—F. G. PERKINS.

1. Yes, ordinary pyroxylin; that made at a high temperature is best for this purpose. 2. The ordinary liquor ammonia of commerce. 3. There is no work published on the subject. 4. At any of the opticians who make a feature of the materials used by microscopists, such as Beck's, Cornhill; Baker's, High Holborn.

**RETOUCHING VARNISH.**—Mr. A. Whiting gives a retouching wrinkle on page 701 of "B.J." ALMANAC for 1906, in which one of the ingredients is 40 ozs. of alcohol. Can you kindly tell me if the "alcohol" referred to is ordinary methylated spirit, alcohol 838 deg., or absolute alcohol? Will ordinary methylated serve?—WILLIAM ERNEST.

The ordinary methylated spirit of commerce will answer practically as well as pure alcohol.

**RETOUCHING.**—(Reply to Miss W. S.).—Remarkably good for the very short time you have studied. We have had far inferior specimens from retouchers who have been many years in professional employment. You have texture, softness and exceptionally good preservation of the likeness. Be careful not to work too closely on old faces, and with large heads draw back a fair distance compared with your range of vision for the smaller subjects. If fairly quick in attaining your effects you should have but slight difficulty in securing a situation with a

high-class firm; but quickness does not usually come in ten months.

**SAFE LIGHT.**—Can you give us a formula for solution of "safe light" for use in tank dark room lamp? Saturated bichromate of potash is unsatisfactory.—SAFE DARK ROOM LAMP.

A mixture of tartrazine (2 part) and rose bengal (1 part). The addition of the latter dye to the bichromate would render the latter safe, but we think the two dyes by themselves are better.

**STAGE SCENES.**—About what would be the exposure for a scene of a theatre light as it would be for ordinary stage lighting (no people in the scene). 12 x 10 plates about 200 H and D. 11in. focus lens at f/8?—ENQUIRER.

You might try 10 seconds as a preliminary. Certainly a highly orthochromatic plate will give much better results. A bathed pinachrome plate would be advisable. You may turn with advantage to the article on the subject by Mr. Arthur Payne in our issue of July 6.

**HYPERFOCAL DISTANCE.**—Kindly inform me what is the hyperfocal distance of a lens of 7.08 inches equivalent focus when the circle of confusion is 1-100 of an inch.—T. B. C. W.

The hyperfocal distance is equal to the focal length multiplied by the diameter of the aperture and divided by the diameter of the circle of confusion. As you do not mention any particular aperture we cannot fully answer your question, but if you divide 418 feet by the aperture number you can arrive at the answer. For f/8 the distance will be about 52ft., and for f/11 it will be 38ft.

**CARDIFF.**—We have not seen the apparatus, and from your description do not see how it acts. If the lens is placed directly over the sitter's head it cannot be used, so far as we see, for throwing a shadow on the easel. If what you want is a method of projecting the image of a person on to a surface we can only say that it would be an extremely difficult thing to accomplish. The sitter must be very strongly illuminated, and there must be an optical projecting system between him and the surface. Very few details would be discernible excepting in a darkened room.

**BLACK SPOTS ON P.O.P.**—Will you inform me (1) the cause of tiny black spots in the P.O.P. paper? I am frequently troubled with it. I have had over thirty years' experience with our own prepared albumenised paper, and therefore know very little of the working of the P.O.P. (2) How often do you make a new toning bath? Ought it to be filtered occasionally? (3) Is it the fixing bath the cause, as I see it is a yellowish tint? (4) How long is it necessary to keep the prints in the hypo? Is five or six minutes sufficient? (5) What is the best mountant? I find the corners come up after passing through my hot burnisher. Is there no mountant sold ready for use? I always used gelatine, dissolved, but I find the hot burnisher makes it blister. (6) I have filtered the toning bath, still I get the tiny black spots. I remove them with a fine pointed needle, but it is a lot of trouble. Would you advise the toning bath made with distilled water or boiling water, then add the gold, etc., when cold?—J. S.

(1) Black spots are almost invariably caused by metallic particles, such as rust, in the first washing water, and they can be entirely prevented by immersing the prints, without previous washing, in salt 2 ozs., water 20 ozs., for five minutes, then washing and toning. (2) Our correspondent does not state what bath he is using, but the correct way is to make up the bath and apportion it out, so as to allow a given amount of gold to a given area of paper, and not to use it for more or again. There is thus no necessity to keep any quantity. (3) The black spots rarely appear in the fixing bath. (4) The duration of fixing depends to some extent upon the temperature, but certainly ten minutes should be allowed, and fifteen are better. (5) The question of mountant is to some extent a matter of personal taste, but any dextrine mountant is, as a rule, satisfactory, and can be obtained from most dealers, and a formula will be found on page 984 of the ALMANAC for 1906. (6) The use of distilled water is preferable, but not essential; if the sulphocyanide bath is used boiling water should be used, the gold



added to the hot sulphocyanide solution, and the bath is fit for use as soon as cold.

**COLLODION PRINTS.**—I should be very much obliged if you could assist me out of a very (to me) serious difficulty. I am using a C.C. paper, toned in gold and platinum bath as follows:—Water, 30 ozs.; borax, 120 grs.; gold,  $\frac{1}{4}$  grs.; an hour before use. Prints are quickly rinsed and put into: Water, 35 ozs.; phosphoric acid, 160; platinum as required; quickly washed, then to fixing bath for twelve minutes; hypo, 1 part; water, 15 parts; two hours' washing, then mounted at once, using starch, and spread out to dry till next morning. About three or four days spots and streaks appear. When first using the paper (about two months ago), I got the same sort of spots, and in writing to the makers they put it down to me putting the wet mounted prints between blotting-paper under pressure. Since then I have spread them out and left to dry all night, and still the spots appear in a few days time. I am most reluctant to give up the use of the paper, without making an effort to get at the cause of the markings, hence my appeal to you.—SPOTS C.C.

The spots are probably caused by the mounts not being perfectly dry after prints have been attached. The mounted prints should be stood up on a rack, so that air can circulate round back and front of them. Prints should be dried as quickly as possible; slow drying is a cause of these yellow spots. Have you read the correspondence and articles on this very subject in "B.J." for November 10, November 17, and November 24 last year?

**JEWELLERY LICENCE.**—In common with other photographers, we are selling a number of pendants, complete with photographs. We never heard of a photographer having a licence for selling plate; is it necessary for selling 9-carat gold pendants? We look for answer in your "Answers to Correspondents."—H. AND CO.

No licence is required if the article is under 2 dwt. Above this weight a licence is required, and costs as follows:—Above 2 dwt. and under 2 oz. (gold), £2 6s.; above 5 dwt. and under 30 oz. (silver) in one article, £5 15s.

**DRYING BOX.**—The plates should be racked vertically, or nearly so.

**CANVAS.**—Griffith's Steam Works, 26-31, Eyre Street Hill, Hatton Garden, London, E.C.

**J. B. (Manchester).**—The agreement, a copy of which you enclose, is one of the most extraordinary, if not the most extraordinary, we have ever read. Why anyone should sign such a one to obtain twenty postcards of himself passes our comprehension. Whether such an agreement would hold good in a court of equity we very much question. This is a question, however, that you had better refer to your solicitor, as it is beyond our ken.

**ANTI-EXPORT.**—Any leading firm of enlargers will make you platinum enlargements on silk or satin. A bromide satin is also on the market.

**DISTEMPER BACKGROUND.**—Would you kindly inform me what colours I should require to paint a background in distemper (I wish to paint in black and white)? Also, would you inform me if there is a text book on background painting, and, if so, where could I get it?

Mix common whiting and "drop black" to the tint desired with water, to the consistence of thick cream. Then add double size of the oil shop (melted and quite hot), in sufficient quantity to form a thin tremulous jelly when cold. No precise quantity can be given, as the size varies so much. Allow to get quite cold. The colour should be applied cold with a large whitewash brush, and quickly, so that all is covered before any portion begins to dry. No portion should be gone over twice, or marks will show. The canvas should be sized before the colour is laid on. There is no work published on the making of backgrounds.

**L. M.—1.** We should choose the A lens for better covering power and shorter focus. **2.** The A lens would answer well, but we take it you want a lens of slightly curved field, in which case one of the old double lenses should suit you. See under "Ex Cathedra."

**ARTIFICIAL LIGHT.**—1. Are mercury-vapour lamps for portrait studio as good in every way as arc lamps? They seem cheaper in every way to run. **2.** Will mercury-vapour print platinotypes as satisfactorily as if done by daylight? Are they as good for enlarging as the usual light with denser? The method of using them is, I think, to put on one side of a box, painted white inside, the negative to be enlarged by a reflected light, the lights themselves to be invisible lenses. Will you be good enough to give me any objections of these you know of? **4.** Also, I find in this town, they only allow me to put these lights for printing and operation at the lighting rate of fivepence per unit, and not a power of 1½d. per unit. Is this usual in other towns? I should consider it a "daylight body," and, therefore, power 1½d. per unit.—A. M.

1. Portraits equal in every way to those taken by lamp may be produced by the mercury-vapour lamp. Some large enclosed arc lamps are of greater candle power, and may or may not imply increased efficiency for portraiture, depending on the conditions of working and the requirements. Platinotypes may be printed by the mercury lamp, which is indistinguishable from prints made by daylight. 2. Mercury tubes may be used for enlarging, and are so used by the largest firms of trade enlargers. The tubes are behind the negative, the light being equalised over the negative by a sheet of opal glass, or several sheets of ground glass. This method is preferable to that suggested in the query, exposures being shorter. **4.** We believe it is quite usual for supply companies to charge on a "power" basis for electricity consumed during the day time, but circumstances may vary. We know of no objections to the mercury lamp other than the peculiar colour it gives to the flesh, and this is quite easily come by the use of a cluster of half a dozen ordinary incandescent electric lamps.

**THE Action of the Levy Screen.**—In reference to the statement announced by Mr. Howard Farmer as that of his inaugural address to the students at the Photographic School at the Regent Polytechnic, Messrs Hunters, Limited, write to us from Poppin's Court, Fleet Street, to the following effect:—"We are glad if you will allow us to say that any results that can be obtained by the use of the Levy screen, either for process or professional lithography, would apply equally to the Haas system for which we are the sole agents. The Haas is guaranteed by us to be equal in every respect to that of the Levy make, and is sold with this guarantee. Further, that we are willing at all times to send these screens on approval, to be tested against the Levy system, and that in the majority of cases we are able to offer equal size ruling on more advantageous terms."

**THE Sefton Park Photographic Society, Liverpool,** announce an annual exhibition, to be held at St. Barnabas Hall, Smithdown Road, from November 20 to 24. The judges will be the Rev. H. W. Dickson and Dr. A. T. Lakin.

\* \* \* **NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## The Hyperfocal Distance.

The Lumières have examined the action of formaline on gelatine and find that the action increases with the strength of the solution to 10 per cent., and that long treatment with hot water renders the gelatine soluble again. (P. 866.)



cable in the case of metric measures. He explains that the hyperfocal distance in metres exactly equals the focal length multiplied by the diameter of the aperture in centimetres, one-tenth millimetre being the diameter of the circle of confusion. This is hardly such a convenient rule as the one applied to English measures, for the diameter of the aperture is seldom known. In his examples Dr. Johnson resorts to the division of the focal length by the aperture ratio number in order to ascertain the diameter, and we must point out that it would be simpler to include this operation in the formula. We should revise this second rule as follows:—The hyperfocal distance in metres is equal to the square of the focal length in centimetres divided by the stop ratio number.

\* \* \*

**Approximate Infinity.** In our issue for August 24 we gave the rule for ascertaining the distance of approximate infinity as follows:—"The correct method of arriving at a minimum distance of approximate infinity is to first decide on the maximum permissible displacement of the image, and then divide that amount into the square of the focal length. The result is the extra focal distance of the nearest object that may be considered to be at an infinite distance." Dr. Lindsay Johnson (in his article previously referred to) makes the remarkable comment that this formula unfortunately "omits entirely one of the chief factors of the problem, viz., the ratio aperture or intensity of the stop." In our paragraph we referred to the confusion that exists in regard to the matter of infinity, and we hoped that our note would help to clear things up. It would, however, appear that our effort was a failure if Dr. Johnson was left under the impression that aperture affected the question. It is, of course, quite impossible for it to do so at all, and Dr. Johnson has confused the minimum distance of approximate infinity with the hyperfocal distance, which is an absolutely different thing. That this is his error is manifest from his confused and altogether erroneous definition of hyperfocal distance as "the distance at which the nearest object may be considered to be in the same focal plane as an object at infinity." There is, as a matter of fact, a very big difference between the distance of approximate infinity and the hyperfocal distance. When we focus on the former distance the plate is practically placed in the principal focal plane of the lens, but when focussing on the latter the plate is a considerable distance behind. Two-twentyfifths of an inch in the case of  $f/8$ . and a circle of confusion of 1-100 in. If we allow a displace-

ment of the focussing screen to the extent of 1-100 in the one case, and a circle of confusion of 1-100 in. diam in the other, the minimum distance of approximate infinity is, roughly, a little over eight times the hyperfocal distance for  $f/8$ . Indeed, we may adopt Dr. Lindsay Johnson's approximation and say that, while the hyperfocal distance in feet is the square of the focal length in inches the distance of approximate infinity in feet is eight times the square of the focal length in inches. If, however, we wish to find the principal focal plane of the lens, 1-100 in. is far too big an error. We must then allow 1-1,000 in. only, and this increases the distance on which we focus to no fewer than eighty times the hyperfocal distance for  $f/8$ .

\* \* \*

#### Definition of Hyperfocal Distance.

As before pointed out, Dr. Lindsay Johnson defines hyperfocal distance wrongly in his article, while in the heading of the article he adopts the popular but very misleading description, "Distance beyond which everything is in focus." It has been pointed out by numerous authorities from time to time that this definition is only true when we focus on infinity, or when the plate is at the principal focus of lens; and, as such a method of focussing is seldom, if ever, adopted for anything but astronomical or telephoto work, the definition is of little practical use. There are really two distances that are called hyperfocal distances. One of these distances is the near limit of the depth of field when we focus on infinity, and the other is the distance on which we should focus to obtain the greatest depth possible. The difference between these two distances is only one focal length, hence they are commonly considered to be the same, and the term hyperfocal distance is applied indiscriminately to both. The second one is the distance of greatest view to the photographer, and the lenses of fixed-focus cameras are usually so adjusted as to render this distance sharply. All objects beyond half the hyperfocal distance are then in focus, so it is obvious that the idea that objects beyond the hyperfocal distance are in focus in practical work a misleading one. The formulæ by which these hyperfocal distances are found are the same, but one expresses a nodal distance, and the other an extra-focal distance, the limits of the distances are separated by focal length. It is interesting to note that it was experience gained in setting hand camera lenses that induced many practical men to deny the truth of the theoretical dictum that depth is solely a function of focal length and aperture. It was found that some lenses could be set

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the

ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—Our publishers ask us to inform Agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.

aid of calculated tables of hyperfocal distances while  
could not, and, in spite of the derisive remarks of  
the practical individuals had solid reason for  
saying that depth varied with constructional details of  
objective. The theorists also are now convinced of the  
fact, and it is advisable for every one to understand  
calculations relating to depth are not always trust-  
worthy.

\* \* \*

With the advent of late autumn and  
winter we have a distinct drop in the  
temperature, and at the same time an increased number of  
fogs on which the atmosphere is more or less charged with  
moisture. These two conditions, and particularly the  
fog, tend to retard the drying of negatives, and this  
is the time which is in many studios the busiest of the year—  
the Christmas rush. Not only does this slowness of dry-  
ing prevent the prompt sending out of proofs, but it may  
cause markings in the negatives which are ineradicable,  
if they can be removed, require a great deal of extra  
work from the retoucher. Such marks, it is true, are  
likely to occur when the atmosphere is very humid  
and the temperature mild, the sort of weather we have had  
on several occasions during the past month. As might be  
imagined, we have been shown a number of negatives  
marked with small pitted markings, either in patches or  
over the film, and we have had no difficulty in deciding  
whether such pits were the result of either an unnecessarily  
soaking in a washing tank of large size, the water in  
which was not completely changed with sufficient fre-  
quency, or the too slow drying in a muggy and more or  
less impure atmosphere. The gelatine had acted as a  
culture, the prolonged time of drying giving sufficient  
opportunity for considerable growth. The washing should  
be completed in an hour in running water, and if the  
negatives are passed through a 1-20 bath of formalin it  
not only hardens the gelatine and admits of drying in a  
cupboard, but, being an antiseptic, it more or less  
kills any bacilli which may be in the gelatine.

\* \* \*

We are much obliged to Mr. Bennett for  
his letter and formula on pages 857-8.  
A comparison of his formula with ours  
with Mr. S. A. Herbert's is interesting. Mr. Bennett's  
formula only  $1\frac{1}{2}$  grains pyro per ounce, while ours has  
4 grains and Mr. Herbert's has 4.4 grains. In the following  
comparative table we have diluted these two strong  
formulæ until the amount of pyro is the same in all three.  
These formulæ are thus much weakened, and ours, at  
least, will not produce in this diluted form anything  
nearly so fair printing density in the time that Mr. Bennett's  
is sufficient for his formulæ:—

	B. J. Formula. A.	Mr. Bennett's. B.	Mr. Herbert's. C.
Pyro .....	$1\frac{1}{2}$	$1\frac{1}{2}$	$1\frac{1}{2}$
Soda bisulphite...	2	$1\frac{1}{2}$	$1\frac{1}{2}$
Sulphite .....	$8\frac{1}{2}$	12	9
Sulphate .....	$16\frac{1}{2}$	12	18
Bromide .....	—	$1\frac{1}{2}$	—
Water .....	1 oz.	1 oz.	1 oz.

It will be noticed that A and C are remarkably alike, and  
we may assume that these two, in the diluted form,  
behave similarly—that is to say, both are exceptionally

weak developers that require a very long time to produce  
sufficient density. A would, we know, not produce what  
Mr. Bennett probably considers a fair density unless we  
prolonged the time to something well over twice the time  
he finds sufficient. Yet his developer contains less car-  
bonate, and more sulphite, and is restrained with bromide.  
At first sight most people with practical experience of  
development would assume that A and C must act much  
more rapidly than B, whereas B is something between  
twice and three times as active as A. There is evidently  
a problem here that it is desirable to solve, and we hope  
to be able to take up the subject shortly and endeavour to  
clear up the mystery.

\* \* \*

### One-Exposure Colour Photography.

Sir William Abney, in exhibiting his  
three-colour projections of landscapes at  
the Royal Photographic Society's exhi-  
bition on Thursday in last week, remarked on the need  
of a one-exposure camera when the sky contained many  
moving and brightly-lighted clouds. He exhibited several  
examples of the coloured shadows caused by the movement  
of clouds between successive exposures. In dull weather,  
or under an unclouded sky, this disability of the succes-  
sive exposures is not encountered, and Sir William pointed  
out that it would be no inconvenience in the case of re-  
composing the colours as paper prints instead of by the  
Ives projection method, which he employed. Dr. Miéthe,  
we are also interested to see, has been doing a good deal  
of one-exposure colour photography of panoramas seen  
from a balloon, for which work, of course, it is the only  
method. Miéthe uses a three-lens camera, with the dia-  
phragms of the lenses adjusted to give the equivalent ex-  
posures required by the screens. He employs a focal  
plane shutter, and, with ethyl-red bathed plates, finds an  
exposure of one-tenth of a second sufficient. A reproduc-  
tion of one of his balloon photographs in colours accom-  
panies the current issue of "Das Atelier."

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### Sales at the Exhibitions.

The record of the year, or, we believe,  
of any year, in sales of a single picture  
at the two London exhibitions is made by Mr. S. G. Kimber  
at the Salon, where no fewer than thirty-one copies of  
"A Sunlit Cloister (No. 117) have been sold. It is a  
curious fact that at an exhibition where the most extreme  
examples of the "unphotographic" are to be found, this  
large number of purchases should be made of a picture  
which in its effect, no less than its method of production,  
represents photography free from hand interference. No  
doubt the explanation of this apparent anomaly rests  
firstly with the great difficulty of duplicating works that  
are due to handwork, and secondly with the higher prices  
such works must necessarily command. We understand  
that Mr. Kimber considers the execution of his orders  
quite task enough and by no means a liberally paid one.  
Next to Mr. Kimber comes Mr. Cavendish Morton with  
four sales of "Fantasia" (No. 181), and, in addition to  
these, there are but thirty-three other pictures sold. At the  
Royal, too, Mr. Kimber heads the list with four sales of  
(No. 100) "A Relic of the Past." His total receipts amount  
to the respectable sum of thirty-five guineas, not a bad  
return for his London exhibiting. The total sales at the  
Royal reach the sum of £35 5s. 7d., which is considerably  
under that of previous years; but in this connection it  
must not be forgotten that the R.P.S. has now given up  
its old practice of purchasing to something like the sum  
of £20 a year. Moreover, the prices upon the New Gallery  
exhibits are this year particularly modest ones.



### A Shop Window Attraction.

It has fallen to the proprietor of a New York cigar store to show photographers a most ingenious application of their own art to modern street advertisement. The cigar store in question, so we read in the "Photographer," displayed a notice in its window that pictures of the people looking into the window would be taken and the prints shown inside. Those identifying their portraits in these prints were given a free box of cigars. The windows were handsomely dressed, and hidden behind figures here and there were cameras and the operators. Every now and then a small box of cigars covering a lens would be drawn up on a string and an exposure made. Of course, everybody was pushing to the front to see the fun, and incidentally to have their pictures taken, for the desire to perpetuate one's features is inborn. Some of the prints were daily pasted on the windows to show what was being done. The idea could very well be taken up by an enterprising photographer who is looking out for the cheaper class of trade.

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### Part Payment at the Sitting.

We suppose there is no more widespread grievance—next to the refusal of the management of the BRITISH JOURNAL to bring out the issue twice a week—than the practice of customers who have been photographed and had proofs submitted to them, of taking no further notice of the photographer, but straightway handing the prints over to a cheap copying firm or amateur friend for further copies, or availing themselves of the offers of religious papers to supply a £2 2s. enlargement for 4s. 6d. This question came up in the recent conference of the National Convention of Photographers of America at Niagara Falls. One speaker stated that it was his custom to charge a fixed deposit fee of one dollar, but that practice, in the opinion of another photographer, could not be advised as an invariable rule. It was his custom to introduce the question of deposit casually, and to lead the customer to ask the amount. In the case of a lady he would then allow her to fix the sum at whatever suited her. The opinions of other speakers amounted in the aggregate to the view that the photographer must know his public perfectly, and act according to his knowledge in giving credit or in enforcing payment. As the views of one or two speakers seem to be worth reporting at length, we find space for them on another page.

### WARMING THE STUDIO.

THE approach of winter must probably lead many photographers to give some thought to the heating of their premises with a view to improving their present arrangements as regards efficiency and economy. The preservation of a comfortable temperature in the rooms used by the public or by the photographer's workpeople is a matter of first importance, for customers cannot be expected to prove good sitters in an apartment which strikes them as chilly, and, as to the assistants, money expended on their comfort is well laid out, according to the experience of both large and small industrial concerns. In our remarks, however, we shall refer more particularly to the studio itself, since it is the apartment in the photographer's house least amenable to easy warming.

It is not like an ordinary room to keep at a genial temperature, as the area of glass which enters into its construction, although a non-conductor of heat, is quite different from a brick building, and, furthermore, the laps of the panes, as a rule, are not filled up and much of the heat, therefore, escapes between them and is lost. Hence

it will be seen that the conditions of warming a photographic studio are not the same as in the case of an ordinary room.

There are several systems by which studios and rooms can be heated, and they all have their advantages, but most of them are accompanied by disadvantages, well as more or less serious inconvenience, and we prefer here to refer to some of them so that those who are undecided on their heating arrangements for the winter may get some idea as to which will best suit their requirements.

Hot water pipes, such as are employed in heating cultural buildings, with the boiler placed outside the building, are probably the best system of all, as the pipes may be laid through the studio and through workrooms on the same floor, so that all are warmed by one fire. This arrangement there is no dust anywhere; with most of the others dust is a great nuisance. The hot water system is very economical in so far as the consumption of fuel is concerned, and by keeping a small fire under the boiler during the night it will require no attention; the rooms are always kept at a genial heat. A drawback to the system is that the fire must be started, supplied, and that it has been allowed to go out, some time before the fire is required, as the warmed water but slowly circulates through the pipes. Another disadvantage is that in very severe weather the fire must always be kept burning, otherwise there is a risk of the water freezing in the pipes at the most exposed portions, and when once this happens it may be a long time before they become thawed again. If the fire were lighted while they are in the frozen state there would be a danger of the boiler exploding. Another drawback to the hot-water system is that it is somewhat costly to instal in the first instance, but, as just stated, it is about the best, and the most economical in the long run, particularly when several rooms have to be kept warm. There are hot water arrangements suited for small studios, servatories, studios, and the like, in which the boiler is heated by gas, which is easily regulated. These have the advantages of the larger installation, but are applicable where small spaces have to be warmed; furthermore, the gas is more costly than when other fuels are used.

Then we have gas, *per se*, as a heating medium. It is cleanly and conveniently under control, and inexpensive to instal; in addition, most of the gas companies let heating stoves on hire at a very moderate rental. One of the chief drawbacks to the use of gas stoves for heating purposes is that, unless there is a flue to carry off the fumes the latter become unpleasant, and are injurious to health when one is continually in them. If there is a flue to carry them away it also carries off much of the heat in which case gas, while so very convenient, is not so economical. Without a flue all the heat is used up and gas is not expensive to employ.

There is a form of gas stove that requires no flue, yet gives off no fumes, but it, unfortunately, gives off but little heat and is only suited for rooms of large dimensions, such as small offices and the like. Last winter we were in a studio of medium size that was warmed by a gas stove called the "Chancel." It is a flat stove on the floor, on a stone slab. All the products of combustion are given off in the place, but they are not so unpleasant if a good sized tray of water be placed before it to absorb a good portion of them, much of the remainder escaping through the laps of the glass in the roof. The stove is not an expensive one, as its cost is, we believe, something like a pound, or less. It is made by the Electric and Gas Company, and is designed for heating churches and similar purposes.

A type of stove which will commend itself to many as the heating the studio is known as the slow combustion stove.

the forms and names are legion. They are very economical in use and require but little attention. Some are entirely closed, and some are semi-closed so that the visible fire gives the place a cheerful appearance. Coke, or anthracite coal, is the fuel best suited to the latter kind. They throw out a good heat, which, like the consumption of fuel, is regulated to a nicety by closing the damper. If the stove is filled in the morning it will last the day without attention. If the fire is made up at night, and the damper nearly closed, it will last the night through or, indeed, from Saturday till Monday if very little draft is admitted. These stoves are very ornamental while not at all costly. The closed stoves are generally less in price, while the most for fuel, coke and coal, is much about the same. They, like the other form, require but little attention, and the heat is similarly under control. A medium size one, plain, not ornamental, is sufficient to keep a studio about twenty-five feet by eleven feet at a comfortable temperature, and costs only about a sovereign, or perhaps a little more. Those who propose to adopt this form of heating would do well to get the illustrated price lists of makers of this type of stove, such as Smith and Wellstood, of Ludgate Hill, and others. As regards cost of running we may perhaps give our experience of one used day and night in a large room of our own, which consumed less than two shillingsworth of anthracite per week. This type of stove, of course, requires a flue to carry away

the smoke. If there is a chimney adjacent it can be connected with that, but if not it must be conducted through the roof of the studio, in which case it is desirable to have as much pipe within it as convenient, say by carrying up on a slant instead of vertically, as then more heat is utilised, as much passes along it and is diffused through the building.

The principal drawback to these stoves is that the combustion is so perfect that the fuel is consumed to a very fine ash, and when cleared away *carelessly* becomes diffused throughout the place and settles on everything, unless care is taken to damp it before it is removed. Should any of this dust, which is charged with more or less sulphurous matter, happen to settle on silver prints while they are moist the particles will most likely produce spots. Another drawback to pipe stoves is that the insurance companies have an objection to them, and if one is fixed without notice being given them the policy will be invalidated. Hence, if a fire occurred on the premises, although the stove or its flue had nothing to do with it, the policy would, nevertheless, be null and void. It is usual in granting a policy for premises where there is a pipe stove to state the length of pipe, and that the latter must not be increased without notice to the company, otherwise the policy will be invalidated. Makers of stoves, such as Messrs. Wellstood, will, however, erect stoves to satisfy insurance companies' conditions.

## PAYMENT AT TIME OF SITTING.

THAT debateable subject, the payment of a deposit at the time of the sitting, occupied a large share of the discussion on reception room methods at the recent convention of professional photographers at Niagara Falls. We extract one or two of the views expressed by the speakers from the columns of "The Photographer" (New York).—Eds. B.J.P.

Mr. Holden said: We are compelled to consider our environment. A person comes to me and says, "Mr. Holden, I should like to have some pictures made." Very good, I commence to work and find out just what she or he wants, and the work may be done without any previous entry being made. They say sometimes, "I would like to have some pictures made. I want you to make them, and I want you to use your own judgment." I don't at once take them and say, "What kind do you want?" I go in and use my own judgment, as they have given me the privilege of doing so. Then when I go through they often come to me and say, "How much deposit, Mr. Holden?" "Just whatever suits you," I reply. These are my own personal experiences. "Just whatever suits you." They are my neighbours, and I want to keep on good terms with them. I don't want to give them a hammer blow right on the first start. After a little time a customer will drop in, and the usual routine is gone through, and I know them very well. We get into a little chat and a question of payment is forgotten. There is where the man and his bigness begins. Don't say, "I won't finish that proof, because there is no deposit paid." I have seen the equal of that in the years of my experience. But I believe every man to be honest, and I believe every man is honest if you will give him an opportunity to be so.

### The Business System.

Mr. Wilson: My method in regard to that is this: In my community I believe I know nearly everybody. I let the reception room lady or gentleman, about whom we have heard so much, handle them. She has her instructions to collect at least one-half. The question is, "Would you like to pay a half of this?" The proofs come in the morning. When they pay their half they get a little ticket with the stub, and they come up to the composing room on the next floor above. The operator takes the stub, and they keep the card with a number marked on that card, and when the proofs are finished the next day they are put in an envelope and the name is put on, and "deposit, so much due." When they call or send they are told that it is Mr. Wilson's custom, and you are

expected to comply, and they usually do. In a case where they haven't come up, they simply don't give them the proofs. It being a luxury, they generally provide themselves with the money for making the deposit. I believe in not arguing too much on re-sitting. Try and get a good result in the beginning, regardless of the intrinsic cost, and then, if they are reasonable about it, try and be likewise.

### To Prevent Loss from Unfilled Orders.

Mr. Goldensky: I have two assistants. I have two classes of people—the average man and the women with fine dresses who have plenty of money, or pretend to have plenty of money. I have various prices. For instance, in a four-dollar picture I insist on having a half deposit, two dollars, and when I send out the proofs there is a printed note, which reads that after the proofs are satisfactory and they return the proofs by mail or person, they have to settle the amount of the bill. If for any reason the proofs are not satisfactory, they are welcome to call at the studio as many times as they choose until they are satisfied. That gives them the privilege, only they pay two dollars, and after the proofs are sent, if the proofs are satisfactory, they know they have to pay the other two dollars. The reason I establish that rule is this: Every year I used to find in my drawers and in the closets three or four hundred dollars' worth of work that was never taken out, but simply left for various reasons. A person gets engaged to a young lady, and he goes to a studio and sits for pictures; by the time the pictures are finished the engagement is broken, and those two dollars are left in your drawers. He will never take them out. (Laughter.) A person works in a shop and comes in and pays two dollars deposit. He orders pictures; in the meantime he loses his position or takes sick. He cannot afford to take those pictures out, therefore you lose him as a customer, and you lose that out of your money profit.

### Adjust your Method to your Class of Business.

Now, speaking about the better class of people. There are two distinct temperaments among them. One will come in and say, "Mr. Goldensky, how much deposit?" "It is optional to you



You may leave it or you may not." "I'd better leave it." Those are the people that will pay the bill quicker than you can send the pictures. Another class of people will come in who will not look at your receptionist. "Where is your dressing room?" After you have made your sitting and most politely ask whether it is convenient for them to make a deposit (applause) they say, "Is it necessary?" "It is not necessary, but customary." Or "if you are not ready to pay it now, you can do it after you return the proofs." It gives them a nice hint that when they return the proofs they must pay the deposit. Then on the proofs, when we send them out, I put a little note, that these proofs are the property of Elias Goldensky's studio. Unless returned within thirty days a charge will be made for labour, time, and material used. I have collected the money. Some people send me in five dollars for a sitting willingly, and they say the opportunity did not come to sit for a picture again, and enclose five dollars for trouble. Certain people, after we send to them the proofs and we do not hear from them, we write to them that if those proofs are not satisfactory, we will be glad to make a new sitting; and if we write one, two, or three letters, and those people are not men enough to send an answer to you, that they cannot come and sit for picture, you do not want their business. It is injurious to you. You might as well send them a bill for five dollars, and if they don't pay it, collect it. You are working for business. I received a letter this morning from my girl in the city that a bill of \$52 was paid. That bill was standing over two years, and never paid. The party is as good as gold, and they travel abroad, and it never worries me. I knew they were slow, but they always paid. Some years ago they contracted a large bill and did not pay it. It never worried me.

You have to size the conditions up, and you have to work on certain lines. Adjust yourself to the conditions. The main thing is, you must interest your public, as a doctor does, as a lawyer does, that you are doing your best work, and you are entitled to compensation. Professional men must be entitled to compensation. If you come to a lawyer and ask him for advice, he sends you a bill for five dollars, and he is entitled to his fee. A person comes into the studio of a photographer, and because it is So-and-So, he uses forty plates, and then the re-sitting comes again and again. It is awfully lovely, and a man sometimes strikes an order; but most of the time he gets

discouraged and disappointed if an order does not follow. There are different grades of temperaments of photographers. One conducts his business on the policy of never send a bill and still make a big business. This does not apply to all of us. If you have got that standard, that you can go with that high class of people, it does not matter whether you lose one hundred or two hundred dollars if somebody doesn't pay. From the ordinary class of people you must collect money all the time.

### Business is Business.

Mr. Herrick: There has been a great deal of talk along the line that photographers want to conduct their business on business principles. When they do that, this man will have no trouble. I started eight years ago, and put a sign in my studio that a deposit was required on all orders, and no pictures would be delivered until all were paid for. I have adhered to that strictly. I have had wealthy men come in and say, "What, a deposit from me?" I said, "Yes, it is my rule; and while I feel I hate to do it for you, I cannot let you off and ask the next one, and that you do not feel that I have confidence in you, if you want \$50 you can have it any day you want it; but if I have to ask your neighbour to pay his deposit I have to ask you." That man says, "I have not got a dollar with me, but I will go down to my safe and get it." It was Sunday. He went and got it. But if a man or woman does come in and gets the negatives made, as this man says, and does not return the proofs, you are a business man or not a business man if you do not send him a bill for making those sittings; and if he don't pay it the law will help you make him pay it. When they have the best of you once, they won't come near you again. I never have a dispute with a customer over anything. If a customer comes in and says, "You have made a mistake; I have paid this," we know whether she has or not, most emphatically, because our books are calculated and kept in a businesslike way; but when this woman says so, I say, "Why our lady must have made a mistake. I am awfully sorry it occurred. We will be careful in the future." It never occurs again. The next time that woman comes we are pretty nearly sure that she knows whether she paid the money or not before she leaves the studio. We should have said words. I am not a photographer. I am merely a business man.

## ON THE TANNING OF GELATINE BY FORMALDEHYDE.

ALTHOUGH it is known that gelatine, treated with formaldehyde or formaline, becomes insoluble in hot water, the composition of the insoluble product has not been determined.

The present experiments were undertaken to clear up the following points:—

I. Is the formalysed gelatine a definite compound of gelatine with formaldehyde, or does it only in all cases contain different quantities of formaldehyde, or does the latter act on gelatine without combining with it, and thus merely changes its composition?

II. If the formalysed gelatine is a definite compound, does this belong to the aldehyde type, or does it possess the properties of an actual compound or those of a simple additive product?

In order to determine whether the formalysed gelatine is a definite compound, formaldehyde of different strengths was allowed to act on gelatine under the different conditions. The tanned products were analysed, after they had been freed, by means of cold water, from any trace of aldehyde that could be washed out,<sup>1</sup> and the results are compared hereafter. As the estimation of the percentage composition of the formalysed gelatine can give no information as to the quantity of the formaline retained by the gelatine, we have proved that it is possible to re-form the formaldehyde from the formalysed gelatine, without altering the formaldehyde or the gelatine, and the former could thus be estimated.

### The Decomposition of the Formalysed Gelatine.

After numerous experiments the decomposition process which gave the best results was found to be treatment in the cold with a 15 per cent. solution of hydrochloric acid. In order to decide the

end of the decomposition, a comparative sample of formalysed gelatine was treated under similar conditions at 60 deg. Fahr., and tests were made from time to time.

If one of the test samples, after thorough washing in water, melted in a water bath, the decomposition was considered as complete. The result was obtained after from twelve to fifteen hours.

The gelatine was then washed by decantation with hot distilled water at 140-160 deg. Fahr., till every trace of acid and formaldehyde was gone, as was proved by Schiff's reaction. The whole of the washing water was then made up to a given volume—with 20 gms. of gelatine, this was 4 litres—and the quantity of formaldehyde then estimated.

### The Estimation of the Formaldehyde.

Several methods were tried for the estimation of the formaldehyde set free from the decomposed formalysed gelatine, and the most satisfactory was found to be that in which the quantity of titrated soda solution with an excess of sodium sulphite solution was observed, which must be added to a solution of formaline, with a few drops of phenolphthalein, in order to produce the characteristic colour of the latter.<sup>2</sup> In a comparative test without formaldehyde, but with equal rights of hydrochloric acid and sodium sulphite, the quantity of titrated soda solution is determined which corresponds to the hydrochloric acid. The quantity of formaldehyde is the result of the difference between the numbers obtained with and without formaldehyde.

<sup>2</sup> Seyewetz & Gibello. Bull. Soc. Chim. In the ordinary process the liquid which contains the formaldehyde and sodium sulphite is alkaline to phenolphthalein; titrated acid is added till the phenolphthalein is decolourised; in this case the solution is acid, for it contains hydrochloric acid as well as formaline.

<sup>1</sup> Till the washing water did not reduce ammoniacal solution of silver nitrate.

As this method was used for a solution of hydrochloric acid, which contained 0.5 gm. per litre of formaline, 0.5 gm. was found.

### Composition of the Formalysed Gelatine.

We estimated the maximum quantity of formaldehyde retained by the gelatine, when the tanning was effected as follows:—A. Tanning of dry gelatine with formaldehyde solution; B. Tanning of dry gelatine with gaseous formaldehyde; C. Tanning of a gelatine solution with a solution of formaldehyde.

A. With the first tanning process we have tested the effect of duration of contact, the concentration and the temperature of the formaline solution.

1. *Action of the Duration of Contact.*—Sheet gelatine was immersed in 10 per cent. solution of commercial formaldehyde solution at ordinary temperatures for varying times, from thirty minutes to five days.

After the removal of the gelatine it was washed in running water till every trace of formaldehyde was removed; then, as already stated, was mixed with 15 per cent. solution of hydrochloric acid and analysed. The results are given in the following table:—

Duration of Contact of 10 per cent. Commercial Formaline.	Quantity of Formaldehyde in 100 gms. of Dry Gelatine.				
	Analysis No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
30 minutes .....	3.6	3.4	—	—	—
12 hours .....	4.5	4.8	4.1	4.6	4.08
5 days .....	4.32	4	4.32	—	—

2. *Influence of Concentration.*—For the same time, 12 hours, the same quantity, 20 gms., of dry gelatine was soaked in an equal volume, 1 litre, of formaldehyde solutions from 1 to 30 per cent. After removal the gelatine was washed, decomposed, and analysed. The results are shown in the next table.

Concentration of the Formaldehyde Solution.	Quantity of Formaldehyde in 100 gms. of Dry Gelatine.				
	Analysis No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
1% Commercial formaline...	3.36	3.6	2.88	2.4	—
5% " " " "	3.3	2.88	3.12	2.6	—
10% " " " "	4.5	4.8	4.1	4.6	4.08
20% " " " "	3.84	4.08	—	—	—
30% " " " "	4.32	4.56	—	—	—

3. *Influence of Temperature.*—An equal volume of 10 per cent. commercial formaline was allowed to act on an equal weight of dry gelatine, at temperatures between 62 and 122 deg. Fahr. The estimation of the formaldehyde in the tanned gelatine gave the following results:—

Temperature of 10 p.c. Formaldehyde.	Quantity of Formaldehyde contained in 100 gms. of solid Gelatine.
62°	4.4
86°	2.8
122°	3.48

B. In order to test the tanning of gelatine by gaseous formaline, a rapid stream of air was passed through a saturated solution of formaldehyde, in order to render that which was carried over damp; the air then passed over dry gelatine.

The gelatine was submitted to this action for varying times, from three to ten hours, and then repeatedly exposed to the air, so as to remove all excess of formaldehyde. Then the quantity of formaldehyde was estimated after every trace of unabsorbed formaldehyde

had been removed by washing. The following results were obtained:—

Duration of Contact of the Gelatine with the gaseous Formaldehyde.	Quantity of Formaldehyde contained in 100 gms. of Gelatine.		
	Analysis No. 1.	No. 2.	No. 3.
3 hours .....	0.96	0.96	—
10 " .....	3.6	3.6	3.52

C. We have studied the tanning of gelatine solution by formaldehyde solution, and used sufficiently dilute gelatine solutions to be able to titrate the excess, immediately after the addition of the formaldehyde—i.e., before the gelatine set.

The titration was made with normal sulphuric acid, after the addition of sodium sulphite, a 2½ per cent. solution of gelatine being mixed with the increasing quantities of formaldehyde. The results are shown in the accompanying table:—

Volume of 14.5 p.c. formaline added to 100 ccs. of 2½ p.c. gelatine solution .....		0.5 ccs.	1 cc.	2 ccs.	5 ccs.	10 ccs.	15 ccs.	20 ccs.
Quantity formaldehyde which combined with the gelatine solution .....		{ <sup>(1)</sup> 1.58 (2) 1.7 }	1.48	1.4	1.8	1.6	1.8	1.66

Above 20 ccs. of formaline the gelatine set, and titration was impossible.

The action of the concentration of the gelatine solution on the combining with formaline cannot be studied, for a gelatine solution stronger than 2½ per cent. sets very quickly after the addition of the formaline, and titration is therefore impossible.

If one tries to produce insolubility of a gelatine solution by adding formaldehyde, a very small quantity of the latter only is required, far less than the maximum quantity which can combine with dry gelatine.

We have actually found that a jelly, which is obtained by the addition of 5 per cent. of commercial 40 per cent. formaline to a gelatine solution, will not again dissolve in hot water when it has once set.

The quantity used thus corresponds to 0.7 to 0.8 gm. of formaldehyde to 100 gms. of gelatine.

There is no doubt that there is here in this case a mixture of gelatine and formalysed gelatine, and the latter surrounds the former and prevents it dissolving, for if the action of the hot water is prolonged, part of the mixture will dissolve.

### The Stability of Formalysed Gelatine in Heat.

We have tested whether the formalysed gelatine shows the stability of a true compound when it is heated to a moderate temperature, or whether it loses formaldehyde easily by heat.

A. *Action of Boiling Water.*—20 gms. of gelatine were immersed for twelve hours at 63 deg. Fahr. in 1 litre of 10 per cent. solution of formaldehyde, then washed in running water till the washing water no longer gave any sign of aldehyde. The formalysed gelatine thus obtained withstands boiling water.

If the boiling is continued for some minutes, considerable quantities of formaldehyde could be detected in the water. If the treatment with boiling water was renewed, it was found that after seven such treatments, formaldehyde was still extracted. The total quantity of water used was about 3 litres, and the gelatine then completely dissolved in hot water, and set when cold.

When the formaldehyde was titrated in all the wash waters the mean was 2.5 gms. to 100 gms. of gelatine.

B. *Action of Dry Heat.*—20 gms. of gelatine, formalysed as in the previous experiment, were, after complete washing, dehydrated with alcohol, and then dried in a drying chamber at 110-140 deg. Fahr. The gelatine thus obtained had no smell of formaldehyde, and withstood boiling water.

We have estimated the formaldehyde in the original formalysed gelatine, and again after it had been heated for three to forty-eight



hours at 232 deg. Fahr. The results are shown in the following table:—

No. of Test.	Nature of Test.	Quantity of Formaldehyde in 100 gms. of Dry Gelatine.
1	Formalysed Gelatine Original.....	4.1
2	" " heated 3 hrs. at 232°F	3.3
3	" " " 12 " "	2.88
4	" " " 24 " "	1.8
5	" " " 48 " "	1.8
		The last test showed a bright yellow colour.

### The Compound Formed.

We have tried how the gelatine combines with the formaldehyde, whether it is a simple addition product or an actual solid combination; whether the group CHO exists, or whether the fixing is merely due to the grouping as in most of the ordinary compounds of formaldehyde.

In order to clear up these points we tested for the aldehyde function in the tanned gelatine by Schiff's reaction, as well as with ammonio-nitrate of silver. We had previously made sure that the gelatine after prolonged washing no longer contained traces of aldehyde that could be detected by these agents. Comparative trials with ordinary gelatine did not give sufficiently marked differences from the formalysed gelatine to enable a definite decision to be formed as to the presence of CHO.

We have also tested, whether the substances allied to formaldehyde, not containing CHO group, such as the bisulphite compound and hexamethylenetetramine, would tan gelatine. The first of

these gave no tanning under any conditions. On the other hand, hexamethylenetetramine in strong solution gave some result after five days when of 50 per cent., and only after seven days when of 25 per cent. Below these strengths there was no tanning.

On account of this slow action and the necessity of strong solutions, it may be assumed that the action is due to traces of formaldehyde in the hexamethylenetetramine; the latter very readily gives the characteristic colour with Schiff's reagent. On the other hand, a very dilute solution of formaline, containing only 0.05 per cent. of formaldehyde hardens the gelatine in about six days.

### Conclusions.

The following conclusions may be drawn from the tests:—

1. Gelatine soaked in formaldehyde solution combines with the latter in varying proportions, according to the conditions. The maximum quantity which it combines with lies between 4 and 4.8 gms. formaldehyde to 100 gms. of dry gelatine, which enables us to consider formalysed gelatine as a definite compound.
2. The rapidity of absorption of the formaldehyde increases with the strength of the solution up to 10 per cent. It does not markedly increase with the temperature.
3. Formaldehyde in gaseous form is absorbed much more slowly than in aqueous solution, but the maximum quantity absorbed in both cases is the same.
4. Hot water slowly decomposes formalysed gelatine, and by repeated treatment the gelatine again becomes completely soluble.
5. Dry heat at 322 deg. Fahr. gradually sets free the formaldehyde from the gelatine; 15 per cent. hydrochloric separates in the cold the gelatine unchanged from the formaldehyde.
6. The formalysed gelatine appears to be rather a definite addition compound than a true compound.

A. AND L. LUMIERE AND A. SEYEWETZ.

## DOUBLE CARBONATES AS DEVELOPERS.

### II.

In my former article I described in some detail my experiences in 1895 with a modified form of pyrogallol developer, in which, in place of the usual simple carbonate solution, a solution of a double carbonate—copper and ammonium—was employed. These experiences, as I pointed out, were sufficiently remarkable, and were such, indeed, as to induce me, after a long interval, in 1905 and the present year, to carry the investigation begun under such favourable auspices a step further.

Accordingly, in pursuance of this object, I proceeded to examine carefully and in detail the various other possible forms of double carbonate capable of efficiently replacing the customary simple carbonate constituent in a pyrogallol combination. The different salts of this class, suitable for use as developers, were enumerated by me in the latter paragraphs of the paper just referred to, wherein I also gave the formulæ for their preparation, and described the method of making up the various stock solutions requisite for photographic purposes.

It is now necessary that I should, in the first place, give some account of the series of experiments which I recently made as to the developing properties of these double carbonates, and that, in the second place, I should supplement this account by indicating and tabulating the chief conclusions—those more especially, of their number possessing a practical importance—that may be drawn from the results of the inquiry.

### Conditions of Tests.

The experiments in question were made in the month of January last. In order to secure uniformity in the conditions of exposure throughout the series, I resorted in every case to contact-printing by ordinary gaslight. The flame employed was that produced by a No. 4 Bray burner. The distance between the printing-frame and the burner during the exposure was one foot. Rapid gelatino-bromide plates were employed, the special brand selected for the purpose of the experiments being the Ilford "Special Rapid." The plates were exposed to the light in the printing-frame under

a glass negative, and the resulting latent positive images were developed in their order in the several specially-prepared developers. The negative selected for use was a very fine one which had been produced by ferrous oxalate development. It exhibited a very wide range of contrast accompanied by great delicacy in the gradation of the half-tones.

In each case, with the single exception of experiment No. 6, an exposure of thirty seconds' duration was given. In the particular case specified, this exposure was accidentally doubled. It is necessary, also, here to explain that the normal exposure of thirty seconds, though somewhat in excess of that actually required under the given conditions, and with the particular brand of plate employed, was selected with the object of permitting the operations of development to be completed within a reasonable time, the slight increase in the exposure enabling this to be done, by serving to accelerate the sluggish action of the experimental carbonate baths.

A thiosulphate solution of the strength of two ounces of sodium thiosulphate to half a pint of water was employed as a fixing bath after the development.

Eight plates were exposed in rotation to light under the negative in the manner above specified, and successively developed in one or other of my specially prepared baths described in my first article. I give below a summary of these experiments.

### Ammonium Carbonate.

First Experiment.—A simple sesquicarbonate bath was employed as developer, the formula of which was as follows:—

Ammonium sesquicarbonate .....	12.5 grains.
Potassium bromide .....	0.5 grain.
Pyrogallol .....	2.25 grains.
Water .....	1 fluid ounce.

The image began to appear after four minutes' immersion in this developer, and rapidly gained in density. When six minutes had elapsed all the details were visible. The development was completed in twelve minutes. The resulting image, after fixing, was

and clear, and from its lack of vigour appeared to be slightly over-developed in addition to being over-exposed. The colour was shade intermediate between olive grey and sepia brown.

#### Magnesium Ammonium Carbonate.

Second Experiment.—The developer selected for the treatment of the second of the exposed plates was the combination pyrogallol and ammonio-magnesium carbonate. The bath was made up for by adding to each ounce of the aqueous acidified solution of double carbonate  $2\frac{1}{2}$  grains of pyrogallol and half a grain of magnesium bromide.

This developer was found to act very slowly, and it was not until nine minutes had elapsed that traces of the image were at length perceptible upon a minute examination of the film by transmitted light. On resuming the developing operations, three minutes' further immersion in the bath rendered all the details visible. The image, however, still very weak, it was found necessary to prolong development for a further period of eight minutes in order to obtain a sufficient degree of density.

The tone of the image after the removal of the plate from the developing bath, was somewhat similar to that obtained in the preceding experiment, but of a distinctly lighter shade. As a picture, the general effect was unsatisfactory through lack of density, this being, doubt, partly attributable to the over-exposure which the plate received, but probably also to the reducing or solvent action exercised by the citric acid in the bath.

#### Uranium Ammonium Carbonate.

Third Experiment.—The developer employed in this experiment was pyrogallol and ammonio-uranium carbonate. To each ounce of the aqueous stock solution of the double carbonate there was, as before, added  $2\frac{1}{2}$  grains of pyro, and half a grain of potassium bromide.

In development, no signs of an image were to be detected until the expiry of eight minutes, when the faint outlines of the picture were just barely perceptible by transmitted light. The subsequent growth of the image proceeded with extreme slowness, and in account of the general fog which unfortunately ensued in the course of the next few minutes, the stage in the operations at which the details became fully visible could not accurately be determined.

The fixed and finished positive was of considerable photographic quality. The colour of the image was a rich deep red, somewhat resembling that obtained with the ammonio-cupric carbonate developer. In density and in range of tone the result also left little to be desired. The only noticeable defect was a certain lack of clarity, which was apparent in the high lights of the picture.

#### Cobalt Ammonium Carbonate.

Fourth Experiment.—The bath employed in this case was the cobalt-ammonium carbonate developer. To each ounce of the specially-prepared stock solution of the double carbonate  $2\frac{1}{2}$  grains of pyrogallol were added. The usual bromide restrainer was, however, omitted.

The image made its appearance after an immersion of one minute, when three minutes had elapsed, all the details of the picture were visible. On continuing the process of development a rapid increase in density was perceptible. The duration of development was nine minutes.

The general result was unsatisfactory, notwithstanding that the colour of the picture after fixing—a dark brown—was both common and agreeable. The density obtained was considerable, the image was lacking both in clearness and in range of tone, the minute stains and irregular markings were visible on a close inspection of the film by transmitted light. These defects were, doubt, attributable to the omission of the bromide restrainer, but also, it is to be presumed, to the turbidity of the cobalt-ammonium bath in the presence of pyrogallol.

#### Copper Ammonium Carbonate.

Fifth Experiment.—In order to test the keeping qualities of the copper-ammonium carbonate developer, the remainder of the stock solution prepared in 1895, after the manner described in my former article was selected to develop the fifth plate of the present series. The developer was made up to the usual strength of  $2\frac{1}{2}$  grains of pyrogallol per fluid ounce, to which was added half a grain of potassium bromide as a restrainer.

After a treatment of one minute's duration in this bath, very faint traces of an image were visible by reflected light, and after three minutes' development these outlines could be plainly discerned when the plate was removed from the dish and examined by transmitted light. Fogging, however, speedily ensued when the development was resumed, and when three minutes more had expired the growth of the details could no longer be watched, and in the course of a little the film became almost opaque. The development was proceeded with until one hour had elapsed.

The finished picture, though evidently considerably over-exposed, was fairly satisfactory, and was found to possess a medium degree of density and gradation of tone. The colour was a fine deep orange, lacking, it is true, the purity and richness of the hue obtained in 1895 with the freshly-prepared developer, but still very characteristic and striking. The lack of vigour observable in the image was in part probably due to the carbonate solution having deteriorated and become weaker through age.

#### Zinc Ammonium Carbonate.

Sixth Experiment.—The plate used in this experiment received the exceptional exposure of sixty seconds. The development was effected with the zinc-ammonium carbonate bath. To each ounce of the stock solution of the double salt the usual quantities by weight of pyrogallol and bromide were added.

Traces of an image were faintly visible by transmitted light when the plate had been immersed in the developer for two minutes; and in the course of an additional thirty seconds' development these could be discerned from the surface side of the film. The subsequent growth of detail was somewhat rapid, and at the end of four minutes' treatment the full outlines of the picture were clearly perceptible. To gain a sufficient degree of density, however, it was thought advisable to continue the development for the space of sixteen minutes longer.

The positive produced by these operations was the least satisfactory of the series, the density being excessive and the high lights lacking in clearness. The half-tones, also, were deficient in vigour. The colour of the image was a very deep chocolate brown. The fact deserves mention that, when fixing the plate, it was discovered that little or no fog had been produced in the course of the developing operations, a circumstance which, of course, permitted of the process of dissolving out the unaltered silver bromide being carried out more speedily than usual.

#### Restrained Cobalt Formula.

Seventh Experiment.—The seventh of the exposed plates was treated with the cobalt-ammonium carbonate developer, as in the fourth experiment of the series, a restrainer being, however, now added for the purpose of moderating the chemical activity of the bath. In making up the developer for use the customary quantities of pyrogallol and potassium bromide were added to the stock carbonate solution.

At the expiry of two minutes and a half after the immersion of the plate, the image appeared faintly. The growth of density thereafter was comparatively rapid, and all the details were visible at the end of five minutes. The plate received a development of a quarter of an hour's duration.

The resulting image was, beyond question, the finest of the series. The gradation of tone which the plate exhibited was very pleasing to the eye, as was also the purity of the high lights; while the density, though more than sufficient to produce a bright and vigorous picture, was at the same time quite free, even in the deepest shadows, from any suspicion of hardness or opacity. The colour produced was a rich and beautiful yellow-brown, specially remarkable for the warmth and brilliancy of its middle tones.

#### Nickel-Ammonium Carbonate.

Eighth Experiment.—In this, the concluding experiment of the series, the nickel-ammonium carbonate developer was employed. The developing bath was made up for use by adding to the specially-prepared carbonate solution the usual quantities of pyrogallol and potassium bromide.

As a developer, this solution was found to act more energetically than any of the baths employed in conjunction with a restrainer as above described. The first indications of the image were perceptible



after only one minute's immersion of the exposed plate in the bath. When seven and a half minutes had elapsed, the picture was rendered visible in all its details. The duration of the development was twenty-four minutes.

The image, after fixing, was weak and wanting in clearness, and exhibited a very limited range of tone. The colour obtained was a sepia brown of no special beauty. As I mentioned in the former article, it was found necessary, in making up the nickel-ammonium carbonate solution, to add a considerable percentage of sodium sulphite, and the hue of the image obtained in the experiment, probably owing to the presence of this salt, greatly resembled that produced by the action of the pyro-sulphite and ammonia developer.

With the object of showing at a glance the character and respective numerical values of the results of the above series of experiments, and of so facilitating the comparison of the merits and defects of the developers themselves, I have prepared the table here given, which has been drawn up on somewhat similar lines to that appended to my paper on "Development with the Alkaline Carbonates," published in this journal on September 28, 1894.

No. of Experiment.	Exposure in Seconds.	Amm. Carb. and Carbonate or Oxide of	First Appearance of Image.	Details wholly Visible.	Duration of the Development.	Order of Merit.	Density of Image.	Range of Tone.	Clearness.	Colour of Image.
			M.	M.	M.	(1 > 8).	(1 < 8).	(1 > 3).	(1 > 8).	
1	30	—	4	6	12	2	3	1	2	Olive
2	30	Magnesium	7	10	18	4	1	2	1	Light
3	30	Uranium ...	8	doubtful	70	3	7	2	5	Deep r
*4	30	Cobalt ...	1	3	9	7	6	3	7	Dark
5	30	Copper ...	1 to 3	doubtful	60	5	4	3	4	Deep o
6	60	Zinc ...	2 to 2½	4	20	8	8	2	8	Intense
7	30	Cobalt ...	2½	5	15	1	5	1	3	Yellow
8	30	Nickel ...	1	7½	24	6	2	3	6	Brown

In the column headed "Order of Merit," the numerals represent a diminishing series, of which 1, the first member, represents the finest image, and 8, the last, the least meritorious of the number.

Under the heading "Density," again, the maximum density obtained is shown as 8, and the minimum as 1. In regard to the column headed "Range of Tone," in which the numerals 1 to 3 are seen to occur, the first represents the maximum, the second a medium degree, and the third, a minimum, of tone gradation. In the tenth column, headed "Clearness," the numerals 1 to 8 are again employed, unity, as before, representing the maximum and 8 the minimum degree of this quality, as obtained in the experimental series under review. Experiment No. 4, in which, as already mentioned, the usual bromide restrainer was omitted, is marked in the first column with an asterisk.

On a comparison of the figures in the fifth, sixth, and seventh columns of this table, showing the several stages in the process of development, it will be noticed that certain carbonates—viz., those of cobalt, zinc, copper, and, more doubtfully, nickel—appear to act as accelerators when employed in conjunction with the pyro and ammonium carbonate bath. In the case of the cobalt and zinc baths, as the table shows, this accelerating action manifested itself very prominently. There is some little doubt as to whether the nickel-ammonium carbonate developer, which also was found to act with considerable energy, should be classified with those just mentioned, as being, *per se*, an active carbonate bath, seeing that the sulphite

which was added to the stock solution may possibly have contributed in some degree to accelerate the developing properties of the carbonates present. The copper developer should probably be viewed in the light of the figures given in the fourth column of the table, classified among the baths of the active type.

The least energetic of the baths experimented with was that in which was employed to develop the third plate of the series. In this the uranium salt seems to have exercised a restraining influence.

Turning next to the eighth column of the table, and arranging the baths in their order according to the degree of density obtained in each case, it will be seen that the series, beginning with maximum density and ending with the minimum, runs as follows: Zinc, uranium, cobalt, copper, nickel, magnesium.

If we adopt a similar system of arrangement with regard to property "Range of Tone," we find that the baths must, in that order, be grouped thus:—

Cobalt [uranium, zinc, magnesium], [copper, nickel], in which series those members enclosed within brackets represent baths which were found to possess nearly similar properties.

respective of their capacity to produce the quality in question.

Again, if we arrange the figures contained in the tenth column, headed "Clearness," proceeding as before, from maximum to minimum, it will be found that the baths must be grouped correspondingly in the order given below:—

Magnesium, cobalt, copper, uranium, nickel, zinc.

In concluding this summary, I shall not attempt any classification on similar lines to the above of the results of experiment, but, as to the colour of the image, this being a factor of too variable an individual character to be capable of being expressed in numerical terms. It may suffice to say that the finest results, as regards particular quality, were those obtained with the uranium, cobalt and cobalt baths, the colours given by these being very beautiful and characteristic. Of the shades of colour produced, the non-actinic was that due to the action of the uranium bath, the least non-actinic that produced by the employment of the ammonium developer.

In conclusion, I may state that out of the six specially-prepared carbonate baths which I have experimented with, four—namely, cobalt-ammonium, the copper-ammonium, the uranium-ammonium, and the zinc-ammonium, seem to possess properties which render them suitable for employment in practical photography, and to which, in particular I would therefore direct the attention of such as are interested in working out new problems in the important field of development.

MATTHEW WILLIAMS.

**COMPARATIVE Costs of Lighting.**—The following figures are given by the "Chemist and Druggist," as those of Dr. George Lockemann. They show the number of German standard candles, i.e., candle power, obtainable in an hour from one shillingworth of the respective illuminant, which should be of interest. Cost of maintenance is taken into account and average values attached to the materials or electric current as the case may be. (A kilowatt-hour costs 40pf. = nearly 5d. in Berlin, and 70pf. = nearly 8½d. in Leipsic.) Wax candle 29, stearine candle 79, composition candle (2 parts paraffin, 1 part stearine) 103, paraffin candle 117, colza oil in lamp with ordinary wick 131, colza oil in "moderator" lamp 380, coal gas (ordinary slit burner)

418, coal gas (Argand burner) 586, Edison electric lamp 662, Edison electric lamp 1,064, spirit glow lamp 1,136, petroleum Argand lamp 1,205, osmium electric lamp 1,290, tantalum electric lamp 1,299, gas regenerative burner 1,299, arc electric lamp 1,818, coal gas (Lucas high draught burner) 2,632, coal gas (Lucas high draught burner) 3,704, coal gas ("Millennium" pressure burner) 5,000, Bremer electric arc lamp 8,547 candles.

Messrs. W. L. PARKINSON, LTD., announce that they have removed from 62, Dale Street, Liverpool, to more commodious premises, centrally situated at 5, Commutation Row, opposite Wellington Monument.

## GUM PRINTS IN COLOURS FROM A SINGLE NEGATIVE.

In the current issue of "Camera Craft" is the description which we of Indian photographs of Mr. E. S. Curtis, upon whose specialisation is stated by its author, Mr. A. F. Muhr, to be original with him, printing.—Eds. B.J.P.

quote below of the method employed in printing the large series photographic career we have commented more than once. The method, although it will be seen to be along the general lines of multiple gum

Several years ago, when I had made my first gum print, a sketchy head in red chalk, it at once suggested the possibility of attaining colour effects which might prove a revelation, though not simple enough to become commercially available. A long time elapsed before I could put my theories into practice, but I had so thoroughly thought out the details that my first attempt gave ample proof of the value of the suggestion, the correctness of my theory.

When Mr. E. S. Curtis first displayed these pictures in Washington, D. C., and New York City, they excited great interest and much comment. What is, perhaps, most gratifying and speaks more favourably, they were bought at high prices by people who are known to be among the leading connoisseurs and collectors, upon the suggestion of some of the greatest art critics in the East. However, opinion was divided, for the artists on viewing them and detecting the product of the negative, said: "It is not art." The photographers, seeing the handiwork of the artist peeping through the print, said: "It is not photography." These pictures were thus relegated to a nondescript position between the two. Very often this sign, \$, becomes the true standard of value, and causes others to inject the mercenary question: "What is there in it?" To these we say that the prices obtained were both encouraging and gratifying.

### Wanted, Draughtsmanship and Colour Sense.

In producing these prints, the most important requisite, in my estimation, slight though it may be, is a knowledge of painting. I find that my early experience in sketching from nature, an accomplishment which has been, unfortunately, neglected for many years, is of inestimable value to me. In applying the sensitised pigments I find myself taking up first one, then the other colour, as an artist takes them from his palette. Some knowledge of this kind will also enable me to form a clearer idea of the tone quality desired to be produced; one that will harmonise with the subject to be treated. It is in the production of tone pictures, the *Stimmungs-Bilder* of the Germans, the symphonies and nocturnes of a Whistler, that this method lends itself admirably and gives the most pleasing and satisfactory results. To obtain these, a simple palette, that is, one of but a few colours is necessary.

### The Coating Formula.

So much has been written on the rudiments and technique of gum-bichromate printing of late that one is inclined to say that any old formula will answer admirably with which to form an acquaintance with this simple but interesting process. My stock solutions are bichromate of potassium, one ounce in ten ounces of water; gum arabic in large, clear tears, two ounces in ten ounces of water. Finely ground colours, to be obtained at any paint shop, complete the list. I have used tube water colours, but find that the dry colours give a more satisfactory result. The beginner should acquaint himself thoroughly with the relation which colour and gum hold to his particular quality of negative, bearing in mind that an excess of either produces contrast, and, on the other hand, a minimum quantity will give more detail, better half-tones, and better gradations. Furthermore, the colour itself is an important factor. Blue prints more rapidly than black; brown, red, and yellow following in the order named. It is self-evident that the more pigment added to the emulsion the longer it will take the light to penetrate, hence care should be taken to add a sufficient excess of the quick printing pigment to compensate for those of a lower scale. A great deal of patience and perseverance are necessary, and one must not be discouraged at failure in the beginning. Remember that one success is worth a barrelful of failures.

### Coating the Paper.

Pre-supposing a knowledge of the values of the simple colours—blue, red, and yellow—and the results of their being superimposed, we may coat the paper, proceeding somewhat in the manner of a rough sketch by "blocking in" the colours in bold masses, conforming the outlines to the image of the negative. Before the gum sets

the next colour must go where it belongs, and so on, until the paper is covered. Use as broad a brush, or brushes, as may be consistent with the smaller masses of the subject. The detail, of course, is obtained from the negative in printing. The paper is then hung up to dry, which will take but a short time, an hour being ample. It may then be printed.

The colours are stirred carefully in equal parts of the gum and bichromate solutions, the quantity depending on the effect desired to be produced. Variations in the quantity of pigment used and the time of exposure change the effect of the print entirely. The paper is pinned to a board, and should be coated or covered as rapidly as possible.

### Development.

I have always used the paper without preparation, preferring the heavy, rough Whatman paper for our work. The shrinkage, especially in large work, is not detrimental. On the contrary, the slight fuzziness caused by the imperfect registration, blurs the outline and adds to the artistic quality. While on this subject I will speak of register marks. I use both the corner mark and lines through the axis of the paper in both directions. These lines enable one to strike the comparative centre should the paper shrink more than usual.

As there is no visible image while printing, except in some of the thinner coatings of light colours, a photometer should be used. To make a test, coat a strip of paper with the emulsion and expose under the negative to be printed, at the same time exposing a strip of printing-out paper in the photometer, and so determining the correct exposure. When the print has been made, development may be proceeded with at once. In fact, it is more satisfactory to develop soon after printing, as chemical action continues in the print after its removal from the frame, and this would easily lead to wrong conclusions as to proper exposure. The development is the most interesting part of the process. A great deal depends on the preceding steps, but in development one comes to the making of the picture, and the greatest care and patience must be exercised. Slide the print face downward into a tray of water, and after a few minutes turn it over slowly and carefully. Do nothing violently, or everything may be spoiled. Let nothing touch the face of the print, and do not let water spatter on it. In five or ten minutes the high lights should be visible; in a half-hour the middle tones should be out, and in an hour the print ought to be fully developed.

In the beginning of development the water should be changed two or three times, as the bichromate is discharged from the print. This is best accomplished by removing the print from one tray to another. Be in no hurry to use the brush, and do not become impatient. I have hung over a print for two hours, and the result amply repaid me for the time and trouble. When the print shows the effect desired you may touch it sparingly with a brush. Have you ever watched the affectionate care with which an artist puts the finishing touches on his painting? Adding a high light here and a dark touch there by way of accentuation is all he does. That is all that is required in our work, a touch here and there. After prolonged development a 2 per cent. alum bath is not required, as a soluble bichromate has all been removed. Now hang up to dry.

### The Two After-Printing.

The next coating is a combining or harmonising coat. This is rather poor in colour, and applied quite thin with a broad brush all over the paper. Drop black or lamp black, with a touch of magenta or prussian blue, or burnt umber, according to the effect desired, is added sparingly to the gum-bichromate. When dry, print and develop in the usual manner, but you may be more bold in the use of the brush. This should tone down all harsh lines left from the application of the colours in the first coating. The third and ultimate printing should be made with heavy emulsions, both as to colour and gum, as they are to accentuate the heaviest shadows. The



exposure should be rather short so that the deposit may be washed from all parts of the print, except the shadows.

This is the method which I have worked out independently and successfully used. In the main, it corresponds with other methods; in the manipulation it is as different as the results are different.

## NOTES ON SULPHIDE TONING OF BROMIDES.

A Paper in "The Australasian Photo-Review."

WHEN I first started using this sepia toning process, I noticed that the tones were not uniform, even though the same paper, developer, and bleaching bath were used. Sometimes I obtained a cold sepia, sometimes a warm sepia, and at other times a disagreeable yellow-ochre.

The cold sepia is very suitable for some subjects, and the warm sepia for others, especially when a cream-tinted bromide paper is used; so, if possible, I determined to find out the exact conditions which affect the tone of the toned print. The different factors are:—

1. Developer.
2. Degree of development.
3. Presence of potassium bromide in the developer.
4. Bleaching bath.
5. Paper.

1. Developer.—This has been discussed by Mr. Gates in a previous paper\* in the "A.P.-R." I find, however, that it is possible to get any of the tones with any of the developers, e.g., I can get a cold sepia with hydroquinone, although it is prone to give warm tones; generally low factor developers tend to warm tones.

2. The degree of development also affects the tone, in that short development gives warm tones, prolonged development cold tones; but it is not necessary to carry development to the ultimate limit of reduction for cold tones.

3. The presence of potassium bromide tends to produce warm tones in the toned print unless development is protracted, i.e., if we wish to obtain a cold sepia, development must be carried on much longer after the appearance of the image than if it were absent; it also increases the contrast of the print, for it will be noticed that when it is present the print has greater contrast, and presently development slows down, until a temporary limit is reached. If now development is carried on further the print gets softer, because the high lights fill in, and ultimately the contrast is the same as if there had been no bromide present. Now, we can get a cold sepia before this temporary limit, that is, it is not necessary to sacrifice contrast to get a cold sepia tone when using bromide to give contrast.

4. The bleaching bath affects it slightly, but I do not find much difference in the result. It is better to eliminate any varying factor, i.e., adhere to our bleaching bath.

I find that rapid papers, such as Kodak or Wellington, give colder tones than the slower brands like Pearl; but by prolonging development I can easily get cold tones with slow bromide paper. With gaslight papers it is difficult to get cold tones, and, with some, impossible.

In practice, however, it is advisable to simplify as far as possible, and if the following plan is followed the resulting colour will be automatic.

In this method I made an exposure through a negative, giving the correct exposure, and then cut the paper into twelve strips, numbering them in order, and then placed them in order on a glass plate, holding them in position by a small rubber band at each end.

I then poured on the following developer, and five seconds after the image appeared (ten seconds) I removed the first, and immediately put it into an acid fixing bath, and five seconds after this I removed the second, and the rest in order, allowing five seconds' interval each. Developer:—

Amidol .....	2 grs.
Soda sulphite .....	22 grs.
Water .....	1 oz.

\* February

It is a process of great promise, wonderful possibilities and extreme fascination. It furnishes a medium which gratefully lends itself to the worker striving for artistic effects, giving such a temperament unlimited latitude, besides marking the result with the stamp of his own individuality.

I then repeated the experiment with bromide in the developer, thus:—

### Tabloid formula.

Amidol .....	2 grs.
Soda sulphite .....	22 grs.
Potassium bromide .....	1 gr.
Water .....	1 oz.

Allowing ten seconds' interval between each. Then a third time with:—

Amidol .....	4 grs.
Soda sulphite .....	44 grs.
Potassium bromide .....	4 grs.
Water .....	1 oz.

Allowing ten seconds' interval after fixing, they were washed, and then bleached in:—

Potassium ferricyanide .....	20 grs.
Potassium bromide .....	20 grs.
Water .....	10 ozs.

Rinsed a minute, and then darkened thoroughly in a 1 per cent. solution of soda sulphide.

(N.B.—The "tabloid" formula gives identical results.)

In Experiment 1.—Cold sepia was obtained fairly early.

In Experiment 2.—The first tones were a disagreeable yellow-ochre, then through warm sepia to cold sepia. The last tone was obtained just before the temporary limit.

In Experiment 3.—The tones were similar to Experiment 2, only they were warmer throughout.

Also, Series 2 had greater contrast than Series 1, and Series 3 had greater contrast than Series 2.

No. 1 developer is suitable for negatives suited to platinotype or carbon.

No. 2 developer is suitable for negatives suited for P.O.P.

No. 3 developer is suitable for negatives suited for soft gaslight.

Now, suppose my negative is of such contrast as demands No. 2 formula and I want a certain colour. I find this colour on the chart and note the time opposite; say, 1 minute 30 seconds; I then make three or four successive exposures on a trial slip, and develop this trial for this time (1 minute 30 seconds) and fix it. In a bright light I determine from the slip the correct exposure for such development. I now give this exposure to the whole piece, and develop it for this time, and then I am perfectly sure that it will tone to exactly the desired result.

If the result is deficient in contrast, I use the next formula containing more bromide. You may either adopt these formulae or work out similar charts for the particular developer you employ, e.g., M.Q. or Nodinal are excellent developers.

### SUNDRY NOTES.

After the sulphide bath you will find the gelatine very soft and shiny, and very liable to abrasion. If you immerse it in a weak solution of alum it instantaneously toughens like leather.

If by any chance the washing apparatus is rusty, or by any means you get iron into the print, you may get a blue stain in the paper from the ferricyanide. This may be removed after the sulphide bath by immersing the print in a weak solution of hydrochloric acid.

NORMAN C. DECK.

## THE OPACITY COMPARATOR.

the current number of the "Revue des Sciences Photographiques," Monpillard describes a new instrument for the measurement of opacities, which is constructed by M. Nacet, and enabling them to read direct.

The source of light is an incandescent gas burner, surrounded by metal chimney B, pierced by a hole through which proceeds a beam of light, which is rendered slightly divergent by a strong plano-convex lens L, and is directed to the two mirrors M of the comparator, Fig. 1.

Between the instrument and the lens is placed a movable vertical screen E, which allows that portion of the light which falls on the mirrors to pass, but protects the observer entirely from the light.

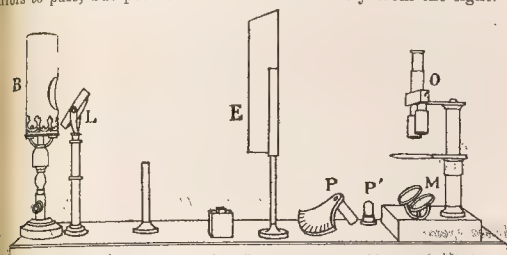


Fig. 1.

The beam of light projected by the lens is reflected vertically by the two mirrors MM, after passing through the two apertures OO, the plate, on which are placed the prisms; each beam is reflected horizontally towards the other by a total reflecting prism *a*, and falling on the two faces of the rectangular prism *b*, are reflected by the two faces to the eyepiece. The upper part of this eyepiece carries a pinhole aperture, in other words, it is diaphragmed so that the observer is forced to see the apex of the prism, and any parallax avoided, Fig. 2.

The mirrors having been properly adjusted, a field is seen, in the

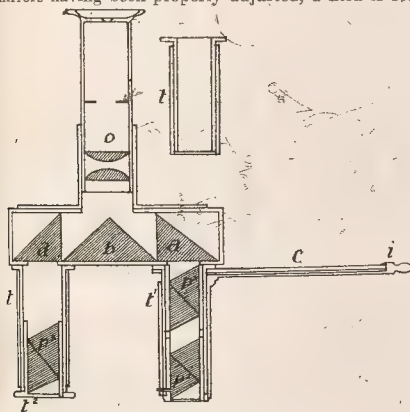


Fig. 2.

eyepiece, divided into two equal parts by the apex of the prism, each portion being illuminated by one of the mirrors, Fig. 3.

The stand on which are mounted the prisms and the eyepiece carries two sliding tubes, exactly over the axes of the apertures in the plate, so as to prevent the access of stray light, save that which passes through the plate.

Each aperture in the stage is 10 millimetres in diameter, but it is arranged that the field may be reduced to 5 mm., or a rectangular field of 10 x 3 mm. may be used; this last makes it very easy to examine the bands in a spectrogram, Fig. 4.

"TABLOID" Metol Quinol Prize Competition. The latest date upon which entries for this competition can be received is November 25. Competitors who have not secured entry forms should obtain them at once from their dealers or direct from Burroughs, Wellcome and Co., London, E.C.

Finally, below the stage is placed a movable piece, Fig 5, which, turning on its axis, enables ones to simultaneously place over each aperture a piece of smoked glass of a medium tint. The interposition of this screen reduces the intensity of the illumination and facilitates, to a great extent, the examination of very slight densities.

To use the instrument, it is only necessary to orientate the mirrors so that the two halves of the field are equally illuminated, an operation which is extremely easy. The test print is placed over one of the apertures of the stage, the eye placed at the ocular, and then the other plate passed over the other aperture till the two fields are equally illuminated.

If the intensity is very feeble then there is the advantage of being able to place the smoked glasses over the apertures.

The eye receiving no impression save that through the eyepiece, the observer is under the most favourable conditions to rapidly and accurately compare the intensities.

If how we wish to determine the value of these intensities, all that is necessary is to transform our comparator into an opacity meter. To do this, one of the tubes, that below the prisms, is movable, and can be removed from its grooves and is replaced by the measuring apparatus P, Fig. 1. This is composed of two Nicol prisms,  $p^1$   $p^2$ , Fig. 2, of which one is fixed and the other can revolve on its axis. This angular displacement, which is 90 degrees, can be measured by an index, which is displaced on the arc of a circle divided into degrees.

In the other tube, that of the opacity meter, it is necessary to introduce another Nicol  $p^3$ , which acts as a compensator, and annuls

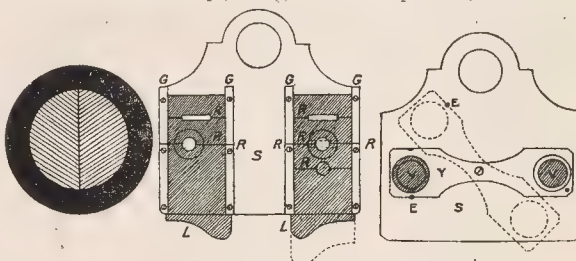


Fig. 3.

Fig. 4.

Fig. 5.

the elliptical polarisation produced by the reflection of the light rays from the surfaces of the prisms.

In order to measure with this, it is only necessary to place underneath the tube carrying the compensator Nicol, the plate to be measured, and then to move the handle that rotates the Nicol till the two fields are equally illuminated.

The index at which this stops is the angle of rotation of the Nicol; it is then very easy, by a simple calculation, to determine the intensity of the beam of light corresponding to this angle; this intensity being exactly equal to that of the same beam of light after passing through the plate that had to be measured. We are then in possession of all the data necessary to determine, by means of a table prepared for this purpose, the coefficient of the absorption resulting from the deposit of silver in the plate, its opacity, etc.

The same arrangement of this instrument presents this advantage: that it permits one to obtain at once the absolute value of the density. Deduction is made of the quantity of light reflected by the surface of the support, glass or celluloid, of the absorption produced by the vehicle itself, gelatine, or collodion, and finally of the development fog.

In conclusion, this small apparatus, which is very easy to use, gives, with certainty and rapidity, the data, more than sufficient from the point of view of accuracy, for the measurement of the density of photographic plates.

ROYAL Photographic Society.—In addition to the exhibits to be shown at the opening of the Royal Photographic Society's Rooms next Tuesday, which were announced in our last issue, demonstrations of three-colour work will be given by the Rotary Photographic Company.



## MR. J. T. SANDELL.—AN APPEAL.

Since the publication of last week's list we have received the following donations to the above fund:—

E. J. Wall ... ..	£	s.	d.
E. W. Foxlee ... ..	0	10	6
H. J. Burton ... ..	0	5	0
H. J. Burton ... ..	0	10	6

The following donations have also been subscribed to the fund through Messrs. T. K. Grant and J. B. B. Wellington:—

E. Sanger Shepherd ... ..	1	1	0
Sir David L. Salomon ... ..	2	2	0
Bromley Camera Club (per T. D. Grady) ... ..	0	10	6
G. W. Watson ... ..	1	1	0
Andrew Pringle ... ..	1	0	0
G. T. Mansfield ... ..	1	0	0
Darlington Camera Club ... ..	0	4	0
F. W. Hindley ... ..	1	1	0
A. Seaman ... ..	0	5	0
F. T. Bernau ... ..	0	5	0
R. Kirkby ... ..	0	1	0
Taylor, Taylor, and Hosson ... ..	1	1	0
Amount already acknowledged ... ..	99	0	6

Total ... .. 109 18 0

## Exhibitions.

## WEST OF ENGLAND EXHIBITION.—PHOTOGRAPHIC SECTION.

THE photographic section of the exhibition was opened last week. The photographs are not housed well, the room being low and depressing, but the committee have done everything they could to make the surroundings effective. The exhibits do not reach quite as many as before, and there is nothing striking to be noted, though there is much that is enjoyable, and should be educational to the photographers of the west.

Great praise is due to Mr. S. C. Croft for the excellent way in which the exhibits have been hung.

The Champion Class A.—An excellent collection of varied styles and subjects, most of which are agreeable and pictorial. The first place, gold medal, goes to "Twilight and evening bell, and after that—the dark," O. C. Wilmot, a delicate print of much excellence and evincing considerable artistic perception; but we cannot think it is better than "October" (also an evening and twilight subject), by Fred. Judge, more pictorial in selection and technically very good. This is awarded a diploma. The second place, silver medal, is secured by "Going to be Shaved," by S. R. Stevenson, and represents a procession of monks, apparently in Rome, or a city of similar architectural character, full of life, with a happy combination of adjuncts and of good technique. Third place, bronze medal, goes to "Tugging Home," W. Clayden. This print has done a long and weary round of exhibitions, and though it has very fine pictorial quality, yet its producer might now be well satisfied and do something to win more deserved laurels. Diplomas are awarded to "Binding the Wheel," A. E. Coleman, a scene in a wheelwright's shop; "October," already mentioned; and "Ain't It Nice?" E. V. Hearn, a nude very young lady in a bath, natural, and very pleasing.

In the other classes the awards are (except in Class S.): 1st silver, 2nd bronze, 3rd diploma. There are also prizes offered by the Mayoress of Plymouth, a gold medal by the "Western Morning News" Company, a prize by Moon and Sons, to the lady whose pictures obtain the highest number of points, a "Photogram" plaque, a gold medal, presented by the "Western Daily Mercury," to the winner in Class H., prizes by Foster and Sons, a prize by George Newnes, Ltd., and a prize by the secretary.

NEW Studio at Bognor.—Mr. W. R. Goodyer has opened, at 35, High Street, Bognor, as the "Goodyer Studio."

IPSWICH Camera Club.—Mr. S. B. Bond has resigned the post of hon. secretary, and Mr. T. A. F. Crisp, 14, Redan Street, Ipswich, has been appointed (pro tem.) in his place.

## Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for Patents have been received October 15 to October 20:—

CAMERAS.—No. 22,868. Improvements in or relating to photographic cameras. Julian D'Arcy Eveyard, Reedhamptoncoote, Putney, Surrey.

DISHES.—No. 22,907. Improvements in dishes for photographic poses. Johann Nepomuk Schram, 31, Bedford Street, Strand, London, W.C.

APPARATUS.—No. 22,994. Improvements in photographic apparatus. Robert Barr, 9, Warwick Court, Gray's Inn, London, W.C.

TELEMETERS.—No. 23,052. Instrument for measuring distances of short range, particularly applicable to photographers' use. George Logan Clarke, 37, West Nile Street, Glasgow.

CAMERA STANDS.—No. 23,097. Improvements in stands for photographic cameras. Frederick Hook and the Service Company, London, Ltd., 23, Southampton Buildings.

## COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

SHUTTERS.—No. 23,488. 1905. The claim is for a spring-operated friction arm in combination with a temporary detent for controlling the duration of the exposure, the rapid closing opening of the lens aperture being effected by a suitable spring as shown at *a*<sup>1</sup> Fig. 1, and at *a*<sup>2</sup> Fig. 2, irrespective of the interval of time for which the shutter may be adjusted.

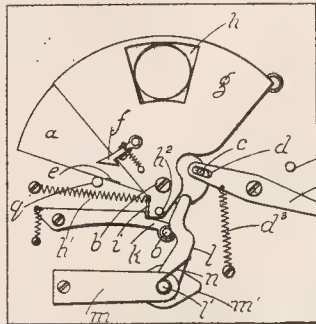


Fig. 1.

The swinging of the shutter plate and of the friction arm are simultaneous, by virtue of the pin fixed to the safety cover pressing on the trip plate of the arm, and the parts are adjusted so that the arm and the quadrant plate are released at the same moment; the latter, instead of merely returning to its original position, is held at the exposing position by the spring detent, and remains thus until the friction arm returns and disengages the detent, when the quadrant plate is free to complete its return movement.

It follows that the duration of the exposure depends on the rate of the return movement of the friction arm, and at every speed the shutter may be set, the lens aperture is open for practically the whole time. For the most rapid exposures, the clamping screw is loosened, and the arm, in its return, throws the spring detent out of the path of the quadrant plate, allowing the latter to return to its original position without obstruction. For time exposures, a stop is turned in the path of the friction arm, and keeps it out of gear with the spring detent, the closing of the shutter taking place on the return of the safety cover as usual.

*a* Fig. 1 is the safety cover pivoted at *b*, and provided with

stud *c*, which engages in the slot *d* of the releasing lever *d*<sup>1</sup>. It is also furnished with a turned up lip *e* for engaging with the spring catch *f* of the shutter plate *g*.

The shutter plate *g* is also pivoted at *b*, and provided with an exposing aperture *h*, a closing spring *h*<sup>1</sup>, a stud *h*<sup>2</sup>, for throwing the friction arm back prior to exposure, and a stop *i*, which engages with the spring-operated pivoted catch *k*, as shown in the drawing.

The friction arm *l* is pivoted at *l*<sup>1</sup>, and is held under varying degrees of compression between the flat plate *m* and the spring plate *m*<sup>1</sup>, the spring *n* tending to carry it towards the pin *o* on the pivoted catch *k*.

In Fig. 1, the shutter plate is shown in the exposing position. It remains thus until the friction arm *l* returns, under the influence of the spring *n*, and strikes the pin *o* on the catch *k*, and disengages the latter from the stop *i* of shutter plate, which then rapidly flies to the stop *p* by virtue of the closing spring *h*<sup>1</sup>. The lens aperture now being closed, pressure is removed from the release knob *d*<sup>2</sup>, and the return spring *d*<sup>3</sup> operating the release lever *d*<sup>1</sup> turns the safety cover until the lip *e* engages the spring catch *f* on shutter plate, in which position the safety cover closes the exposure aperture, and prepares the shutter for the next exposure.

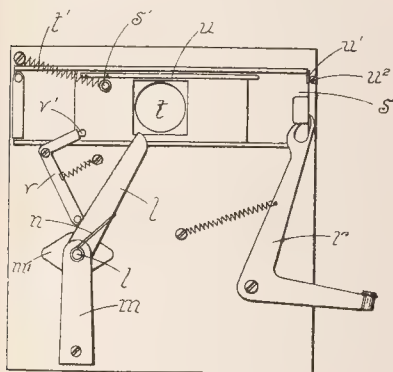


Fig. 2.

The act of depressing the release knob rotates the safety cover and the shutter plate, until the former meets the stop *g*, fixed at a suitable position in shutter board. This stop by contact with the spring catch *f* releases the shutter plate, which then flies to the open position as shown in diagram.

During the turning of the shutter plate, the stud *h*<sup>2</sup> has thrown the friction arm *l* away from the pin *o* on pivoted catch, allowing the latter to come into action as a temporary detent to hold the shutter plate at the exposing position until released by the return of the friction arm described.

The regulating knob, not shown, is threaded on the pin *l*<sup>1</sup>, which projects through the camera front, a pointer and dial being adopted to indicate the rate of exposure at which the parts are set. In rapid exposures the friction arm returns simultaneously with the release of the shutter plate, and the temporary catch is inoperative.

In Fig. 2 the system is shown combined with the sliding plate type of shutter, *r* being the releasing lever, which, when depressed, carries the safety cover *s* and the shutter plate *s*<sup>1</sup> across the lens aperture *t*. The shutter plate, being provided with a detent spring *u*, which engages over a lip *u*<sup>1</sup> of safety cover, the stop *u*<sup>2</sup> throwing the detent spring out of gear when the safety cover completes its movement. This condition is shown in diagram. The shutter, having flown to the exposing position by the action of the spring *r*<sup>1</sup>, is held thus by the spring catch *v*, until the latter is thrown out of gear with the stud *v*<sup>1</sup> on the shutter plate by the return of the friction arm *l*, precisely as in the case formerly described. James Albert Watts, 158, West Green Road, South Tottenham; and Houghtons, Ltd., 88 and 89, High Holborn, London, W.C.

The following Patent is open to public inspection before acceptance under the Patents Act, 1901:—

CATATYPE PRINTING.—No. 21,584. Process for converting silver pictures into pictures in higher oxides of manganese and for toning silver pictures and baths therefor. Neue Photographische Gesellschaft.

## New Books.

"Photochemie und Beschreibung der Photographische Chemikalien."

By Ernst König. Berlin: Gustav Schmidt, M 11.

Dr. König has undertaken the laborious task of revising the text of this work as the late Dr. H. W. Vogel left it in 1880. In performing this duty—for the re-edition of Dr. Vogel's lengthy volumes may be so described—he has adhered to the salient feature of the original work in that he has not divorced the scientific facts of photography from their applications. Hence it is that the present volume is a good deal more than the dry bones of theories. It contains a goodly proportion of what is often referred to as "practical" information a combination, which is desirable, as it promotes the study of theory by the "practical" people and of practice by the theorists. This dual study of the two aspects of the subject is more necessary in photography than in any other branch of applied science.

The contents may be divided into two parts—viz., that dealing with the action of light and that treating of the properties of chemical substances chiefly in their applications to photographic processes. Both parts are treated very fully, and as, indeed, should be the case in the 380 pages. The sections on dyes for orthochromatic sensitising, and on the chemistry of the colloids, will probably be welcomed as warmly as any, since chemical progress has brought more facts to light in these departments than in the older inorganic chemistry. A few supplements are included, among which is a set of bromide prints from three-colour negatives.

"How to Buy a Business." By A. W. Bromley. (London: T. Fisher Unwin.) 2s. 6d.

A paragraph in the first chapter of this book will show that the author dispenses advice which may be offered for the serious consideration of those proposing to enter the photographic "profession." Itemising the factors requisite in a trader, he says: "Business capacity undoubtedly comes first. It is more important (for his own success, at any rate) for a shopkeeper to be a good business man than for him to know the practical details of his own business. A man may know all that is to be known about the business he is engaged in, but without business ability he will rarely make a success. On the other hand, there are many brilliantly successful men who are disgracefully ignorant on technical matters connected with their business." That this is true, even in a technical business such as photography, is most certain, and is accountable for many of the failures which, except for business ineptitude, should have been bright successes. We can heartily recommend a study of Mr. Bromley's pages. He writes in short, pithy sentences, which make his chapters very readable, and he provides a fecundity of modern instances in which purchasers have been "done," or in which they have "done" those who sought to "do" them.

The book is one of Mr. Unwin's "How To" series, which includes the "How to Arrange with Your Creditors," a guide-book which the publisher, with a delicate sense of fitness, has caused to be issued before the present book.

A new edition of Herr Gaedicke's treatise (German) on gum-bichromate processes has been issued from the publishing house of Gustav Schmidt, Berlin. In addition to providing an elementary introduction to the practice of the gum process, it chronicles recent advances in this and the allied processes, and signals the direct carbon paper of Emil Bühler as a great improvement on previous ready-made bichromate papers. The Bühler paper, we may observe, owes its properties to the use of caseine and soap as the vehicle of the pigment, but is, nevertheless, appropriately treated in a work on the gum papers proper. If we may judge from the reproduction in photogravure of one of the prints, the results hold out a successful career for the paper. Herr Gaedicke's work is sold at M. 2-50 (2s. 6d.).



## New Materials.

A new variety of their collodion paper has been issued by the Leto Photo-Materials Company (1905), Ltd., Rangoon Street, London, E.C., in the shape of "Juno" glossy mauve, a print-out paper which we are able to describe in the same favourable terms extended to the "Pluto" papers of the same firm. The new paper is intended for gold toning only, and with the bath advised by the makers—sulphocyanide and gold—gives prints of fine rich dark tones. The borax and acetate baths are also very suitable, particularly for the warmer tones. The paper is, in fact, amenable to the usual treatment of P.O.P., save that some extra care should be paid to rapid and complete drying of the prints, whether mounted or unmounted, points on which we are glad to see the makers lay special stress, as it is undoubtedly one which removes a cause of complaint sometimes made against collodion papers in general. The price of the new "Leto Juno Glossy" is on the basis of sixteen half-plate pieces per 1s. packet.

"ROTARY" Christmas Postcards.—The Rotary Photographic Co., 12, New Union Street, Moorfields, E.C., have issued postcards in "Roto," "Rotox," and "Rotograph," bearing appropriate Christmas mottoes, printed in two colours. The cards are sold at prices as follows:—

"Rotox" (Gas-light)	12	100	144
"Rotograph" (Bromide)	1/-	7/6	10/6
"Roto" P.O.P.	9d.	5/8	8/3

All users, whether amateur, professional, or photographic dealers, are advised to procure their supply immediately, as the Company's first batch of printing was considerably oversold before the cards were ready.

The Birmingham Photographic Company, Stechford, Birmingham, send us specimens of a second set of border negatives for postcard work. The set includes eight designs, and provides for the inclusion of rectangular and oval prints about  $3\frac{1}{2} \times 2\frac{1}{2}$  inches.

## CATALOGUES AND TRADE NOTICES.

MESSRS. Gold, Smith, and Co., 44, Chapel Street, Salford, Manchester, notify us that they have installed a photographic studio, with electric outfit for portraiture and printing, at the above address, where demonstration is offered to customers.

A little book on flashlight work, with a number of illustrations and diagrams, is issued by Messrs. Carl Seib, 5, Grillparzerstrasse, Vienna, I. It contains also price list, etc., of the firm's "Tip-top" flashlight outfit.

A DEVELOPER for Warm Tones.—An ex-hon. secretary of the Aberdeen Amateur Photographic Association, Geo. W. Henderson, 479, Union Street, has introduced a non-staining developer, specially suited for gaslight and bromide papers of all kinds, being slow in action and giving unlimited control. By making up a solution of 1½ ounces of developer and 4 ounces of water (reports the "Federation Journal"), you can develop fifteen postcards, and if you care you can use this same solution for the first batch of plates you are developing. To the slide maker this developer will be very useful, giving a range of tones from black, and, by using a diluted solution and increasing the exposure through brown, and rapidly to red.

SELLING Photographs in the National Gallery.—In the House of Commons on Monday last Mr. Money asked whether a number of photographic firms had established stalls for the sale of reproductions of national pictures on the ground floor of the National Gallery, and what rent was paid by those firms. Mr. McKenna replied that, in three cases, the trustees of the National Gallery had authorised the sale of photographs of pictures of the collection in the Central Hall. No rent was paid. Mr. Money: May I suggest that an opportunity is being missed of securing revenue? (Laughter.) Mr. McKenna: The matter has been considered by the trustees of the National Gallery, and I think it is a matter for them primarily. I will speak about it.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Nov.	Name of Society.	Subject.
2.....	Sutton Photographic Club .....	Amateur Photographer Prize Slides.
2.....	Barrhead Amat. Art Club .....	"What Can be Done with a H. Camera." C. P. Goetz.
5.....	Luton Camera Club .....	"Composite Printing and Enlarging." Mr. and Mrs. Staddon.
5.....	Southampton Camera Club .....	"Wild Bird-Life with the Camera." Illustrated. W. Warren.
5.....	Bowes Pk. and Dis. Ph. Soc. ....	Lecture. John H. Avery.
5.....	Preston Camera Club .....	Annual General Meeting.
5.....	Leek Photographic Society .....	Monthly Lantern Night.
5.....	Lancaster Photo. Society .....	"Use of the Society's Enlarger." demonstrated. W. Gunson.
5.....	Ilford and District Photo. Soc. ....	"Ilford Lantern Plates." A. Brook.
5.....	South London Photo. Society .....	"Architectural Photography: What to Take and How to Take It." Craghton Beckett.
6.....	Hove Camera Club .....	"Enlarging." Demonstrated. Messrs. J. J. Griffin & Co.
6.....	Worthing Camera Club .....	"With a Camera in Egypt." A. Sargent.
6.....	Boston Camera Club .....	"Enlarging simplified."
6.....	Stafford Camera Club .....	"Theory and Practice of Self-Toning Papers."
6.....	Glasgow Southern Photo. Assn. ....	"Norway." Illustrated. R. Ure.
6.....	Darlington Camera Club .....	Lectures. Members.
6.....	Blyth and District Cam. Club .....	"Leading Features of Velox Manipulation." W. French.
6.....	Bristol Photographic Club .....	"Carbon." H. K. Harford.
6.....	Altrincham Photo. Society .....	"What can be done with a H. Camera."
7.....	Leicester & Leicestershire P. S. ....	"Theory and Practice of Self-Toning Papers."
7.....	Central Technical Coll. Ph. Soc. ....	"Forest Life." Studies of the Habitat and Life of Some of the Inhabitants. F. Martin-Duncan, F.R.P.S.
7.....	Croydon Camera Club .....	"Colour Photography." A. J. New.
7.....	Edmonton and Dis. Ph. Soc. ....	"Enlarged Negatives on Rotoplane Negative Paper." The Rotary Company, Limited.
7.....	Woodford Photo. Society .....	"A Belgian Holiday." W. L. Wastell, F.R.P.S.
7.....	Hackney Photographic Society .....	Annual Exhibition.
7.....	Hampstead Scientific Society .....	Amateur Photographer Prize Slides.
7.....	Redhill and Dis. Camera Club .....	Demonstration by the Platinochrome Company.
7.....	Livingstone College .....	"Tabloid." Baird Photographic Chemicals.
7.....	Sale Photographic Society .....	"Pictures with the Goetz Lens."
7.....	Edinburgh Photo. Society .....	"Does Photography find its Artistic Expression in Impressionism?" T. Mauly.
8.....	Hull Photographic Society .....	"Oxbone." T. Mauly.
8.....	Bleitham Club .....	"Tour through the Graian Alps." R. C. R. Neville, B.A., LL.B.
8.....	North London Photo. Society .....	"Orthochromatics." C. H. Madden.
8.....	Liverpool Amateur Ph. Assn. ....	"Sketch of History of English Art." Lecture. Harold Baker.
8.....	Redcar Photo Soc. ....	"Use and Progress of Photography Apparatus by Members."
8.....	Richmond Camera Club .....	"Development."
8.....	Glasgow Southern Photo. Assn. ....	

CROYDON CAMERA CLUB.—Mr. C. C. E. Kenneth Mees, B.Sc., the 25th ult., gave a most interesting and instructive lecture, entitled "How Development Occurs," a full abstract of which we hope to give later.

WHITBY CAMERA CLUB.—At the annual general meeting of the above club, on Friday last, the following were elected: President, G. Wright Hodgson; vice-presidents, Messrs. Wm. Brown and Bruce; committee, Messrs. French; Horne, Gray, Botham, R. Syer, and Ross; hon. lanternist, Mr. E. Hall; assistant lantern Mr. H. A. Burnell; hon. judge and critic, F. M. Sutcliffe, Esq. hon. secretary, Woodhouse Parkinson, Ocean Road, Whitby.

SUTTON PHOTOGRAPHIC CLUB.—The annual meeting and opening of the winter session took place on the 26th ult. The report indicated that the club had considerably increased in the number of members and in the interest taken in its meetings during the year. Mr. Hector Maclean, F.R.P.S., was re-appointed chairman and Mr. C. Thwaites hon. sec. At the close of the formal business the chairman gave a demonstration of "Lantern Slide Making without a Dark Room," using for the occasion the newly-introduced "S.C.P." lantern plate of Messrs. Wellington and Ward. The proceedings connected with the handling of "gaslight" plates were outlined, stress being laid on the need for an ample exposure and an unforced development. As regards the particular plate used,

Lecturer stated that he found it almost four times as rapid as some other plates of a similar make, and that, while it took slightly longer to develop than some plates, say, twelve seconds, as against eight seconds, it was less liable to show the orange fog which certain of this type of plates were prone to when development for black tones is unduly prolonged. The developer which he employed was: Rodinal, 2 drachms; bromide of potassium, 6 grains; water, 3 ozs. This would suffice for the development of from six to twelve plates. The correct exposure for a quick printing negative, full of gradation, and yet of ample density, was one inch of magnesium ribbon burnt at a distance of twelve inches from the printing frame. Giving this exposure, a slide was produced which left nothing to desire on the score of colour brilliancy and gradation. To illustrate the plate's latitude a second was made, to which only half the above exposure was given. This turned out to be entirely clear of development fog, and, though slightly lacking in high-light details, it was fully up to the average of slides, to which the term first-rate is applied.

## Commercial & Legal Intelligence.

**CANVASSEY'S Defalcations.**—Samuel A. Barclay, of Skegby, who had been in the employ of a Bradford firm of photographers as collector and canvasser, was charged at Mansfield last week with embezzling £1 18s. 6d. Mr. R. A. Young, who appeared to prosecute, said those were not the whole of the defalcations. A fine of 40s. was imposed.

**A COPYRIGHT Case.**—Bovril, Limited, in the Second Divisional Scotch court last week, brought an action against a Glasgow postcard publisher, of a "muddle-ad." picture postcard which they consider to be an objectionable travesty of their "Alas! my poor brother" advertisement, and took action in regard to it in the Outer House of the Court of Session, Edinburgh, but Lord Mackenzie refused interdict. The Bovril Co. reclaimed, and their appeal came before the Second Division of the Court on Tuesday, October 23, the Lord Justice-Clerk and Lords Kyllachy, Stormonth-Darling, and Low being on the bench. The question was one of copyright. Lord Mackenzie's decision was based on the ground that the respondent's postcards were not intended and did not purport to reproduce the value and essential qualities or the designs of the pictures of the complainants as works of art, and accordingly were not copies or reproductions within the meaning of the Fine Arts Copyright Act, 1862. The Second Division adhere to this judgment, and found the Bovril Co. liable in expenses.

**PHOTOGRAPHIC Trade Mark Action.**—In the Chancery Division of the High Court of Justice last week, Mr. Justice Neville had before him a motion in the action Kodak (Limited) v. J. Lancaster and Sons (Limited), by which the plaintiff's asked for an injunction to restrain the defendants, of Colmore Row, Birmingham, from infringing the plaintiff's registered trade mark, "Brownie." Mr. Murphy, for the plaintiffs, said an agent of his clients in July handed a written order to defendants' servant for "one Brownie film, 7d." In response to that order, an Ensign film, wrapped up in paper, was supplied. This was pointed out to the defendants' manager, and he said it was a mistake, and apologised. On a writ being issued, the defendants offered an undertaking in the terms of the writ and to pay the costs of the action up to that date, but stated, if the proposal was not accepted, that they would be prepared to defend the action. The defendants' counsel was not instructed to consent to put an end to the action and to pay the costs, and the motion was ordered to stand over till the trial.

**HULL Bankruptcy.**—At the Hull Bankruptcy Court last week the case of Richard Chorley Garside, photographer, lately residing at 106, Anlaby Road, and now at 2, Charles Street, Hull, came before the Registrar. Gross liabilities were £1,409 4s. 7d., expected to rank £1,388 12s. 7d., assets £226 3s. 6d., and deficiency of £1,362 9s. 1d. The debtor attributed his failure to "illness and want of capital." He said that he commenced business in Long Eaton in 1893 with a capital of about £140. In February, 1905, he sold the business for £40 and came to Hull. He took over the business, 106, Anlaby Road, as a going concern, and paid £280. He also took over the lease, and in August this year the lessor took possession for a quarter's

rent. Mr. C. G. Smith, a friend, advanced him the money for the ingoing, and had since lent him £800 or £900. Mr. Smith became his guarantor under the lease, which was running for eight years. In August last year he opened a shop in Chariot Street under the name of the "Star Photo Company," and closed it in September this year, and in November, 1905, he commenced a branch under the same name at Grimsby, and closed it in March this year. Smith advanced the money for these shops, neither of which earned a profit. At Grimsby he paid a man a salary of £2 10s. a week, but the weekly takings did not average that amount. Smith was not a partner with him, but occasionally advised him. He (Garside) became aware of his insolvency two months after he commenced business in Hull. In August this year he handed his stock-in-trade and furniture to an auctioneer, and after certain charges had been paid, £1 0s. 9d. had been handed to the Official Receiver as the net result of his trading. His wife and his late assistant were now carrying on business in Charles Street, and he was advising them. He could not dispute Mr. Smith's claim as to the amount advanced. He had never been in a position to pay creditors, and had always relied on getting money from Mr. Smith. When he was running his three shops the rent was £238, the rates would be over £60 a year, he was paying wages of from £7 to £9 10s., and his gross profits were £200 a year. He was unable to get out of the lease of the Anlaby Road shop. He denied that excessive drinking had contributed to his insolvency. The examination was closed.

**THE Tabloid Trade Mark.**—In the High Court, Chancery Division, on October 29, before Mr. Justice Swinfen Eady, the application of the Capsuloid Company to register the word "Tablones" was heard. The motion arose out of a refusal by the Registrar to register the trade mark in question on the ground of similarity to another mark ("Tabloids," the property of Messrs. Burroughs, Wellcome, and Co.), already on the register. The refusal was upheld by the Comptroller and by the Board of Trade, to whom this appeal was referred to the Court. Among the affidavits read, the deponents being afterwards cross-examined, was one by Dr. Dixon, who is the principal shareholder and the managing director of the Capsuloid Company. His evidence was that he had invented the word "tablones," which, he said, indicated not only the form but the composition of the medicine, where as "tabloid" meant only the form and required the addition of some word to indicate what kind of tabloid was meant. There need, he said, be no confusion between the two; indeed, out of many thousands of orders received by the company, there were none showing such confusion. The company had been spending £1,000 a month in advertising their medicine, which was a proprietary article, and their show cards and other advertisements left no doubt of the distinction between tabloids and tablones. Mr. Justice Swinfen Eady, in his judgment, said: It appears that the word "tablones" has been in use for a little over three years. Messrs. Burroughs, Wellcome, and Co., who oppose the application, say they first heard of it in October, 1903. "Tablones" is used in connection with a preparation said to be valuable in cases of indigestion. According to the evidence, "tablone" is the name applied to the particular medicament so made up, and which is sold as a patent medicine, the particular affection for which it is said to be good being stated on the aluminium boxes which contain it. Notice of the application was given, and it is opposed by Messrs. Burroughs, Wellcome, and Co., the main ground being the same as that on which the Comptroller based his decision—namely, that the last-named firm's mark is registered in the same class (Class 3), and that Section 72 (2) of the Patents, etc., Act, 1883, says:—"The Comptroller shall not register with respect to the same goods or description of goods a trade mark so nearly resembling a trade mark already on the register with respect to such goods or description of goods as to be calculated to receive." Evidence has been given by retail and dispensing chemists as to how tabloids are asked for by their customers, and it shows that when they are asked for, reference is made not invariably to the medicines which they contain, but often only to the ailment for which they are required, such as tabloids for headache, for indigestion, and the like. Again, tabloids have been named in written orders given to the Capsuloid Company by persons who evidently intended to order tablones, as was shown by their attaching to their orders coupons from newspapers in which the latter word was printed. On the other hand, orders for tablones have sometimes been sent to Burroughs, Wellcome and Co., who have passed them on to the Capsuloid Company. There



is no explanation why the name "fablone" was adopted—at the same time it would seem when litigation was in progress relative to "tabloids," but perhaps in ignorance of that litigation. On the whole, I am satisfied that there is that resemblance between the two words as is, in the words of the statute, "calculated to deceive." The Registrar having declined to proceed, the burden is on the applicants to show that the mark is one that ought to be registered. Not only have they failed to do that, but their opponents have shown that it is one so nearly resembling another on the register as to be calculated to deceive. I am therefore bound to uphold the Registrar's decision, and, without referring to other grounds, which might be stated, I dismiss the application, with costs.—"Times" report.

**THE KODAK DIVIDEND.**—The Eastman Kodak Company have declared an extra dividend of 5 per cent. upon the common stock of the company, payable on December 1, to shareholders of record on October 31. This dividend makes the second paid this year, the first being 2½ per cent. in April. Thus, with the usual 10 per cent. rate added, the stockholders will do very well in respect of 1906, even if they get nothing more. In 1905 the extra dividend paid was only 2 per cent., making 12 per cent. altogether for the year. In the circumstances it is not surprising that the \$100 shares rose \$15 to \$195 on Monday.

## News and Notes.

**POSTCARD CONCESSIONS.**—New regulations respecting postcards have come into force this week. In addition to the postage stamps and the small address label already permitted, the Postmaster-General will allow the public to attach to a postcard a gummed label, not exceeding two inches in length by three-quarters of an inch in width, bearing the name and address of the sender of the card; also engravings, illustrations, drawings, and photographs on very thin paper, provided that they are completely adherent, either on the back of the card or on the left-hand half of the address side. The new regulations apply to postcards of all kinds, whether sent to inland, Colonial, or foreign addresses. Single postcards of private manufacture addressed to places abroad will no longer be taxed in the British Post Office on account of the omission of the title "Postcard."

**"AITCHISON" Prizes for Optics.**—The Optical Society has accepted the offer of Mr. James Aitchison to present prizes to the value of five guineas to encourage junior members of the trade to study the instruments in which they deal, from the point of view of the user's requirements and convenience. Five prizes each of the value of one guinea will be awarded for essays, to be sent in not later than March 1, 1907. The prizes are open to all under the age of 25 engaged in the optical industries. Candidates are allowed to select their own subjects in the following groups:—(a) Telescopes, (b) microscopes, (c) photographic apparatus, (d) meteorological instruments, (e) any other widely used scientific instrument dealt in by opticians. Candidates will be expected to treat the instrument selected from the user's point of view, and to indicate the various directions in which they can be used in the arts and ordinary processes of trade. Candidates will also, if they desire, be allowed to select a particular trade or industry, and show how and what scientific instruments can be used in it. The society reserves the right to withhold one or more of the prizes if essays of sufficient merit are not sent in. All essays should be sent to Mr. S. D. Chalmers, Hon. Secretary of the Optical Society, 20, Hanover Square, London, W., not later than March 1, 1907.

Mr. HAROLD HOOD writes us as follows, in reference to the patent specification of his abstracted in our issue of last week:—"In the current number of the BRITISH JOURNAL, in your 'Summary of Contents,' in referring to my patent, you describe it as 'A new type of full-size focussing finder.' As this is likely to be misleading, even when read in connection with the abridged specification given in the same number, I should be much obliged if you could find space to allow me to state that this invention refers to a focussing finder whose chief advantage is that it need not necessarily be full size, but half or three-quarters, or any other convenient size, as tending towards much greater portability and lightness than the usual box form reflector.

## Correspondence.

*\* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\* \* We do not undertake responsibility for the opinions expressed by our correspondents.*

### FIRELIGHT PHOTOGRAPHS

To the Editors.

Gentlemen,—In reference to your paragraph on "Firelight Photographs" this week, I beg to inform you, as I have also the "Daily Mail," that about 6 or 8 months ago I introduced exactly this style of photograph, a specimen of which I have pleasure in enclosing.

With regard to the price, no doubt the ones at £7 7s. a dozen are carbon on yellow or orange supports, but the one I am sending is simply a glossy bromide print stained by immersion in "Bertha orange."

We are charging £2 2s. a dozen for these.

No doubt the idea is not by any means a new one, although I have never seen them in the profession before as ordinary commercial work.

Three specimens of this sort of work have been shown in our window for at least 6 or 7 months, so that it can hardly now be called a new thing.—I am, yours faithfully,

H. ESSENHIGH CORKE.

39, London Road, Sevenoaks.

[The prints sent by our correspondent are highly realistic.—EDS., B.J.P.]

### PHOTOGRAPHS FOR ADVERTISEMENTS.

To the Editors.

Gentlemen,—Now that the summer season is at an end, and your readers are looking over their prints, will you allow me through your columns to invite them to consider same from an advertiser's point of view, and decide for themselves how far they can be made use of by manufacturers for advertising purposes.

I am prepared to purchase good photographs of subjects suitable for reproduction in advertising. Any size will do, and the prints may be in any process sufficient to emphasize the idea the photographer wishes to convey. I will pay good prices for good subjects. A simple and direct idea that tells its own story right away is what I want. They should not illustrate one firm's specialty, but should apply generally to any particular article of consumption, for wear or other use, without being identified with one maker. It is impossible for me to say here what is the best subject for advertising, for the photographer can only judge this by studying advertisers' methods for himself.

I will carefully consider any photographs submitted to me, and will promptly return any that are unsuitable, if stamps for postage are enclosed, and I will say why I think them unsuitable.—Yours truly,

CHAS W. WALKER.

McCaw, Stevenson and Orr, Ltd.,

Advertising Contractors, 31, Shoe Lane, E.C.

October 26th, 1906.

### THE P.P.A. EXHIBITION.

To the Editors.

"Very like a 'wail.'"—Shakebacon.

Gentlemen,—Oh why, and oh why, did we ever allow the energetic officials of the P.P.A. to persuade us to send samples of our everyday work to their exhibition. Before we did so, many of us thought our productions meritorious, or to say the least, passable. Now our eyes are open and we know the terrible truth; we have been severely snubbed by irresponsible amateurs, and have been made to realise our utter insignificance. We have found our level, and, according to the majority of our critics, a very low level it is.

Well, "grieving is but folly," although we cannot help feeling acutely that we have been humbled, sat upon, and squelched. Still, we have one little consolation, the public appreciates and is willing to pay for such work, which probably is more than could be said for the everyday work of most of those who have criticised us so unkindly.—Yours truly,

London, October 29, 1906.

AN EXHIBITOR.

## Answers to Correspondents.

**All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.**

**Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.**

**Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington-street, Strand, London, W.C.**

**For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.**

### PHOTOGRAPHS REGISTERED:—

**Wright, Grosvenor Studio, Church Road, Upper Norwood, S.E. Two Photographs each of Sir W. P. Treloar and Lady Treloar.**

**Ca decott, 24, Regent Street, Wrexham, North Wales. Photograph of Mr. and Mrs. Gladstone's Memorial in Hawarden Church.**

**Garrett, 13, High Street North, Dunstable, Bedfordshire. Photograph on the Front Page of a Menu Card.**

**Pickup, 1, Ivy Grove, Rawtenstall. Two Photographs of the Goodshaw Brass Band.**

**Ward, 2, Victoria Road South, Southsea. Photograph of the Interior of St. Bartholomew's Church, Southsea.**

**Macmillan, Ravelston Elms, Murrayfield, Edinburgh. Photograph from the Front Model of the Statue of John Knox in St. Giles' Cathedral, Edinburgh.**

**A. Matelli, 72, St. James' Street, Walthamstow. Two Photographs of the Linton Football Club, Season 1906-7.**

**Smith, St. Mary Bourne, near Andover. Photograph of an Abnormal Pig, same having an Elephant's Trunk, Mouth of a Human Being, Goggle Eyes, and a Bony Free from Bristles.**

**P. Cummings & Co., 54, Albert Road, Middlesbrough. Two Photographs of the Middlesbrough Football Team and Directors, 1906-7.**

**W. Jackson, South Dene Studio, New Barn Lane, Rochdale. Photograph of Old Racker, Rochdale. Photograph of Church Style, Rochdale.**

**MARSHALL.**—If praise is helpful to you, we might say that, in our opinion, the cattle have been taken at a moment when they were in a most advantageous position for pictorial purposes. They make excellent lines, they give points of various distances where the landscape without them would have been poor in vertical planes, and they add a great interest of colour and accent to the view.

**"Assistant"** will send his name and address (not for publication) we will reply to his query.

**"Glasgow"** will send his name and address (not for publication) we will reply to his query.

**S.—I.** The spots are, we believe, due to metallic particles in the hypo bath. These are more likely to be met with if an acid fixing bath is used. We should advise filtering the bath through one or two thicknesses of flannel.

**PREHENSIBLE PROCEDURE.** — I received an order from a young woman, over age, home with her parents, for an enlarged portrait of her father, from a carte de visite given me. When done, I canvassed orders with same, in their village (and openly), without permission. Next morning I received a letter from the father. Asking who authorised me to do so, stating it plainly showed me up, and what I was, and demanding the return of the original photograph, when I at once destroyed the said enlargement (and returned the photograph as desired), and sent him (the father) the bill for the enlargement. Now, the daughter demands the order executed, having paid nothing on it, and the mother remarking (in the presence of a witness) that I was anything but straightforward, when I had openly canvassed with the said enlargement, even directly opposite their dwelling. Kindly oblige me the best to do at your earliest. — **PORTRAIT.**

Your action was most reprehensible. You had no right what-ever to take about an enlargement you were commissioned

to make. Again, it was a piece of impertinence on your part, after destroying it, to send a bill for it to the father, who did not order it. We are not at all surprised at the mother expressing her opinion of your action. You ask us what is best for you to do. It is that you tender a respectful apology to the family for the unwarrantable use you made of the portrait.

**ACCESSORY WANTED.**—Will you kindly let me know if I get an accessory made (not background) of crescent moon, would I be at liberty to use it, or is it a patent? — **DOUBTFUL.**

We should doubt if the accessory is stocked by anyone. Such houses as Houghtons', Marion's, and others that make a specialty of photographic accessories, would get it made to your order if you supply them with the design. Failing that, you will be able to get it made by those who make theatrical properties. Or it ought not to be very difficult for a local carpenter to build you one, utilising a tall pair of steps (draped), on which the sitter is posed, the "moon" being suspended so that the subject appears to be seated on it.

**J. K. (Carrahan).**—The lamp is to burn methylated spirit. There are several such on the market. Messrs. Houghtons and Messrs. Butcher each supply one.

**J. H. J.**—There is nothing we can do except to suggest that it is barely possible that the makers would be glad to have the plates placed in the hands of an expert, who would report upon the results now obtainable in them.

**PORTRAIT OF WELLINGTON.**—Can you tell me where I can procure a good portrait or print of Wellington (the Iron Duke), with liberty to reproduce? — **IRON DUKE.**

London Stereoscopic Company, Regent Street, London, W.; Mansell and Co., 405, Oxford Street, London, W.; or Augustin Rischgitz, Linden Gardens, Bayswater, W.

**LETTERING ON POSTCARDS.**—Will you kindly inform me, through the columns of your paper, the procedure to obtain printed matter on postcards? — **RAGLAN.**

The matter is set up in type and photographed on to wet collodion or a process plate, which is then stripped off and laid on the glass bearing the picture negative, and surrounded by a clear margin. Any clear parts not covered by the transferred negative are then blocked out so as to print white.

**SITUATIONS ON THE CONTINENT.**—I want to get a situation as operator-retoucher or general assistant in Madrid or Italy. Will you kindly advise me what to do to enable me to get to one of these places? — **A. F. S.**

We can only suggest that you advertise in one of the Italian photographic papers, say, the "Corriere Fotografico" (Dr. C. Zarghieri, Piacenza); or in the "Photos," Calle de Alfonso I, 19, Entresuelo.

**J. B. W.**—O. Sichel and Co., 52, Bunhill Row, E.C.; and A. W. Isenthal, 85, Mortimer Street, London, W.

**C. E. W.**—We should say 30s. is an average figure.

**FERROTYPE EMULSION.**—I shall thank you very much if you will be kind enough to tell me how to make an emulsion for making ferrotype dry plates. I have used all the makers' plates I know and find that they are very slow and make a poor picture, and do not in any way come up to the wet plate ferrotype picture in speed or detail. — **PHOTO.**

A collodion emulsion is used, probably somewhat similar to that for transparencies, on page 968 of the ALMANAC, but we cannot say precisely.

**LENS QUERY.**—I have a (Jamina, of Paris) portrait lens offered me. It has about 3in. or 3½in. diameter lens; it seems to give very fair image, etc. Have you any idea what it should be worth or what they are new? Nobody seems to know anything about this maker, and these people that have it will not say what they want for it. They want me to make an offer, and I would like to know what it is worth now or what its value was new. Thanking you in anticipation. — **HUDDERSFIELD.**

We do not know the name of Jamina. There was Jamina, of Paris, and if the lens is by him it is a very old one, as he has been out of the business for very many years, being succeeded by Darlot. Jamina's lenses, as cheap lenses, were in



fair repute in the sixties. But they have but little commercial value at the present time. The original list price of the above size, we think, was something like 100 francs or less, equal to £4 English. We should advise you to try the instrument and offer what it is worth to you, supposing it answers your purpose. See note on "Ancient Lenses," on page 842 of last week's issue.

**L. R.**—You will require a light of from 1,500 c.p. to 3,000 c.p. in the aggregate. The Adamson pressed gaslight (W. M. Still and Co., Charles Street, Hatton Garden, E.C.) or the Tress gas installation (206, Oxford Street, W.) should answer your purpose.

**CHEMISTS.**—You had better apply to any of the houses who undertake cinematograph entertainments, such as Sanders and Crowhurst, Shaftesbury Avenue, London, W., or Archer and Co., Lord Street, Liverpool.

**COPYRIGHT.**—Would you be good enough to give me your opinion on the copyright involved in the following case: A photograph is handed me for copying and enlarging, having been loaned by the subject thereof (and, therefore, presumably the owner) for that purpose. The photograph is of a public man, and the enlargement for presentation. The original copy bears the name of an American firm, and is embossed on corner of the print "copyright." Can you tell me whether they have any rights in the reproduction, or do they pass to the purchaser?—W. B. WOOD.

Most probably the photograph was paid for, and the copyright is, therefore, vested in the person who gave the order—the subject of the portrait in this case—and you may, therefore, carry out the instructions. In any event, it is unlikely that an American photographer has a copyright in this country, because, as America does not subscribe to the Berne Convention, an American photographer has to take special steps to secure "copyright" here.

**FLASHLIGHT.**—1. The best and most economical flashlight for photographing animals, and where procurable? 2. The name and address of a cat fancier or trainer for photographic purposes?—T. GILBERT.

1. We should advise you to select one of the larger flash-lamps, such as you will see in the lists of Houghtons, Fallowfield, and other large dealers. See also our advertisement pages. 2. We know of none. Better apply to journals such as "Fur and Feather."

**COLOUR-GRAPHY.**—I should esteem it a favour if you would inform me whether there is a book published on three-colour work; and, if so, who is the publisher? I should like, if possible, a book dealing with one method—for preference, the one in which carbon prints are super-imposed on each other.—**COLOUR-GRAPHY.**

Messrs. Dawbarn and Ward, 6, Farringdon Avenue, London, E.C., publish the latest book on the subject—viz., "Natural Colour Photography," by König and Wall. The carbon and other processes on paper will form a feature of the forthcoming "Almanac."

**BOOK ON RETOUCHING.**—Can you recommend me where to get a book of instructions in retouching?—R. R.

"Retouching," by Arthur Whiting (Dawbarn and Ward, 1s.), or "Practical Retouching," by Crinkwater Butt (Iliffe, 1s.).

**PLATINUM PAPER.**—Some years ago I tried some daylight printing paper, similar to platinotype, that required hanging in damp air or holding over boiling water to fully develop. I cannot remember either the name of the paper or that of the maker; and should be much obliged if you will let me know, through your "Answers to Correspondents" column, whether you know of such a paper, and, if so, whether the image is formed of iron or platinum?—P. DOUGLAS.

The paper to which you refer is not, we think, made now, but a very similar one is now supplied by O. Sichel and Co., 52, Bunhill Row, E.C. The image is in platinum.

**PORTRAITURE.**—I should feel much obliged if you would kindly reply to the following: I have a room 16ft. by 12ft. and 10ft. high. Is this large enough to take half-plate photos with a

10in. Zeiss planar lens, with electric arc lamp? Would photographs be fully equal to ones taken in a studio?—P.

The room will do very well, but you will not be able to take full-length portraits of the cabinet size in it with a lens of focus. It will do all right for busts and three-quarter length portraits. Very good portraits are taken with the arc light.

**ALUM BATH.**—1. We shall be greatly obliged if you can tell us what is the cause of the water turning slightly milky, after printing in postcards which have been toned and fixed, given changes of water, and then put in the alum bath for 2 minutes. It only happens with the first change after the bath. Will it affect the permanency of the cards? 2. Can you tell us where we can get the pens, etc., for tinting postcards (jewelling outfits, as they are called). Thanking you in anticipation.—LEWIS BROS.

1. The cause of the milkiness is that the hypo was not washed out of the prints, and the alum has decomposed it and precipitated sulphur. It will certainly affect the permanency of the prints. The hypo should be thoroughly washed out of the cards before they are put into the alum bath. 2. Such as Fallowfield's supply the outfits.

**SAFELIGHT.**—Measure the area of your tank, not the cubical content, and to every square inch allow one-tenth grain tartrazin and one-twentieth grain rose bengal, dissolved in distilled water.

**THE Polytechnic Classes.**—The prospectus of the classes of the Photographic School at Regent Street Polytechnic reaches us a few days before the report of the City and Guilds of London Institute, from which we see that the first-class certificate and medal in the examinations in May last were taken by Mr. Hewitt, of the Polytechnic teaching staff, in the department of pure photography, and by Charles T. Hynam, a student at the Photographic School in the process section. Mr. Howard Farmer points to a long list of successes antecedent to these, and to even more gratifying records of his students in technical portrait photography for commercial purposes. The programme of classes in negative making, operating, printing, retouching, finishing, and colouring, and also in photo-engraving and photo-lithography provides a course of instruction and improvement which cannot be too largely utilised by all those earning their living by photography.

**THE Scottish Salon.**—We have to announce that the "foreign" section of the forthcoming Scottish Salon will be contributed by Mr. C. F. Inston, of Liverpool, who will exhibit about fifty of his photographs. A number of Austrian and German works collected by Herr Masuren, will also form a section of the "Scottish Salon."

With the issue of January next (to appear before Christmas) the "Process Photogram" is to be made a separate publication on an enlarged scale. The subscription price is also to be lowered, and increased facilities provided for the full representation of the photographic arts. Our contemporary has occupied a world-wide sphere of usefulness in the past, and we wish it every support in its expansion.

**NOTICE TO ADVERTISERS.**—Blocks and copy are received for the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

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## SUMMARY.

The exhibition of photographs by members of the Professional Photographers' Association, now open at the BRITISH JOURNAL, closes to-morrow (Saturday) at 12.30. The small gallery will reopen until the New Year.

A method of development, the salient feature of which is the recent state of the solution, has been advocated by a German author, and commended by Dr. Neuhauss. (P. 884.)

Mr. Harold Baker details the complete reversal of ordinary practice which must be observed in order to succeed with the "art" gaslight paper. (P. 887.)

Mr. J. McDowall, in the "Chemical News," has demonstrated the action of tropical heat in fogging plates by promoting emanations in the dark-slides. (P. 891.)

Read in self-toning emulsions, a method of colouring photographs, and a modified Thornton-Pickard shutter are among the patents of the week. (P. 895.)

A correspondent in New South Wales, Mr. J. H. Homan, discusses the rules for constructing a focussing scale given in the BRITISH JOURNAL OF PHOTOGRAPHY for June 1 last. (Pp. 888-889.)

A recent conviction of a tradesman for a false description of goods should warn those who would supply bromide or gaslight photographs as platinum prints. (P. 892.)

Suggestions and advice on Christmas work by a country professional are given on page 889.

Some aids to copying are offered to those who have occasional orders for this kind of work in their business. (P. 893.)

A great international exhibition of photography is to be held in Germany in 1910. (P. 896.)

The Royal Photographic Society's new lecture room was opened Tuesday evening by the Earl of Crawford. Photographs of the new room, and a report of the conversazione which marked the occasion, appear on page 892.

## EX CATHEDRA.

### Variations of Aperture in Lenses.

There seems to be a very common belief that if the aperture of a lens is measured for distant objects, i.e., for parallel light, the result is a constant value that can be applied in estimating exposure on near objects. For example, a lens of, say, eight inches focal length is tested in the usual way by placing a pin-hole at the principal focus with a light behind, and measuring the diameter of the parallel beam emergent from the lens. If the diameter of that beam is one inch the lens is stated to have an effective aperture of  $f/8$ , and it is assumed that its aperture is still one inch, or equivalent to  $f/16$  when copying on a scale of full size. In many cases this assumption is entirely wrong, and if the lens is used for enlarging, serious errors in exposure may result if exposure is calculated on the basis of a one-inch aperture. The errors may occur as the result of estimating the relative exposures for different scales of copying, or, more commonly, by ignoring the direction in which the lens is turned. It is possible in the case of enlarging for the aperture to be equal, say, to  $f/9$  when the hood of the lens is towards the negative, and  $f/8$  when the hood is towards the enlargement. This causes exposure to vary in the ratio of 5 to 4, and even such a small variation may be of importance. It is, however, possible for the variation to be as much as 2 to 1, in which case the matter is certainly serious. It is very difficult to allow for such variations, and the safest procedure is to select lenses of fairly constant aperture for enlarging purposes. They are very readily tested by measuring the aperture in the way above described, first with the lens hood directed away from the pin-hole screen, and then with the lens reversed. If the results are the same the aperture may be considered to be constant for all distances of the object, but if the results differ the aperture is certainly inconstant, and the proper exposure can only be safely determined by trial, not by calculation. Some recent tests on modern non-symmetrical anastigmats showed that with one lens  $f/6$ ,  $f/8$ , and  $f/11$  became  $f/6.8$ ,  $f/9.1$ , and  $f/12.5$  when the lens was reversed. In another case  $f/6.5$ ,  $f/8$ , and  $f/11$  became  $f/7.2$ ,  $f/8.5$ , and  $f/11.5$ .

\* \* \*

### Angular Aperture.

The matter of angular aperture is one that is either strangely ignored, or confused with that of effective aperture. It should be more generally understood that, while effective aperture governs exposure, angular aperture governs depth, and the two quantities are not always, or even often, quite the same. The method of measuring effective aperture has already been described in a preceding paragraph on "Variations of Aperture in Lenses," and it is fairly well known. The



measurement of angular aperture is not quite so simple without apparatus, but the following method, due, if we remember rightly, to Dr. Drysdale, is perhaps the most suitable for ordinary photographers:—Focus sharply on a distant small source of light. Then rack in the camera for a definite known distance, and measure the diameter of the disc, which then represents the distant point of light. If the former dimension is divided by the latter one (i.e., by the diameter of the disc), the  $f$  value of the angular aperture is obtained. If this value is then used in all calculations concerning either depth of field or depth of focus the results will approximate to the true depths available more nearly than any results obtained by using effective aperture as the basis of calculation. As a strict matter of fact, effective aperture and depth have nothing to do with each other, excepting in the case of the hypothetical ideal lens of the text books. Some actual lenses under particular conditions may behave very nearly as the ideal lens is supposed to do, but such cases are so very rare that they may be almost ignored. It may be observed that the old-fashioned R.R. lens generally behaves most nearly like the ideal lens, as its effective and angular apertures do not generally differ very much. In the even older single-view lens the angular aperture is smaller than the effective aperture, while in the modern anastigmat it is generally greater, and the popular idea that anastigmats give less depth than R.R. lenses, and the latter less depth than view lenses, is due, in part, to calculating the depth from the effective instead of the angular aperture.

#### Varnishing Negatives.

In the days when heavily-sensitised albumen papers were almost universally employed it was essential that every negative should be coated with a protective varnish if irremovable silver stains on the gelatine film were to be avoided. Nowadays, when the silver is more thoroughly incorporated with the vehicle, gelatine or collodion usually, in the form of an emulsion with which the paper is coated, this danger of staining is much less, though it is by no means altogether absent. Varnishing has to a great extent been left undone in many businesses as a consequence. It is forgotten that silver processes are not the only ones which may give rise to stains on the negative. Both platinum paper and carbon tissue will produce stains if the gelatine film of the negative happens to be sufficiently damp. In regular printing, of course, every care is taken to keep everything as dry as possible, so that the danger principally lies in the direction of a negative carelessly left out all night or during a shower of rain. The risk of staining is, however, very

much diminished even under these circumstances if the negative has a protective coating of good spirit varnish. For portrait negatives varnish is usually needed, if as a protection for the retouching on the film, which may be partially removed by frequent dusting, then as a means of supporting more pencil work than can be got upon medium-coated gelatine. From the printing point of view we believe it is generally recognised by the most experienced workers that a negative is not improved by varnishing, certainly in the case of very thin negatives the shadow detail tends to print less strongly after varnishing. Negatives may with advantage be left unvarnished, and protection a thin sheet of clear celluloid placed between the negative and the printing paper.

\* \* \*

#### A New Method of Development.

The article which we publish elsewhere will, we trust, attract the attention of some of our readers who are in a position to give us evidence, confirmatory or otherwise, of the author's contentions. Dr. Neuhauss' comments are mistakable, and comparative trials could be carried out by anyone. If the author is correct in his statements, it is obvious that his method should give two totally different curves from strips exposed in a Hurter and Drift machine, and comparative readings would be of considerable interest. The method, if practicable, would be of special value in quick shutter work, as well as in those bad halations, the amelioration of which Dr. Neuhauss reports upon very favourably. Theoretically the process is an ideal one, but to carry it out to perfection in practice would entail, we think, the use of separate dishes for each plate, and dishes, too, which are actually flat on the bottom, a condition which is not easy to fulfil by purchase in the ordinary way.

\* \* \*

#### False Trade Descriptions.

There are, we are sorry to say, a number of professional photographers who do not hesitate to supply in the place of soft and black platinum prints photographs which are actually black or toned bromides or gaslight prints. We have from time to time pointed out here and in answer to correspondents that by so doing they laid themselves open to prosecution. Quite recently a tailor was sentenced to months' imprisonment in the second division for selling "Harris Tweed" a suit of clothes made from material manufactured in Huddersfield. On an appeal to the Sessions it was held by the appellant's counsel that the Brussels carpet and Worcester sauce need not necessarily

### THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached a total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the

ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—Our publishers ask us to inform Agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.

be made at those places, but the Commissioner, while reducing the sentence from one of imprisonment to a fine of £20 and costs, was clearly of opinion that a false or misleading description of goods had been given. We commend the instance to the notice of photographers, for while in many cases, even if the customer were certain he had not been supplied with goods in accordance with the description on his receipt, no action at law would result, yet it is quite possible that some irritated client, or a man to whom a prosecution would be an interesting diversion, would take proceedings such as were instituted against the tailor; and, dismissing the question of imprisonment, the sum represented by a heavy fine and costs would go far to pay for platinum paper for manufacturing the genuine prints. This, of course, is looking at the matter simply from the £ s. d. point of view, and there is still the question of business integrity and the discredit brought on the whole profession by the irregularities of some of its members.

\* \* \*

#### Cause of Spots on Prints.

Spots on prints come from many causes. There is one kind of spot that seems to be very prevalent during the winter months that is rarely seen at any other season; we allude to minute yellow ones, that seem to make their appearance a few days, or maybe weeks, after prints are mounted. Sometimes they have a nucleus and sometimes not. Colloidio-chlorides, or, as they are often termed, "C.C." prints, appear to be more prone to them than those on some other papers. In the article last week on "Warming the Studio" (see page 864), we alluded to the deleterious effect that the particles of fine ash, to which the fuel used in the slow combustion stoves is consumed, may have on moist prints if exposed to them. On a recent morning we were in a studio which was warmed by one of these stoves of the enclosed form. The fire, we learned, had just been lighted, and round the stove, on blotting-boards, were laid a number of freshly mounted prints to dry. The floor had just been swept, and the things in the studio were at the time being dusted. Now, it is very obvious that some of this dust must have found its way on to the prints, and as the fuel used in the stove was coke, the fine dust was largely composed of sulphurous compounds. What wonder, then, if the prints in the near future should develop small spots, while the actual cause of them would not be suspected. As we said last week, when these stoves are used, the precaution should be taken that the fine ash should be moistened before it is raked out, so that dust is avoided, and even when that is done prints should not be exposed in the place until the slight dust that is unavoidably created has completely subsided.

\* \* \*

#### A Further Note on Ancient Lenses.

In "Ex Cathedra" (see p. 842 *ante*) we advised buyers of old portrait lenses not to complete the purchase before trying them. Now, it may happen in testing some of them that although the image may appear perfectly sharp on the focussing screen, the picture, when taken, is very unsharp. This is due to the lens not working to focus, *i.e.*, the actinic and visual foci do not coincide. All the earlier portrait lenses of Voigtländer, and copies of them, were made with the chemical and visual foci non-coincident, consequently after the image had been focussed the lens had to be racked out a certain distance to obtain it sharp in the negative. Usually there was an engraved scale on the inner tube of the mount to show the difference between the two foci. In some there was merely a line near the hood of the mount, and in others no indication at all. It was the late Mr Andrew Ross, if we

mistake not, that first put portrait lenses of the Petzval type on the English market in which the visual and actinic foci were coincident. All the early Ross lenses do work to focus. It does not follow, however, that because a lens does not work to focus that it is not a good one. Indeed, when Voigtländer put lenses on the market in which the two foci were coincident he did so somewhat under protest, as he maintained that they were better separate. Lenses that do not work to focus are somewhat inconvenient in use, as an adjustment has to be made after the image is focussed, and the difference between the two foci increases as the camera is brought nearer the subject. This inconvenience increases greatly if the instrument be used for copying purposes.

\* \* \*

#### The Recent Postal Concessions.

The new regulation with regard to postcards should be advantageous to some photographers. Hitherto nothing has been allowed to be attached to a postcard except the postage stamp. Now a gummed label, not exceeding 2 in. by  $\frac{3}{4}$  in., may be stuck on. Also photographs, or other pictures, if they are on very thin paper, may be mounted on either the plain side of the card or the left hand of the address side, provided they are perfectly adherent. This should give an impetus to the business of those who make a feature of midget and stamp portraits—sometimes called "sticky backs"—particularly if the backs of the pictures are coated with an adhesive such as that on postage stamps so that they are easily applied. We imagine that a much thinner paper than that usually employed for this class of picture, which is generally a thick bromide, will be necessary, as the regulations specify *very thin paper* for the pictures (the italics are ours). This concession applies to postcards of all kinds, whether sent to inland, colonial, or foreign addresses. We have no doubt that the new rules will also give an impetus to the trade in mounts to be used as postcards, the sale of which hitherto has been kept down by the penny stamp required if the mount carried out its legitimate purpose of bearing a photograph.

#### • COPYING.

In the majority of portrait studios there is a considerable amount of copying to be done, work which is in too many cases approached in an unsystematic way, and which, as a consequence, is done neither so well nor so quickly as it might be otherwise. It is in the selection of apparatus and in the making of the adjustments of the same that opportunity occurs for saving a good deal of time and labour.

The work is too often done by an assistant, with the ordinary studio camera and lens, apparatus which may be admirable for its own special purpose, but which is not by any means the best for copying. A very important matter, the maintenance of parallelism between the original and the plate is very difficult of attainment, and though measurements may be taken from the sides of the camera front to the corresponding sides of the copyboard with a piece of string it is a tedious and time-wasting procedure, as fresh measurements are needed every time the camera is moved nearer to or further from the original. The portrait lens is most unsuitable for copying from the flat on account of its very curved field, a small stop being necessary if good marginal definition is to be obtained. With portrait lenses it should be noted the use of a small stop employed to flatten the field is likely to produce flare spot. The most simple arrangement will be to employ a stout copying board, say of 6 to 10 feet in length and 11 inches in width, fitted with a sliding easel, which may easily be constructed of a good-sized drawing-board. The advantage of having



this made to slide is that when working with a lens of short focal length the camera may be kept at or near to the operator's end of the copying board while the easel is slid along the board towards the camera. Focussing is then much easier than when two or three feet of board has to be reached over in order to examine the image on the ground glass.

In order to bring the lens opposite the centre of the copyboard or easel, the camera should be mounted on a sliding saddle, which may be a wooden box of about 8 or 10 inches in height, provided with two strips of wood nailed to the underside. It is then easy to attach a landscape camera to this box by means of the ordinary tripod screw, and the saddle carrying the camera may be slid nearer to or further from the easel bearing the original, while accurate parallelism is maintained. If the landscape cameras are frequently in use, there should be no difficulty in picking up an old 10 x 8 or larger size camera of the square bellows type, focussing from the back, many of such old pattern instruments being offered for sale by the secondhand dealers at almost nominal prices. Probably a suitable lens will be at hand, an anastigmat answering the purpose best of all, though a good rapid rectilinear if stopped down to  $f/11$  or  $f/16$  will be found quite satisfactory. Here, again, there are several lenses of old types which may occasionally be bought secondhand, and which will give excellent results for copying. The Dallmeyer triplet, for example, which works at a maximum aperture of  $f/10$ , and the Ross Concentric, which gives a flat field free from astigmatism at its open aperture of  $f/16$ , and which covers well at a wide angle with very even illumination; both make admirable copying objectives. Where there is great variety in the size of the originals or the size of the negatives to be made, or both, it may be found well to have two lenses available—a short focus lens where enlarged negatives are required from small originals, and a lens of greater focal length and good covering power for copying larger originals the same size.

Turning now to the adjustments: where a print of good size is to be copied smaller, little difficulty occurs. It is when a print of, say, locket size has to be enlarged considerably that the usual trial and error method of getting the image the correct size on the ground glass proves tedious. By making a very simple calculation the relative positions

of original, lens, and plate may be readily determined for any variation in size between the original and negative. The data for this simple calculation are the degree of enlargement and the focal length of the lens. Suppose a 5 x 4 print has to be copied to 15 x 12. The degree of enlargement is 3 diameters, 15 being 3 times 5, and 12 being 3 times 4. Suppose also that a lens of 6 inches focal length is being used. The rule is:—Add 1 to the times of enlargement, and multiply this by the focus of the lens in inches. The product will be the distance from the lens to the plate. Then divide this distance by the times of enlargement, and the second distance, that from the lens to the original, is obtained. In the instance given,  $1 + 3 = 4$ . Then  $4 \times 6 = 24$ . The distance from lens to plate will be 24 inches. Then  $24 \div 3$  (the times of enlargement) = 8 inches, which will be the distance from lens to original. Thus, by raising out the copying camera to an extension of 24 inches and placing the lens 8 inches from the print, little or no further adjustment will be needed except fine focussing. The rule applies equally to reductions in size, the distance being reversed.

In the case of lenses of symmetrical or approximate symmetrical construction the measurements may be made to the diaphragm of the lens. Such lenses are the rectilinears or aplanats, and the majority of the anastigmat doublets. In two well-known cases, the Cooke and the Aldis anastigmats, the measurements must not be made from the stop, the focus of the lens being measured from point in front of the lens. It is easy, however, to make allowance for this. With a lens of 6, 7, or 8 inches focus about an inch may be subtracted from the "lens to plate" distance and added to the "lens to original" distance.

Most modern lenses have their focal length engraved on the mount, but it is quite a simple matter to ascertain the focal length if the copying or other camera available possess sufficient extension. Two slips of paper may be cut exactly the same length. One of these is placed on the copy board and the camera distance and extension adjusted until the image on the screen is exactly the same size, the second slip being used as a measure. The lens is now screwed out of its flange and the distance between the paper on the copy board and the ground glass is accurately measured. This distance divided by four gives the focal length of the lens.

## DEVELOPMENT WITHOUT ROCKING.

DR. NEUHAUSS, the Technical Editor of the "Photographische Rundschau," in which the above article appears, says: "With his manuscript the author sent me a large number of negatives, some of which were developed by the old hand method, and some by the new. Most of them were very difficult subjects, for instance, taken against a bright window. The results by the author's new method are absolutely astounding; exposures, which by the old hand development were quite useless, gave with the new method negatives of exquisite fineness. We can only strongly recommend our readers to try this method."

Everybody knows how wearisome the development of plates by hand\* is, especially when a number have to be developed and slow developers are used. Stand development in grooved troughs is some help, but both methods have their disadvantages.

At the suggestion of a well-known worker, who did not follow the matter any further, I have arrived at the following method of development, which has proved perfectly satisfactory and gives very beautiful negatives even with some over-exposure, and it has also the advantage of cheapness. To understand this method some preliminary remarks are requisite.

### A Theory of Development.

When a plate is exposed, where the light falls there is formed silver sub-bromide; after exposure we have then silver bromide and sub-bromide in the film. During development the sub-bromide is reduced to metallic silver and bromine is set free. The latter com-

bines with the alkali in the developer to form alkaline bromide. In hand development the bromide formed is equally distributed throughout the developer. The presence of bromide in the developer checks the reduction of the silver sub-bromide to metallic silver. For this reason bromide is added to the developer in the cases of over-exposure. This restraining action is exercised in the shadows as well as the highlights, for the bromide is by the rocking of the dish evenly distributed throughout the whole of the developer. In hand development, therefore, the retardation of the silver reduction is equally distributed over the whole of the plate, and a partial action on the reduction of the silver in places where it is desirable is unattainable. Stand development shows the same fault, for the bromide formed sinks in consequence of its specific gravity to the bottom.

There is therefore nothing left but to place the plate film up in an absolutely levelled dish, and after pouring on a weak developer leave it undisturbed. With this method of development the bromine set free in the most exposed parts of the plate sinks down as sodium or potassium bromide and remains there, as the plate is not rock-

\* The author obviously means by the term "hand development" normal development and rocking of the dish by hand. EDS. B.J.

development is finished, and thus acts as a special restrainer at these places, especially as the bromine "in statu nascendi" appears to act more energetically than when it is as added drop by drop as bromide to the developer.

#### Localized Restraint.

The restraint of the development is regulated by this process in the most correct way, for in the shadows, where little bromine is set free, there is no or very little restraining action. In the high-lights, on the other hand, there is strong restraining action. The result is, that not only is the negative more even than when hand-development is used, but also over-exposure or halation are almost completely compensated for. For landscapes with deep shadows and bright high-lights, this method of development is specially to be recommended. The most practical solution for this method of development I have found in Von. Hübl's glycin stand developer diluted 1:40.

#### Quiescent Development for Half-an-Hour.

The method of working is as follows:—A box with a light-tight cover should be obtained and the inside painted black. In this should be placed the developing dish, and in this the well-dusted plate,

which is quickly covered with the well-diluted developer. Any air bubbles are then removed and the box closed. The cover must cover all sides and not stick, so that there shall be no shaking of the plate. The box with the plate must be absolutely level. The dark-room may now be left, and after about half-an-hour the cover may be very carefully lifted and the plate examined without touching it, so as not to disturb the developer. It is extremely easy, especially if a porcelain dish be used to judge from time to time as to the progress of development. If some plates are developed they should be lifted out as carefully as possible so as not to disturb the developer over the others. The finished plates can be fixed as usual and the cover replaced, and the others left till finished. Development in no case lasts longer than  $1\frac{1}{2}$  to 2 hours.

If the dish is not absolutely level the bromide formed moves slowly in a wave to the side, and not only is the effect lost, but the bromide acts in the wrong places and wavy lines are caused, corresponding to the movement of the salts.

I hope that the above notes will lead to further experiments, and shall be glad to think that others will obtain equally happy results

RUDOLF WALTER.

## REMBRANDT: A GREAT NAME AND A CATCHWORD.

I have often wondered whether the young lady who calls at a photographer's on her way home from the factory in south-east London, and asks for three cabinet Rembrandts, really knows what she is asking for. It would be interesting to hear how she would answer if she were confronted with the query "How do you know, Miss, that the charming likeness of yourself there is not a Holbein, a Moroni, or a Sassoferrato for the matter of that?"

#### What are Rembrandts?

It is not to be thought that Rembrandt himself would have objected to the use of his name as a trade label. He was a man of the world. But with a "Rembrandt" photograph before him he would no doubt have failed to see why his name had been pitched upon for the honour. What he delighted to exercise himself with was the play of reflected light that enriched, clarified, and yet did not rob the depth and breadth of large and sweeping shadows. He found joy in the concentration of light to make brilliant accents upon faces and passages of costume. In comparison with these sparkling passages, the shadows were quiet and even; empty they never were. This marked comparison between light and shade makes a forcible impression upon those who read as they run, but do not stop to study and enjoy. It is this very obvious effect only which has come to spell Rembrandt to those who know the master's works from a cursory glance at a few indifferent reproductions alone. Photographers have availed themselves of the undoubted advantages in the matter of simplicity and a certain kind of strength that comes of this treatment, and the result is that its characteristics have been crystallised into a formula, according to which prints are made and dubbed "Rembrandts."

If every photographer had paid a visit to the Royal Academy in the winter of 1899, and there seen the unique and magnificent collection of Rembrandt's paintings, he would have seen that the work of this giant meant more than a trick of chiaroscuro. They may still come to the fulness of this knowledge by viewing those in the National Gallery; or they may discover an interesting collection of reproductions at the Fine Art Society's Galleries in Bond Street. This exhibition has been formed to commemorate the tercentenary of Rembrandt's birth (and incidentally to sell a few prints if possible). Here the photogravures are all more satisfactory than the etched copies, because the harsh and texturous quality of the latter do not give the suave and flexible handling of the originals as do the photographic versions, which, further, preserve better the details of form and

modelling that go to make up the wonderful personalities of the sitters, and the elusive subtleties of their expressions.

#### The Glory of Technique.

In three hundred years no star has arisen to pale the glory of Rembrandt. In his line he is the true prince of painters. Reproductions of him are but mere shadows. One must see the originals to feel anything like his full force. The glow of his mellow and harmonious colour, the soft brilliance of his flesh tones, and the lambent sheen upon armour, jewellery, and embroidered garments—these qualities are not even suggested in monochrome copies. And it is a lost art to-day. We may paint more realistically, more exactly, but we cannot get the poetry of these commonplace phenomena; and if we could we should fail to combine it with that masculine breadth of treatment, that mighty conception and laying out of a subject that makes these poetically-rendered commonplaces mere subsidiary matters in the main process. Our painters to-day have to give all that kind of thing the go-by when they try for the simple and large impression, and, therefore, works of such a class do not move "the man in the street." They are an acquired taste. It was not so in Rembrandt's case. The honest and unsophisticated old burghers and their wives were quite equal to an appreciation of the master's works, and the most eclectic of our art critics to-day find them objects of adoration too. Such a wide appeal is only possible to the highest form of genius.

But in these days we do not attempt to paint like the old masters although we admire them. We have not improved upon them; we have differed from them, and shall grow more and more unlike them. Painters have always had Rembrandt's principles in mind, but it would be a deliberate affectation to place a sitter beneath a tiny window in a dark room for the purpose of imitating the style of the Amsterdam master. Painters leave that sort of sincere flattery to the photographers, whose paraphernalia lends itself exceptionally well to that sort of thing, and whose results justify their means both artistically and commercially. The professional photographer has to work in monochrome, and nobody can teach him so well as Rembrandt how to get the best effect from mere light and dark.

The life of this great master was made up of light and dark. It had its period of joyous opulence, colour, sweetness, and tenderness, and it was not without its passages of gloom—real shadows from his brighter days, wherein, however, his art always maintained a power to move the spectator.

During his closing years he had confined his efforts to portraits



of himself. Probably no artist ever represented his own face so often. Throughout his life it was his practice, and many works that bear fancy titles or sham names are the master himself masquerading in false beard or wig, or in the fanciful oriental costumes of which he probably had a large collection. His wife Saskia likewise figures over and over again in various characters; and his father, mother, and sisters are all handed down to posterity in the same way.

#### Rembrandt's Art.

It was not in portraiture alone that Rembrandt made his fame. Subjects from Holy Writ often employed him, landscape was carried to sublime heights by his achievements, his etchings abound by hundreds and are still transcendent, and countless figure and character studies exist in water-colour.

He was a true Dutchman in whom the grace and sweetness of the classical Italians found no favour. His art was an outlook on life. The facts of nature and their meaning to men constituted his material, not the sophistications of the aesthetics in the south. All his portraits have something to say about themselves. They are alive, and all but speak. Perhaps his greatest marvel in this respect is "The Shipbuilder and his Wife." The wife enters with a letter, and without letting go the handle of the door, offers the letter to the shipbuilder who turns from his accounts to take it. One positively waits during the momentary pause in their movements as though to see what will happen next. The sense of life in the figures is astounding, and their healthy, comely faces are warm flesh and palpitating blood. The whole thing is given solidly and convincingly—a startling impression without "impressionism." I shall never forget the effect upon my mind when I saw this stupendous work seven years ago. I give the example as typical.

There is no high faultin' about Rembrandt. He laughs at modern "fakes" and tricks, getting the supremest effects by simple and unaffected methods. As a landscape painter he lives in my memory by his "Mill," amongst his oil pictures, and by his marvellous etchings, wherein the needle point has performed miracles of drawing in distances and tree forms. The popular notion that all Rembrandt's works are black things with high lights is a delusion. He very commonly plays with the magic of light and shade in that way of brilliant contrast, but it by no means represents the whole range of his art.

#### The Real Rembrandt Lighting.

A more particular characteristic is the gradual fading away of light from a chief bright spot. Rembrandt never makes the mistake of having more than one culmination of brightness, and it always occurs at the point of greatest interest of subject. That is to say, in the portraits the strongest illumination is upon the cheek and nose, and almost invariably falls from the left side. In the subject pictures the light is focussed, often in a stagey way (whisper it not in Gath), upon the principal figures. The mastery of Rembrandt comes in at the supreme management of this strong light and its surroundings. In a few cases there may be a powerful contrast of the bright accent with the

deepest shade, but even where this occurs there is also a massing of less brilliant passages and points, and the further the distance from the principal accent, the duller becomes the subsidiary ones, until they melt into positive darkness. The effect may be likened more to that of a Milky Way than of a bright star in dark sky.

Rembrandt uses the shape and disposition of this waxing and waning passage of light as his chief material in composition. In those lofty and mysterious church interiors, where the subject is usually a biblical one, the lighting often takes a fine crescent-like sweep, fanning out at one of its ends into gloom. There is always perfect and logical gradation carried over the figures. One has only first to admit as a postulate that the bright illumination can fall as it does from some unseen source, and after that, all is perfectly naturalistic and the effect irresistible. The gradation is slow, of course, along the length of the light passage, and rapid across its width at the edges. The actual culmination may be forced by the dark accent of a figure standing before the bright group, and out of range of the illuminating beams. But it is not upon this contrast that the master relies for the brilliance of his principal accents; it is upon the gradation and massing. Any one may test for themselves how a number of light spots, gradating from a chief one, even if they be all within a range of greys, give a much more convincing effect of actual shining light than a mere bright and abrupt spot, even though it be white upon black.

The same principle is adopted in his portraits. The light dwindles away over the shoulders and background, here and there arrested upon embroidery, silver or gold lace, armour, or what not. It strikes everything cleanly and sharply, without in the least approaching to fuzziness, but always in a lessening strength as it is removed from the chief accent.

That it is which seems to me the important lesson to be learned in the making of fine portraits. There is no occasion for smeary, woolly murkiness so long as the light is allowed to get less bright as it spreads from the face. It may then be allowed to have all its own proper scheme of light and shade in folds, dress ornaments, and so on.

Another point in which Rembrandt's example should be respected is in the matter of backgrounds. His are never a meaningless darkness. They can always be supposed to be something solid upon which light might fall. Light does usually fall upon them in a soft broadly luminous glow, always well and fully gradated. His heads do not sink into them, but always appear well detached from them. I cannot say as much for the majority of those photographic backgrounds that bear the proud evidences of the photographer's "control" in the shape of streaks, blot, and other aggressions which come forward in front of the head. The shadowy sides of Rembrandt's heads can usually be traced in a fine firm contour throughout the darkest background, and as a rule they are gently relieved by a slight advantage in depth of tone over the background at that part.

F. C. TILNEY.

PHOTOGRAPHY, as many of our readers know, is one of the many interests of the Duke of Newcastle. The Duke, according to "Modern Society," built a studio at a little distance from the house, where he can follow his favourite art undisturbed. Some short time since he fancied that if the upper story of this building had another aspect the light would fall more suitably. So this upper part was turned completely round by a process similar to that adopted in America for the removal of buildings; and, to the Duke's immense pride, his own workmen accomplished the feat under his own personal supervision.

A DEALER'S Suggestion to Advertisers.—In the "Chemist and Druggist" a suggestion is made to the drug advertisers which may be also of some interest to those appealing chiefly to the photo-

graphic dealers. The writer says:—"Might I respectfully suggest that advertisers should occasionally insert an advertisement appealing to the general public and capable of being cut out and pasted on a card-mount? Trade terms, etc., could be printed at foot, and cut away when displayed on counter or in window. I think many would appreciate this, especially those whose time is very limited. The 'cutting out' has already been suggested in your columns, and if a chemist is willing to do this why should not the wholesaler assist him?"

THE Birmingham Photographic Company, Limited, Criterion Works Stechford, advise us that from now until Christmas they are placing in all their packets of postcards, P.O.P., Celerio, gaslight, and bromide, a Christmas greeting border negative, without extra charge.

## ON WORKING "ART VELOX" (GASLIGHT) PAPER.

The beauty of a print in "art Velox" will come as a surprise to those who are unacquainted with the process. The delicacy of the pearly lights and the brilliance and transparency of the shadows are only equalled by a fine carbon print from a negative exactly adapted to that process. But a fine print can be obtained in "art Velox" from a negative hopelessly too thin and weak for any other process; and by using the "Soft" grade paper an equally fine print can be made from a negative strong enough to give a good print in carbon, but with a hundredth part of the work involved in that process. The surface has a slight and delicate gloss, similar to a carbon print by double transfer from flexible temporary support. Prints can be made on the paper by the method usually adopted for the other grades of the paper, a method too well known to need description. But the professional photographer will not find it best to adopt the method already in use for bromide printing, and develop the prints in dishes by yellow light. It may at once be pointed out that a dark-room light which is safe for plates is of no use for Velox printing; a bright yellow light, and plenty of it, must be used, or it will be impossible to secure uniform prints. Velox paper is much slower than ordinary bromide, and will bear a larger amount of light in development, and will need a more powerful light for exposing. An incandescent gas burner will be found most efficient for ordinary negatives, but for those of large size, or great density, daylight may be used with advantage, of course making a test exposure on a small piece of paper. For an average negative, such as will give a good P.O.P. print, the printing-frame should be about six to nine inches from the light, and an exposure of twenty seconds should be sufficient. If the negative is yellow with pyro stain the exposure will be longer, but if the plate has been developed with metol, hydroquinone, ortol, etc., the exposure will be shorter, perhaps ten or even five seconds.

## The Raison d'être of this Article.

But when the photographer comes to development he will find that he must abandon most of his ideas formed from experience in printing with ordinary bromide paper. For instance, he will think that if he wishes to secure a soft, delicate print he must use a dilute developer, but with "art Velox" to get a soft print he must use a concentrated developer. To get a brilliant print he will want to use a decidedly concentrated developer, but with "art Velox," for contrast, he must dilute the developer. For thin negatives he would give a short exposure and a strong (that is, a concentrated) developer; for "art Velox" he must lengthen the exposure and water the developer. This rule of contrary seems to run through all the process, for if a print develops too dark and heavy, especially in the shadows, he will think the exposure has been too short, but he will find that it has been too long, and that a shorter exposure will give a soft, delicate print.

An "art Velox" print also acts in quite a different way during development from what he will expect. A properly exposed print when plunged into the developer usually goes grey all over, at once, and the novice thinks it is hopelessly fogged, but almost before that feeling has passed through his mind, he will see the delicate lights appearing out of the grey fog, and the deep shadows growing strong, and in a few seconds a fine print will appear, and development be complete in about thirty seconds. If the image appears slowly, as in a bromide print, he may as well throw that piece of paper away at once, for it will be useless, unless the negative was excessively thin and the developer extremely weak. But excessive dilution of the developer is not recommended, as it is liable to cause curious white patches and streaks in the image which do not develop at all; this is often aggravated by storing the paper in a damp place. The moral,

therefore, is, have negatives of fair density, so that there will be no necessity for great dilution of developer.

## Modification of Developer.

The developer recommended by the makers of the paper contains sodium carbonate as the accelerator, and a larger proportion of hydroquinone than of metol. This formula is excellent for delicate negatives, but when a stronger one, such as would print well in carbon, is used, the sodium may be replaced by potassium carbonate, and for still stronger negatives the proportion of metol to hydroquinone may be reversed, or metol only may be used with potassium carbonate. For very hard negatives the quantity of potassium may be increased to as much as one part of normal metol solution to six parts of potassium carbonate, instead of one; and this may be done without altering the colour of the finished print. But development will need to be slightly prolonged to avoid flat, weak prints, lacking in strength in the shadows. On the other hand, dilution of developer, or the addition of bromide, leads to brownish prints, and even to dirty greens; such prints, if subsequently toned, will become very yellow in colour, instead of a rich brown sepia. The amount of bromide should be as low as possible, too little producing grey whites and losing detail of the more delicate tones, while too much gives heavy shadows and greenish-brown prints. But it will be seen that endless changes can be rung in mixing developers, if a normal Velox developer is made up (but with the sodium carbonate in a separate solution), and a bottle of metol developer, and one of a solution of potassium carbonate, 3 oz. to 20 oz. of water.

If a delicate negative has to be printed the normal Velox developer should be used; if this gives too soft a print, a little water may be added to the developer, and a little longer exposure given. For a stronger negative potassium may be substituted for sodium carbonate; if this gives too soft a print a little water may be added. For a still stronger negative the amount of potassium may be increased, and also some metol solution may be added. For still stronger negatives metol and potassium, with a very small quantity of bromide, may be used, and the amount of potassium carbonate increased for still greater density of negative.

## Exposure in Relation to Developer.

The exposure of the paper is a very important matter, for when using the normal developer of hydroquinone, metol, and sodium carbonate the exposures will need to be fairly long in order to secure brilliant prints. But when potassium carbonate is substituted for sodium, for a denser negative, the exposure should be decreased, not increased; and when metol only, with potassium, is used the exposure should be still further decreased. And as the quantity of potassium is increased the exposure should be decreased. But too short an exposure will need longer development, and this may produce yellow high lights; a diminution in the amount of acetic acid in the fixing bath is liable to produce the same defect, unless the development has been very short indeed.

## Fixing-Bath Causes of Failure.

The fixing bath recommended by the makers of the paper must always be used, otherwise endless trouble will ensue such as yellow prints, blisters, black streaks, etc. When using ordinary bromide paper great care must be exercised to avoid handling the paper while in the developer with fingers contaminated with even a very small trace of hypo solution, or black streaks and yellowish-brown stains are inevitable; and if the prints are to be after-toned there will be black marks and streaks which remain obstinately colder in colour. Such marks are caused by developer and hypo being allowed to remain on the print to



gether. With "art Velox" precautions against hypo stains must be even more stringent. It is best when developing to use the right hand only for handling the print while in the developing dish; and the left should be reserved for moving the print about, as soon as it touches the fixing solution, so that the whole surface is exposed, at once, to the action of the hypo. The left hand should never touch a wet print until it arrives at the fixing dish; and the right hand should never touch a print after it has arrived at the fixing dish, without very careful washing; rinsing will not do. But when handling the dry paper, both before and after printing, the same care is not so essential, provided the fingers are dry, although dirty fingers do not improve the paper at any stage.

There is scarcely any perceptible change in the appearance of the paper when dry; there is none of that flattening and blocking of the deep shadows experienced with bromide prints; the delicate tones may dry a very, very little darker, but that is all. The deep transparent shadows do not alter.

The paper support is thinner than with bromide, and therefore washes more quickly, especially in rotary washing tanks, as the prints move freely round instead of lying in a mass at the bottom.

Many who have tried Velox paper have given it up on account of getting harsh prints with high lights stained yellow, and these failures have been generally caused by treating it as they would ordinary bromide paper. Good prints cannot be made unless the instructions issued with the paper are carefully followed, especially those as to the length of time in the developing solution, and the acidity of the fixing bath. Yellow prints are caused by several things, either by too short an exposure, which involves too long in the developer; by too small a quantity of acetic acid in the fixing bath; or too long fixing in an old bath in which the acid has been neutralised by the alkali of the developer, carried into it by the prints. Prints should be quickly rinsed before fixing.

Continuing development longer than thirty seconds is a prolific cause of yellow stains. But a print which is otherwise good but with slight yellow stains will "tone" to a fine sepia colour, and the stains will not show, so that a batch of yellow prints may be saved by converting them into sepia ones.

#### Sulphide Toning.

The simplest toning method is the one so well known, now, which converts the black metallic silver into silver sulphide. The prints are first bleached with a solution which changes the silver of the black print into the yellow bromide or iodide of silver, and then a solution of sodium sulphide is applied, which converts the yellow bromide or iodide into silver sulphide, of a rich brown colour, and believed to be a very stable salt. The

prints to be toned must be thoroughly washed, or the delicate half-tones of the picture will be reduced in the process of bleaching, and they should be well hardened with alum or formalin, and allowed to dry. If this precaution of hardening is omitted there will be a great risk of blisters appearing in the process of washing out the sodium sulphide, which has a powerful softening action on the gelatine.

The simplest method of toning is to bleach the prints in potassium ferricyanide (red prussiate of potash), 400 grains, potassium bromide 600 grains, water 10 ounces. The black image is converted in a few minutes into a yellow bromide; the prints must then be washed for at least five minutes in frequent changes of water until the yellow ferricyanide has been removed from the surface of the paper; they are then "toned" in a very dilute solution of sodium sulphide until the whole of the silver bromide has been converted into silver sulphide, which should be of a rich sepia colour. A few drops of a saturated solution of sodium sulphide to ten ounces of water is quite strong enough to produce the change, but the prints should remain in the solution for some minutes after the conversion is apparently complete, to insure that the whole of the bromide is converted into sulphide. The sodium sulphide must now be washed out, and it is at this stage that blisters may appear. If the water supply comes from sandstone or chalk district, and is therefore "hard," there will be little danger of blisters; but if it is rain water or other "soft" water, such as that supplied at Liverpool, Glasgow, Manchester, and Birmingham, blisters are inevitable, unless precautions are taken. It is advisable to have only a few prints in the sulphide solution at one time, and as each one is finished it should be removed to a diluted solution of chrome alum, without washing; in five minutes it may be transferred to the washing tank, a prolonged washing is not necessary. Another method may be adopted which is equally efficient, unless the water is very soft indeed, and that is to immerse the prints as they are toned in methylated spirit, which need not be fresh, but that which has been used for drying plates or prints. Potash alum may be substituted for chrome alum, but it is liable to produce a white deposit on the prints, which must be cleaned when dry with a tuft of cotton wool moistened with methylated spirit.

Velox prints may be dried face downwards on cheese cloth, to prevent any slight tendency to curling; the film is so hardened by the fixing bath that they will not stick. In extremely hot dry weather prints treated with chrome alum will be rather curly and unmanageable, but this may be prevented by soaking for a few minutes in water, to which a small quantity of glycerine has been added, before laying them out to dry.

HAROLD BAKER.

## FOCUSSING SCALES BY A GRAPHIC METHOD OF DETERMINING THE CONJUGATE FOCI.

No one will deny that inaccurate focussing scales are worse than useless, which suggests the necessity of testing our scales, but only those who have attempted to obtain tests by actual trial with the camera, would realise the trouble it takes to get accurate results. Calculating and plotting is reliable, though somewhat tedious, and requires checking, besides being beyond the scope of many photographers; but, by the following graphic method—which is mathematically correct—any one with a sharp hard pencil and a scale, or divided rule, should be able to draw their own focussing scales with a considerable degree of accuracy.

From a straight line A B let fall a perpendicular C D three inches in length. From C mark C1 equal to one fourth of the actual focal length of the lens for which the focussing scale is required. Then with any regular scale (a quarter inch is con-

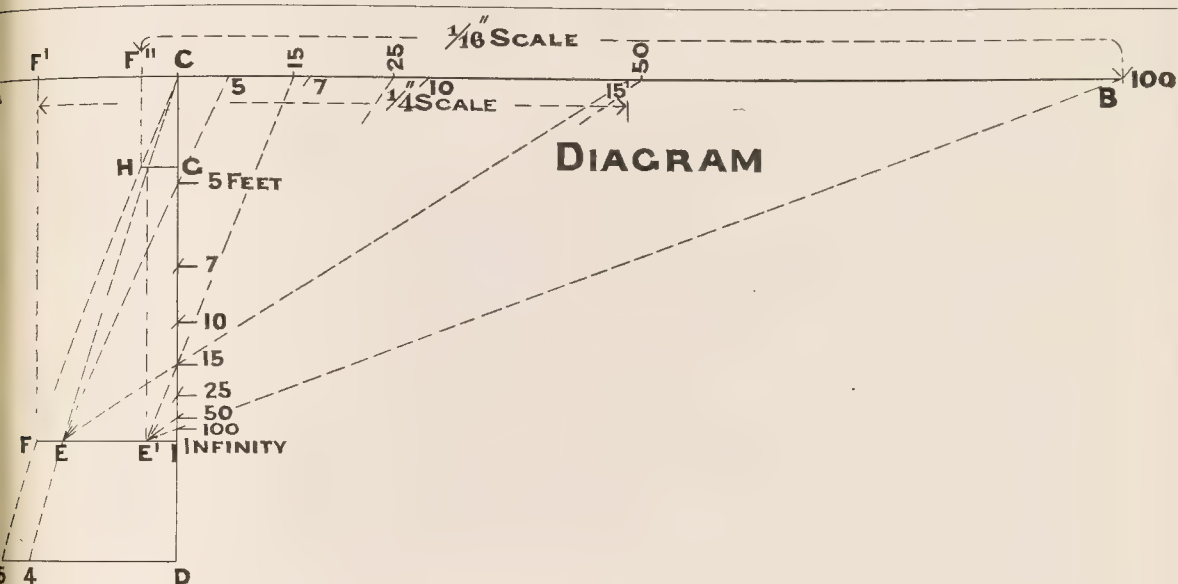
venient) from D and parallel to A B set off distances 4, 5, from which draw lines to C.

From 1 parallel to A B draw 1F, cutting lines C5 and C4, 1F, and E, which is the initial point. And from F draw F1 parallel to A B parallel to C D. From F1—the measuring point—set off on line A B from the scale, the distances or stations, which the focussing scale is required to represent—usually 5, 7, 10, etc. feet (or for yards multiples of three) and draw lines from these to the initial point E. Then the intersections of these lines with the perpendicular C D indicate in terms of the focussing scale the corresponding distances of the stations from the initial point 1.

If after setting out a few stations on line A B we find that they are likely to extend beyond the limit of our paper, the

we may proceed with a smaller scale, say, 1-16th of an inch, and as this is one fourth of the scale previously used, set off from C the distance C G, equalling—by the scale—the focal length of the lens, and draw G H parallel to A B, and project its intersection with line C5 up to A B—forming the new measuring point F11—and with C4 down to line E1 to form the new initial point E1 from which operations with the new scale may be continued as before. If scales for longer focal lengths

The larger linear scales tend towards greater accuracy in the delineation, on account of the angles of intersection being more obtuse. The diagram is necessarily somewhat compressed laterally in order to save space, although one scale—an eighth—is ample for the shorter focal lengths. Yet in the same diagram we may use as many different scales as convenient, provided that the lines from the new initial points, and the distances from the corresponding measuring points, are to the same scale, and if



This diagram shows a focussing Scale for a lens of 9 inches equivalent focus.

are desired the lines C and D, and 4 and 5 may be extended, or the distances—of the measuring and initial points—from the extended D C, calculated and plotted; which would give respectively for the lenses of 9 and 19 inches focus, 3 and 3 $\frac{3}{4}$ , and 6 1-3rd and 7 11-12th divisions of the quarter inch scale thus:—

2 in. lens.	Initial point	$\left\{ \begin{array}{l} \frac{4}{12} \times \frac{9}{1} = 3 \div 4 = \frac{3}{4} \text{ of an inch.} \end{array} \right.$
	Measuring point	$\left\{ \begin{array}{l} \frac{5}{12} \times \frac{9}{1} = 3\frac{3}{4} \div 4 = 1\frac{1}{4} \text{ " " } \end{array} \right.$
19 in. lens.	Initial point	$\left\{ \begin{array}{l} \frac{4}{12} \times \frac{19}{1} = \frac{6\frac{1}{2}}{4} = 1\frac{7}{8} \text{ inches.} \end{array} \right.$
	Measuring point	$\left\{ \begin{array}{l} \frac{5}{12} \times \frac{19}{1} = 7\frac{1}{2} \div 4 = 1\frac{7}{8} \text{ " " } \end{array} \right.$

any lines radiated from the initial points to their respective stations, happen to have been duplicated, their intersections will be in the same point on line C D which will prove the skill of the delineator—or otherwise—and the actual linear dimensions in inches—from the infinity mark to the figure marks in the focussing scale—plus the focal length of the lens, are the lesser conjugates full size, to their complementary distances on A B, or the greater conjugates by linear scale. This graphic method would, I believe, prove useful for many purposes where the conjugate foci are required.

JULIUS H. HOMAN.

We refer to Mr. Homan's article at the foot of a letter on another page.—Eds. B. J. P.

## LETTER TO A MIDDLE-CLASS PROFESSIONAL.

DEAR J.—I believe that last year I wrote you immediately before Christmas impressing upon you the opportunity there is at that season to do rather more than the ordinary amount of business. I am glad you remonstrated with me regarding the somewhat tardy arrival of the advice. This time you see I have taken your remarks to the eleventh hour to heart. Indeed, if any work at all is to be done in Christmas lines' preparations, it should be made well in advance. The public are so extremely lax and slow that unless the proximity of the festive season is forced upon them everything is left until the last minute, as you know, from that rush order of yours received the day before Christmas Eve. Whatever you do you are bound to have one or two orders at the last minute, so if you are wise you will get all orders out as quickly as possible, so that the dis-

location caused by the last one or two received will not affect the earlier ones to any great extent. You say that you are doing Christmas midgets again, and, of course, I expected it, the small photograph, mounted on a Christmas card, being the sum total of the efforts made by professionals to get a share of the profits that go mostly to the fancy goods and silversmith men. With a little effort some of your cabinet pictures ought to go. Just get out an advertisement for that local paper and dwell on the suitability of photographs for presents—not greeting cards, but presents. You don't think much of the paper as a means of publicity, I believe, that is, because you have struck off some humdrum ordinary business about Mr. J., photographer, doing enlargements, miniatures, and copies, and left the newspaper man to set it anyway. This time



keep to the one point—presents and photography—and show the type and ruling you want. That last advert. of yours was all right, but those abominable ornaments spoilt it. This time make sure that there are no printer's ornaments about your matter, and only a plain rule round. Of course, if you feel rather flush, and don't mind spending a little money that will bring its return, not immediately, but in the future, get out a really smart neat leaflet, on good quality writing paper, and mail it under a penny stamp. The extra orders may not pay for it, but I expect to hear that you are not quite so slack this spring.

That last specimen you sent me in the folder was excellent. Why not have a Christmas greeting printed on the outside this time? The print and mount will not be affected in any way, but the result will be seasonable enough. Of course, you did not do much with Christmas work last year. When I slipped over to see you I noticed that your cases were as usual. You cannot possibly expect to do the business if you do not exhibit your goods. I daresay that most people had no idea you were making portraits specially for gifts. The old saying, "Out of sight is out of mind," is applicable here. A good show of seasonable work will create a desire in the minds of prospective sitters who would never have thought of photographs had they not been unconsciously suggested. For those smart clients of yours you should get a sample book of cards, upon which their name and address can be printed. When you are thinking of knocking off about four o'clock, think what an expensive time you are going to have, then get some good notepaper and drop a line to your old customers, saying what a nice Christmas card you could make from their last sitting, and offer to send samples on approval. I know you are not very busy now, so don't you think you could look out the last sitting and do a print of it, mount it up suitably, and forward that with the letter? If you don't get an order for more you will nearly always sell the one for a trifle more than its cost, and the cost of paper and postage.

It is not often we get asked for calendars, simply because a photographic calendar is rather original. If you think you could sell a few, and your receptionist is rather smart, get some 1907 pads from the local stationer, and fix them with adhesive or paper

fasteners on the bottom margin of some of your big mounts, then punch two holes in the top and tie a loop with silk ribbon. At no expense whatever, that, dear J., will touch you; you obtain something fresh and novel. Be careful about the pads, though. The tinker, tailor, etc., usually manage to give their clients a calendar at this season; the said calendar usually finds the dustbin, together with the orange peel and turkey bones, but that is because the aristocratic name and trade of Mr. Tinker or Tailor is somewhat prominent. Now, no business is more suitable or lends itself better than ours to the production of an artistic date recorder, so why not work on the hint?

If properly done, it should be equally acceptable as the ones purchased from the bookseller, and be a standing advertisement all the year round. A really good print should be selected from your specimens and used for the illustration. Mount it on a mount of suitable tint and size. Bromide prints are the best perhaps, so a grey mount should be used. Be sure that the plate mark is well above the centre, leaving room for the date pad. This latter should have a cover, with the year on it, of exactly same shade as mount. The printer you get your sundries from is sure to have some type set up from which he will print you anything fairly cheap. I should advise, however, that the name and address is exactly the same as on your ordinary mounts. If you feel like doing the thing really well, the dates could be scattered over the mount each month in a frame to itself. Probably the printer is doing some for himself, and will put your mounts through the machine for a small consideration.

Get a shade of good silk ribbon that goes agreeably with the mount, and thread it through two holes, punched about three inches apart, and at the top of calendar. Tie with a good big bow. It will not take very long to get a few hundreds off, and the wife, you know, could help with these bows. I believe from what you said that a promise of millinery was a great aid to the smooth running of affairs. I hope the results from the calendars will make it more than a promise this time, though.

Well, it's about time I looked after my own business, but do, do, clean that skylight of yours.—Yours,

PROVINCIAL PRO.

## HOW DEVELOPMENT OCCURS.

(Abstract of Lecture by Mr. C. E. Kenneth Mees, B.Sc., at the Croydon Camera Club.)

"How Development Occurs, *Simply and Popularly Explained*" (the italics are own own) was the precise title of Mr. Mees' lecture appearing in the club's fixture list for the 31st of last month, and given by him on that date. A large number of members assembled and listened with close attention to a really clear, if not altogether elementary dissertation on a difficult subject, the salient features of which, with the subsequent discussion, was epitomised. It is, however, only fair to Mr. Mees to mention that he denied being the originator of the italicised words above, and it was therefore not unnaturally assumed that the club's hon. secretary had been indulging in a slightly ironical vein of humour. This was, however, not admitted, and the matter remained wrapped in mystery.

Mr. Mees said, that in discussing the method by which development occurs, there are two things which must be considered. 1. The whole reaction, involving not only the chemical reaction of the reducer with the silver bromide, but also the getting of the developer into the film, and of the waste products out again. 2. The chemical reaction itself. They were aware that both these branches had been studied by a member of their club (Mr. S. E. Sheppard), with whom he (the speaker) had done much of his work, and it was chiefly the result of those studies which he proposed to explain.

### A Graphic Account of Development by Ions.

To take the chemical action first. Reaction involved solution, and solution involved ionisation. So that the chemical change must be regarded as taking place between ions, or, in other words, between electrically charged atoms. A developer, in fact, consisted of an ion, which could lose a negative charge, to neutralise the positive charge of an ion of silver. This rapidly produced a supersaturation of

metallic silver in solution, which stopped further solution of silver bromide, and consequently further reaction, unless a nucleus presented itself for precipitation. This nucleus might be any foreign matter, in which case fog was formed; or it might be the latent image. Thus, from the point of view of development, the latent image consisted of nuclei for the deposition of supersaturated silver. Once a particle had commenced deposition from any cause, then that particle would in time be wholly developed, but was apparently not appreciably reinforced from neighbouring particles. The film itself might be regarded as a network of closed cells, with corridors in between, and the particles of silver bromide locked firmly in the cells. The developer could then pass rapidly and easily through the corridors, but only slowly and with difficulty, through the cell walls.

The velocity of development depended chiefly upon the rate of access of the developer to the silver bromide particles, and of the clearing away of the developer products from the particles. Development began rapidly, and then fell off in speed, finally reaching a limit. Plates differed from each other, both in rate at commencement and in the limit attained. The paper was illustrated with experiments and lantern slides, and by the use of most ingenious atomic models, consisting of small lumps of "plasticine" of different colours, which adhered to the blackboard, and were fastened together with matches.

### Saline Persiflage.

Mr. E. A. Salt, said he had listened to Mr. Mees with great interest; he had, however, overlooked filtration as a disturbing factor under certain conditions. Let it be assumed, and the assumption

as reasonable as many, that the plus and minus electrically charged atoms actually partook in shape of their characteristic signs. Then, with a sufficiently fine filtrate, all the minus ions approaching would pass through the pores, thus, +, whilst the plus ions would inevitably jam, owing to their shape, and distillation would be effected. At this point the President (Mr. W. H. Smith), having grasped the full beauty of the theory as a suitable acknowledgment, promptly ruled the speaker out of order, amidst much laughter. He (Mr. Smith) inquired whether Mr. Mees could throw any light on the curious phenomena of reversal. Mr. Mees replied that practically nothing was known about it. Solarisation occurred with great over-exposure. This must be distinguished from reversal with normal exposure. Hypo in the developer, and many other things, would cause this.

### Factorial Development.

Mr. J. M. Sellers pointed out that the curves shown, illustrating varying rates of development, the differences of steepness of

gradation, did not appear to be in harmony with the principles laid down by Mr. Watkins. Mr. Mees did not agree. With factorial development, it was held that all the factors wanted were in the straight portion of the curve. If one plate were to take longer to develop than another, then the time of first appearance of the image would be delayed. Although all photographers should be grateful to Mr. Watkins, for introducing his system, yet it was not strictly accurate. As a matter of fact, the variation in Watkins' factors with different developers, might be regarded as due to small accidental variations. Organic developers gave small disturbing affects which produced these variations. Moreover, the X factor altered with various strengths. With rodinal, for instance, this was very roughly proportional. With a 1 in 8 solution, the X factor equals 8. With 1 in 40 the X factor equals 40, and so approximately. He was decidedly of opinion that the best plan to adopt, was to first ascertain the length of time necessary for correct development of any particular plate, at a given temperature or temperatures, and then to develop for that period. A vote of thanks to the lecturer was passed with the utmost heartiness.

## THE CAUSE OF THE FOGGING OF PLATES IN TROPICAL CLIMATES.

(A Paper in the "Chemical News.")

Some time ago, while in Upper Egypt, I had occasion to use a full-length camera with wooden double dark slides. I found the plates to be nearly always fogged, notwithstanding the fact that the slides were perfectly light-tight and all the ordinary precautions of the dark room were taken.

The fogging sometimes showed itself as an opaque clouding all over the plate; sometimes the outline of the woodwork of the slide could be seen, and sometimes the grain of the wood was distinctly visible.

Shortly after I had made these observations, an eclipse of the sun occurred which was total at Assuan, and many scientific men went there to photograph it. On developing their plates, they found that many of them were rendered worthless or their value as a scientific record was greatly diminished by the same kind of fogging which I have described, and they were at a loss to explain it, although some suggested radio-activity. I have recently investigated this, and the result gives what appears to be the explanation.

### Artificial Tropical Climate.

I took a quarter-plate double dark slide and placed two special rapid plates in it. On the one plate I put a thin piece of tissue paper, in the centre of which I had cut out a star-shaped hole; on the other plate I put an ordinary glass microscopic slide. These objects were inside the slide, and in actual contact with the film. I then placed the double dark slide in a metal box and heated it up about 40 deg. C., which is the average temperature of Upper Egypt in the summer time. The slide was placed on a porcelain support in the metal box, which was heated by a lamp.

After heating for fifteen hours I developed the plates, and found them to be very strongly fogged, the film being quite opaque; but under the place where the thin tissue paper was, and also under the microscopic slide was, there was no fogging. In the centre of the tissue paper I had cut a star-hole and on the plate opposite to it was a star-shaped mark which was quite opaque.

I tried various other objects, and found that they acted in a similar manner.

### Emitted Vapour is the Cause of Fog

The fact that the agent which produced the fogging could not penetrate glass or transparent tissue paper shows that it cannot be due to ethereal vibrations at all of the nature of light. It is due to vapours which are occluded in the wood at ordinary temperatures, but which are exhaled when the wood is heated. These vapours, which may be peroxide of hydrogen or volatile organic compounds from the varnish, possess the chemical property of reducing the salts of silver which are contained in the film, so that on development the plate appears to have been exposed to the light.

I tried another experiment by fixing a piece of brass tubing in a hole cut in the slide and making the joint light-tight, a plate was then put in, and the whole heated to 40 deg. C. in the metal box as before.

The brass tube was connected to a water-pump, by which the vapours in the immediate vicinity of the tube were aspirated out. The fogging appeared to be less under the place where the tube was than on any other part of the plate.

### Addressed to Tourist Photographers.

The value of these experiments to the photographer going abroad is apparent. He should get a thin piece of glass or mica with which to cover the plate in the dark slide and protect it from the vapours, and fogging would be entirely prevented by this means.

If the dark slide was opened and heated for some days, there is little doubt but that the vapour which causes the fogging would be expelled, and it could then be used with confidence in the tropics.

The simplest method of preventing the fogging is to paste a piece of paper over the inside of the wooden sliding pieces which are pulled out when the plate is about to be exposed, which effectually prevents the vapour from diffusing out of the wood on to the photographic plate.

JOHN McDOWALL, F.C.S.

The City Sale and Exchange have added another to their three photographic supply houses. The new establishment, to be known as the Sloane Square branch, is situated at 26 and 28, King's Road, W. In addition to maintaining the trade on the lines of the other two houses, namely, the keeping of a universal stock of apparatus and materials and accepting used apparatus in part payment for new, the West-end branch will devote a special large department to professional supply. Accommodation is provided for back-rooms, furniture, and all studio accessories, and a large stock of cases and other requisites employed by professional photographers

will be kept. The new business will commence, under the management of Mr. W. Robbins, during the course of next week.

CRITERION P.O.P. Competition.—The Birmingham Photographic Company's Competition for the best print on Criterion P.O.P. or Estona self-toning papers, has resulted as follows:—1st Prize (two guineas), F. F. Johnson, 63, Harlesden Gardens, Harlesden, N.W. 2nd Prize (one guinea), A. E. Parry, 11, Westmoreland Road, Liscard, Cheshire. 3rd Prize (5s. 3d.), C. V. Taylor, 5, Craven Road, Rugby. 4th Prize (5s. 3d.), H. Sutcliffe, 5, Golden Street, Paternoster, near Manchester. (The third prize being divided.)



## ROYAL PHOTOGRAPHIC SOCIETY.

THE session of the Royal Photographic Society opened on Tuesday evening last by a reception and conversazione, the occasion serving to mark the occupation of the enlarged lecture-room which has resulted from the removal of the partition wall between the old lecture and council rooms. The alterations which have been in progress during the summer months has placed at the Society's disposal a room which can accommodate upwards of 200 people, all of whom can obtain a comfortable view of the lantern screen.

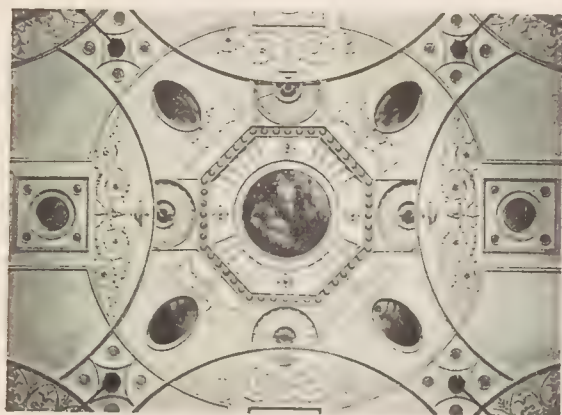
wall-covering to the meeting room. The lantern screen is painted permanently on the wall, the white space being covered by green-covered shutters, which allow of pictures being hung on it, and thus preserve the continuity of the walls when photographs are hung upon them.

A large company assembled on Tuesday evening and approved these new arrangements. Some, perhaps, were visiting the house of the Royal Photographic Society for the first time, and



The new lecture room at the House of the Royal Photographic Society, 66, Russell Square, London. The left-hand photograph shows the lantern screen, which is covered when not in use by shutters covered to match the walls.

In addition to providing this facility, advantage has been taken of the change to re-decorate the room, and to fit it more adequately for the house exhibitions which are regularly held at Russell Square. The walls are draped for a height of six feet above the



Ceiling of new lecture-room at Royal Photographic Society. Probably painted by Angelica Kaufmann about the year 1770.

dado with a green arras cloth, which, though of somewhat strong colour to our thinking, is infinitely superior to the previous red for exhibition purposes, and at the same time serves as a suitable

therefore be interested in hearing of its history. No. 66, Russell Square is part of what was originally Bolton House, built in 1799 by Lord Baltimore. In 1799 Lord Loughborough, the Lord Chancellor of the day, took a lease of the house until 1806, about which date the house was divided, and 66, Russell Square became known as such. At that time there were no buildings between the house and the present Guilford Street, for it was not until 1845 that buildings extended northward towards the present site of the House of Russell. Had the Royal Photographic Society had its home in Russell Square in Thackeray's days, its surroundings would have been exclusively the sombre and respectable one of City merchants and of those who wished for quiet in the centre of London. A motor omnibus has changed the character of the square completely, and the majority of its present residents, such as Mr. Geo. Grossmith and Miss Gertie Millar (Mrs. Lionel Monckton), doubtless put up with the scream of the traffic for the sake of being within a five-minute drive of the West End.

Members and friends on Tuesday were received by Lord Crawford (past-President), in the absence through continued indisposition of Major-General Waterhouse (President). Lord Crawford afterwards delivered a short address, in which he welcomed those present, and invited them to inspect the demonstrations and objects of interest. These, as already announced in our columns, included printing by the mercury-vapour lamp of Messrs. O. Sichel and Co., portraits by the mercury-vapour lamp by Messrs. A. W. Isenthal and Co. Kay; three-colour photography by Mr. H. W. Lewis, of the James's Studio; and selected objects under the microscope of Messrs. R. and J. Beck. The house exhibition of photographs by Mr. H. W. Bennett was also visible for the first time, and will be reviewed in our next issue. The function, which, in spite of the inclement weather, was attended by a large number of persons was of a most enjoyable character, and augured well for the open session of the Royal Photographic Society.

## MR. J. T. SANDELL—AN APPEAL.

THE following list of donations received since the appearance of these in our last issue has been sent to us for publication by Mr. Thos. K. Grant, who, with Mr. J. B. B. Wellington, will be glad to receive and acknowledge further amounts:—

	£	s.	d.
Sale of Japine prints from Mr. Sandell's negatives by Platinotype Co., per W. H. Smith .....	1	12	6
Member of Croydon C.C. ....	0	2	6
R.A.C. ....	0	2	6
Leicester and Leicestershire Pho. Soc., per C. W. Leake (Assist. Sec.) .....	1	1	0
Oxford Camera Club, per G. W. Norton (Hon. Sec.)...	6	10	0
Sheffield Photographic Soc., per J. W. Wright .....	1	6	0
E. J. Ellery .....	0	5	0
South London Photographic Soc. (J. H. Chatterton, 21s.; G. F. Whiles, 5s.) .....	1	6	0
	£12	5	6
Amount previously acknowledged .....	109	18	0
	£122	3	6

## Exhibitions.

## WATFORD CAMERA CLUB.

THE fourth annual exhibition of this club was opened on Wednesday, October 31, by the president (Lord Hyde), and remained open the following day. The judge (Mr. F. J. Mortimer) made the following awards in the open classes:—

Champion.—Silver plaque (No. 5) "October," Fred. Judge. Hon. mention (No. 5) "Gooseberries," Percy W. Morris; (No. 10) "A November Morning," S. G. Kimber.

Landscape, etc.—Silver medal (No. 53) "Roofs of Edinburgh," Arthur W. Walburn. Bronze medal (No. 51) "In Harbour," E. J. Jarvis. Hon. mention (No. 12) "A Lonely Valley," Chas E. Walmsley; (No. 13) "A Summer Sea," Frank Wm. Beken; (No. 21) "The Deserted Ice," Hy. Bond.

Portraiture, etc.—Silver medal (No. 63) "Life's Aftermath," Henry Holt. Bronze medal (No. 93) "The Coquette," Harry Lindoe. Hon. mention (No. 98) "The Butterfly," Aubrey Harris; (No. 86) "The Sick Doll," E. T. Holding; (No. 79) "Diligence," Miss M. E. Wright. Architecture.—Silver medal (No. 107) "N. Triforium, Gloucester," Wm. A. Clark. Bronze medal (No. 111) "A Ray of Sunshine," W. J. Johnson. Hon. mention (No. 113) "The Crypt, Gloucester," S. G. Kimber; (No. 108) "A Sunlit Cloister," W. A. Clark.

Still Life.—Silver medal (No. 120) "A Fruit Study," A. W. Walburn. Bronze medal (No. 130) "Double Daffodils," A. E. Henley. Hon. mention (No. 117) "Shirley Poppies," J. E. T. S. Hilton; (No. 128) "Gooseberries," W. A. Andrews.

Lantern Slides.—Bronze medal: "A Confidential Chat," A. G. Thistleton. Hon. mention: "With Wind and Tide," Miss Kate Smith; "A Dreary Day," J. Ludlam; "Snowdon, Veil'd in Vapour," Graystone Bird.

Any Subject.—Silver medal (No. 143) "The Little Gold Pig," Miss Kate Smith. Bronze medal (No. 142) "Landing the Catch," Miss Thomson. Hon. mention (No. 158) "A Stormy Sunset," Percy W. Morris; (No. 170) "A Deserted Mill," W. A. Andrews.

A PHOTOGRAPHIC society is in process of formation in the Wealdstone district, and should find many members among the employees at the Kodak works. Those interested are asked to communicate with Mr. E. A. Robbins, Newlyn, Bedford Terrace, Station Road, Wealdstone.

ROYAL INSTITUTION.—A General Monthly Meeting of the Members of the Royal Institution was held on the 5th inst., the Duke of Northumberland, K.G., President, in the chair. The special thanks of the members were returned to Dr. Albert P. Brubaker for his present of a portrait of the late Dr. Tyndall, and to Mr. Hugh Spottiswoode for a gift of apparatus.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents have been received from October 22 to 27:—

ETCHING.—No. 23,382. Improved method of etching and apparatus therefor. Eugen Albert, 23, New Bridge Street, London, E.C.

OPTICAL LANTERNS.—No. 23,526. Improvements in optical lanterns. Robert Thorn Haines, Chancery Lane Station Chambers, London.

GLAZING PRINTS.—No. 23,811. Improvements connected with apparatus for burnishing and glazing unmounted photographs and burnishing mounted photographs. James Thomas Eltringham, Lloyd's Bank Building, Canute Road, Southampton.

DEVELOPING TABLE.—No. 23,816. Photographic developing table. William Snow Rogers, Graystroke, Farnham Common, Slough, Bucks.

CINEMATOGRAPHS.—No. 23,904. Improvements in cinematographs. Leo Kamm, 27, Powell Street, Goswell Road, London, E.C.

## COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

COLOURED PHOTOGRAPHS.—No. 5,822, 1906. The present invention relates to the production of coloured photographic pictures by applying a coloured photographic film to a coloured photograph or other base, and its objects are to so carry out the different stages of the process that the photographic film shall be absolutely coincident with its coloured base, and also that softer and better effects may be obtained.

The outlines of a photograph film picture are traced, and this tracing is transferred to the foundation on which the coloured picture is to be produced, such as wood, paper, cloth, ivory, leather, or metal. The film itself is then attached to a support or carrier, as, for instance, paper, celluloid or glass, this support being so prepared that the film may easily be detached from it. For this purpose a coating upon the carrier of gelatine to which tannin or tannic acid or formalin or chrome alum is added to prevent it from expanding or dissolving, has been found suitable, the attached film then being incapable of undergoing any change even when submerged in water. The film thus remains exactly co-incidental with the traced outlines whatever the adhesive employed to connect them together may be. To enable the film to be detached from the carrier the dried gelatine coating is covered with shellac which is allowed to dry, and then coated with a suitable wax, for instance, dissolved in ether. On the thus prepared surface of the carrier the film is placed and adheres until it is sufficiently heated, when the picture becomes detached and peels off.

The copy of the picture obtained from the tracing by transferring it to the foundation to be painted is simply painted in the desired colours. The colours should be carefully smoothed by means of a suitable tool. If the coloured surface were too rough, its appearance would be improved, but would still appear rather rough in the finished picture. The effect of the smoothing may be observed during the painting by simply putting the transparent support with the attached film on the painting to register therewith so that failure is practically impossible.

After the copy of the tracing has been coloured as desired, the film is placed on it in exact register, and is attached to it by means of a suitable adhesive, as, for instance, a solution of shellac or gelatine, to which acetone or other liquid is added in sufficient quantity to soften the film or the picture but not to dissolve it in order that the colours may enter into the softened film, which is very important, as a colour effect is thus obtained which has never before been approached, while a most intimate attachment between the two layers is obtained. The film is then detached from its support.

The adhesive is preferably put on the coloured foundation so that its effect only starts after the film has been put on



and obliteration of the outlines of the picture is avoided. It is easy to observe whether the two pictures actually coincide when using a transparent support or carrier for the film. If the carrier support is not transparent, marks should be provided in order to facilitate the exact putting together of the painted drawing and the film.

Failure in making the drawing and the photograph coincide is almost excluded as neither the tracing nor the foundation, nor the film is liable to shrinkage or expansion, and are therefore bound to coincide. The faithfulness of the photograph remains unimpaired even in the smallest details, and the finished pictures show a freshness of colouring hitherto only obtained in the paintings of artists.

Imitation oil paintings may thus be produced on cloth, imitation water-colour drawings on paper, silk or the like, or imitation miniatures on ivory.

In especially small and fine pictures, the back of the film may also be coloured. This may be advantageously effected by first treating the film with an acetone or similar solution and then colouring the details such as the lips, cheeks, eyes, gold ornaments, lace and the like, these colours becoming fixed by the acetone solution and harmonising with the colours on the foundation when the surfaces are finally united. Carl Pietzner, Z. Mariahilferstrasse, Vienna VI.

**SELF-TONING PAPERS.**—No. 10,051, 1906. This invention relates to self-toning silver chloride printing papers for use in photography. Self-toning silver chloride printing papers prepared from an emulsion containing gold are liable, the inventor states, to spoil if kept in stock for some considerable period. This is especially liable to occur when the paper has been prepared from an emulsion in which the gold is in the form of a chloride; but even when the gold salts employed are free of chlorine, it is not possible directly, that is to say, by means of a sodium chloride bath, the use of which is in all cases considered to be indispensable, to produce tones which, in the well-known tone scale, passing over warm brown or violet-red, approximate to violet blue.

As the result of considerable research, the inventor has, however, discovered that it is possible satisfactorily to prepare an emulsion containing gold chloride, self-toning silver chloride printing papers for which no special toning bath is required. This can be effected by adding to the emulsion one or several lead salts suitable for use in toning, such, for instance, as nitrate or acetate of lead. The use of lead salts in a toning and fixing bath is, of course, not novel; but they have not heretofore been used in the preparation of a self-toning printing paper. By the use of a lead salt in accordance with this invention, a self-toning printing paper prepared from an emulsion containing gold chloride, even in small quantity, can, notwithstanding that it has been kept in stock for a considerable period, be rapidly and satisfactorily toned by means of a bath of sodium chloride; and under precisely similar conditions, that is to say, with the same sodium chloride bath, and the same toning period, there can be produced tones which are much higher in the tone scale, and which approximate much more nearly to violet blue. Good results are, for instance, obtained by the addition to the emulsion for each 100 parts of silver therein from 10 to 16 parts of lead nitrate and from 2 to 5 parts of gold chloride.

The emulsions heretofore usually employed, such, for example, as those of collodion or gelatine are suitable for use in accordance with this invention, the salts of lead being preferably added thereto before those of gold. Oscar Hermann Steudel, Dornblüthstrasse, Dresden.

**SHUTTERS.**—No. 20,800, 1905. The invention relates to photographic shutters of the roller-blind type known as time and instantaneous, more particularly to the well-known "Thornton-Pickard time shutter."

In this class of shutter for time exposures the travel of the roller-blind is arrested (when the aperture therein is opposite the lens)—by a dog or projection on a disc rotated by the roller striking a tooth or projection on the releasing lever.

The inventors find that damage is done to these parts of the shutter by the blind being used for time exposure with a great

amount of tension on the operating spring causing the disc to rotate at a very rapid rate, whereas if it were travelling slowly no such damage would occur.

This invention is designed to prevent the blind being caused to travel at a high speed and only permit of it being travelled at its slowest speed for time exposures.

It consists essentially in constructing the shutter with the releasing lever connected directly or indirectly with the spring click or pawl which holds the spring driven roller, so that when the releasing lever is set for "time" the spring click or pawl will be thrown out of engagement with the ratchet, thereby releasing the spring and allowing it to run off to its lowest tension. The Thornton-Pickard Manufacturing Co., Ltd., George Arthur Pickard, and Frank Slinger.

**DEVELOPING CHAMBERS.**—No. 20,502, 1905. The claim is for a "dark box" in which plates can be developed, bromide prints, etc., made, the whole being portable. Silvius Jean Stefanescu, Kudsir, Hungary.

## New Books.

**"Künstlerische Landschafts-Photographie"** (Artistic Landscape Photography). By Geh. Reg. Rat. Dr. A. Miethe. Halle: W. Knapp. M. 8.

This is a very sumptuous book, the letterpress of which has the aspect of a Kelmescott edition; but the numerous cuts have suffered by over-inking. Dr. Miethe is well enough known in the scientific paths of photography, but many will be surprised by his entry into those of art. He has proved, however, that the task sits easily upon him. This is a second edition, revised and enlarged, of work carried out with German thoroughness. No point of pictorial importance seems to have escaped the author. He says that the book is intended for those who have mastered technical difficulties nevertheless Chapters 2 and 3 deal with apparatus, and another with perspective. Dr. Miethe can be studied with interest in such matters as Light, "Motive," Mood (Stimmung), Air and Water, of which he says that the old school treated them with stepmotherly neglect. His concluding words regarding "Manner" are worth quoting:—"We consider it false and unworthy of landscape photography to obtain, by the help of handwork on the finished picture an effect which was absent in the original."

MESSRS. HENRY SOTHERAN AND Co., 140, Strand, London, W.C., have issued Part I. of their "Bibliotheca Chemico-Mathematica," a list of old books on chemical and general scientific subjects. The list goes as far as G, and includes Daguerre's "Historique et Description des Procédés Daguerreotype et du Diorama," the first work on photography in any language, and now very scarce. P. H. Delamotte's "Practice of Photography" is another of photographic work included. Students of the early history of photography may bear in mind the publication of the later portion of Messrs. Sotheran's list.

## CATALOGUES AND TRADE NOTICES.

Mr. R. R. Beard, the well-known lantern expert, of 10, Trafalgar Road, Old Kent Road, London, S.E., has issued a new price-list of lantern and cinematograph apparatus, the majority of the articles being manufactured by himself.

MESSRS. A. E. STALEY AND Co. have at the disposal of members of the photographic trade an interesting book published by the Bausch and Lomb firm, describing the manufacture of lenses in all its branches. The volume, which is excellently "produced," will be sent to anyone in the trade for 3d., or to other applicants for one shilling.

THE Hackney Exhibition opened on Wednesday in the King Hall, Hackney Baths, N.E. There is a good trade show and strong showing of members' work, of which we will write in our next issue. We advise all our London readers who can do so visit the exhibition, which closes on Saturday evening at 10 p.m.

# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

No.	Name of Society.	Subject.
	Photo. Society of Ireland.....	"Why?" R. Benson.
	West London Photo. Society..	"Emulsion Making." Demonstrated. W. G. Cullen.
	Hampstead Scientific Society	"Recent Research in Heredity and Evolution." J. T. Cunningham, M.A.
	Aberdeen Photo. Assn. ....	"Theory and Practice of Self-toning Papers." R. W. Wearing.
	Blackburn Camera Club .....	"Ozotype Process." T. Manly.
	Oxford Camera Club .....	Members' Slides.
	Southampton Camera Club ..	Champion Lantern Slide Competition
	South London Photo. Society	"How to Work the Optical Lantern." C. F. Dickinson
	Gravesend and Dis. Photo. Soc.	"Ancient and Modern Developers." J. A. Mitchell and T. L. Winnett.
	Luton Camera Club.....	"Enlarged Negatives and Paper." Mary B. Staddon and W. H. Cox.
	Preston Camera Club .....	"Carbon Process." Demonstrated. R. Wolstenholme.
	Lancaster Photo. Society .....	"Artificial Light as Applied to Fixed Focus or Daylight Enlarging Apparatus." R. W. Wearing.
	Leek Photo. Society.....	"Enlarging." Demonstrated. V. Prince.
	Bury St. Edmunds Photo Soc.	"Stereoscopic Photography." C. P. Goerz.
	Leeds Photographic Society...	"Florence the Beautiful"—its Scenery, its Art Treasures, and the Tragedy of the Renaissance. Thomas E. Green.
	Keighley and Dis. Ph. Assn. ....	"With Camera in Connemara." J. Dodgson
	Southall Camera Club.....	"Latest Kodak Productions."
	Darlington Camera Club .....	1. "Synaloids." R. Borrow. 2. "Osborne Carbon Process." H. E. Baker
	Glasgow Southern Ph. Assn. ....	Lecture Illustrated.
	Hove Camera Club .....	Informal Evening.
	Barton-on-Trent Nat. His. A.S.	1. "The Japine Platinotype Process." 2. "Dry Mounting." E. Abrahams.
	Tamworth and Dis. Ph. Soc. ....	Enlarging Simplified.
	Birmingham Photo. Society ..	"A Tour from Winchester to Canterbury by the Pilgrims' Way." Dr. John W. Ellis, F.R.S.
	R. P. S. ....	Ordinary Meeting. Presidential Address. Paper by H. W. Bennett, F.R.P.S., upon the House Exhibition
	Hackney Photo. Society .....	Lantern Lectures by H. W. Dunkley, J. O. Grant, and A. J. Linford.
	Chichester Photo. Society.....	"Sports and Pastimes with the Goerz Anschutz Folding Camera."
	Herefordshire Photo. Society...	"Pictures with the Goerz Lens."
	Sefton Park Photo. Society .....	"Lantern Slides." Demonstrated. F. G. Fryhorn.
	Croydon Camera Club.....	"Ozobone." Thos. Manly.
	Worcestershire Cam. Club....	"Theory and Practice of Self-Toning Papers"
	Borough Polytechnic Ph. Soc.	"Lantern Slide Making by Contact and Reduction." W. Page.
	West Surrey Photo. Society ..	"What can be done with a Hand Camera."
	Crompton Camera Club .....	"Telephotography." C. P. Goerz.
	Handsworth Photo. Society .....	"Theory and Practice of Self-toning Papers." C. P. Goerz
	Liverp'l Amateur Photo Assoc.	"Cave Exploration." Dr. C. A. Hill.
	Hull Photographic Society.....	"Flower Photography." Y. P. U.
	North London Photo. Society	Lecture. W. H. Atkinson.
	Blenheim Club.....	"Natural History Photography." B. Pennett.
	Chelsea and Dis. Photo. Soc. ....	"Smoking Concer."
	London & Prov. Photo. Assoc.	"A Dive into Belgium." W. L. F. Wastell, F.R.P.S.
	Richmond Camera Club .....	Open Night.
		"A Holiday Jaunt in Belgium." Dr. Rodman.

**SOUTH LONDON PHOTOGRAPHIC SOCIETY.**—"Architectural Photography: What to Take and How to Take It." was the subject of a lantern lecture, on the 5th inst., by Mr. H. Creighton Beckett. The lecturer having described the apparatus requisite for successful work, proceeded to give much useful information on the general subject of architectural photography, illustrating his remarks by an imposing array of upwards of 200 slides. Architectural subjects are usually improved by being taken at an angle instead of full on. It is also frequently advantageous and conducive to a pleasing picture to include some of the surroundings. Interior views are often greatly improved if taken when the sun is shining and the composition is so arranged that patches of sunlight break up spaces otherwise dull and uninteresting. The camera should never be placed in the centre of a nave or aisle, and should be kept as low as possible, never above eye level. Arches should always be shown

complete. Compose your pictures of interiors so that the brightest high lights are nearest the deepest shadows. Over, rather than under, expose. The various styles of architecture—Saxon, Norman, Early English, and Gothic—were described and illustrated. Detail work in the shape of capitals, ceilings, fonts, tombs, gargoyles, sanctuary knockers, bench ends, etc., to which Mr. Beckett has given special study, was indicated as one branch in which the photographer of architecture might find endless scope for useful and interesting work.

**SOUTHAMPTON CAMERA CLUB.**—On November 5 Mr. W. Farren, of Cambridge, lectured on "Wild Bird Life With the Camera." The lecturer pointed out the common instinct of the sportsman and the naturalist-photographer in the pursuit of the wild bird life of the country, and claimed for the latter equal pleasure in the pursuit without the destruction which the former brought about. In a series of unique slides, numbering over one hundred, Mr. Farren portrayed the habits of many of our wild birds, and detailed the habits and home life of not only the better known but the more rare species, an especially successful set being that pertaining to the snipe. The plover family, so difficult to deal with in this way, and the various families of our sea-birds all received attention, and in a manner which gave only a slight realisation of the immense patience and skill required to produce the results achieved. Mr. Farren dealt with the photographic side of the work for the benefit of the members in thorough fashion, among his points being the following:—In place of setting up the camera and depending on a long rubber or electric release, he advocated the use of the tree trunk tent, an erection of a small framework with a canvas cover painted roughly to resemble a tree trunk, in which the worker may be concealed, the deception of which might be heightened by the aid of a few branches arranged round it. He stated that with care this enabled the worker, though cramped somewhat, to be in close proximity to the nest of the bird, and that experience proved that the birds readily used themselves to such a structure. He warned the naturalist-photographers never to be in a hurry, and impressed upon them the advantage of using the single combination of their lenses, which increased the focal length from the ordinary nine inches to that of fourteen, and showed a number of slides illustrating the difference between the one method and the other. In the matter of baiting for the attraction of birds of the town-garden order, he advocated the use of soaked bread as preferable to the crust variety, for the reason that the birds decamped with the latter and spoiled the photographer's opportunity, while the soaked variety kept them hard at work picking up sufficient quantity.

**CROYDON CAMERA CLUB.**—Mr. Braham, of the Autotype Company, who is quite an old friend at Croydon, on the 31st ult. gave a capital exposition of the carbon process. With a range of over thirty colours to select from, the worker must be hard indeed to please who cannot find one or the other appropriate for the subject, especially as each colour can be modified largely by employing tinted or coloured supports. Even rather an outré base, such as silver, looked well, and gave a realistic print (forming a trade card) for silverware and spoons, as did a "flaming red" in firelight scenes. A short cut to pictorialism is also provided by texture films. By means of these ingenious contrivances a carbon print can be made to resemble a coarse or fine line half-tone block at will; and a dead smooth paper to approximate to a rough one very closely. Apart from these, and possibly other facilities, the films would doubtless afford broad effects by mechanically suppressing excess of detail. A large number of beautiful Autotype prints for the time being adorned the club walls, including the inevitable but invariably pleasing "Sleepy Hollow." A most hearty vote of thanks was accorded Mr. Braham. In the course of the evening the President, Mr. W. H. Smith, announced that the Platinotype Company had with pleasure consented to furnish prints to members, from 15 x 12 negatives, taken by Mr. J. T. Sandell in Italy. These would be for sale at a certain price, the entire amount realised to be devoted to the fund now in existence. The Adhesive Dry Mounting Co. had also kindly undertaken to mount the prints without charge. Many availed themselves of this offer.

**NEWCASTLE-ON-TYNE AND NORTHERN COUNTIES PHOTOGRAPHIC ASSOCIATION.**—At the annual meeting of the above Association, held October 31, the following officials were elected for the forthcoming session:—President, J. W. Dyson; Vice-Presidents, W. E.



Cowan, J. J. Kirkwood, W. Dotchin, J. H. Holmes, Arthur Payne, F.C.S.; Council, W. Parry, W. S. Corder, W. D. Cookson, D. A. Lowery, T. M. Clague, E. Holmes, Douglas Waite, E. G. Lee, J. Hume Harbottle, David Thomas; Hon. Lanternist, T. Bulman; Auditor, T. M. Clague; Secretary, F. Milburn, 75, Rothwell Road, Gosforth, Northumberland; Assistant Secretary and Treasurer, Arthur Scott, 9, Myrtle Grove, West Jesmond, Newcastle-on-Tyne. The Association has now made arrangements to hold meetings at the Armstrong College. Meetings are now held on Wednesdays instead of Tuesdays.

**SWANSEA CAMERA CLUB.**—The annual general meeting of the Swansea Camera Club was held at the Society's rooms, 15, Temple Street, last week. Mr. J. Trevor Owen, M.A., presided, and a large number of members attended to elect officers and arrange the winter programme of lectures, competitions, etc. Mr. J. Trevor Owen was unanimously re-elected president, Messrs. P. Courtois and W. R. Stephens were elected vice-presidents, Mr. R. David Burnie secretary, and Mr. J. P. Robinson assistant secretary and treasurer.

## New Materials.

**Actinos P.O.P.** Sold by the Lumière N.A. Co., 4, Bloomsbury Street, W.C.

The special feature in this paper is that the emulsion contains no free soluble silver salt; there is, therefore, no possible chance of silver stains on negatives when printing in damp weather, and the paper should keep well.

Its treatment in no way differs from that for ordinary P.O.P. containing free silver. Printing must be carried to the usual depth, and the prints well washed prior to toning, which may be effected either in the combined or separate baths, with gold or platinum or both.

The intensity obtainable with this paper is good, and the gradation satisfactory. We should call it decidedly a brilliant working paper. There is some loss in the operations of toning and fixing, but the whites keep clean. The paper can be obtained in three surfaces—glossy, matt, and rough art, and for large subjects the last is a very pleasing texture.

**CHRISTMAS Greeting Postcards.**—Messrs. Wellington and Ward send us specimens of their series of bromide, S.C.P., and P.O.P. postcards, bearing inscriptions of a suitable Christmas character on the address side. The P.O.P. cards are sold at twelve for 6d., the others at eighteen for 1s.

## News and Notes.

**MR. LANG SIMS**, Brixton, S.W., has been again returned in the Borough Council elections.

**HYPERFOCAL DISTANCE.**—In reference to Dr. Lindsay Johnson's recent communication to the "Journal of the Royal Photographic Society," a correspondent sends us a reference to "The Photogram" (now "The Photographic Monthly"), for 1904, p. 229, in which the identical short cut to calculation suggested by Dr. Johnson is given by Mr. A. Mackie. The paragraph is as follows, from which it will be seen that Mr. Mackie corrects the approximate results obtained by the rule in the form given by Dr. Johnson, by adding half an inch for each foot:—"All calculations connected with depth of field are based upon the hyperfocal distance, that is to say, the nearest point which must be focussed in order to obtain all objects behind it in apparently equally good focus, and this distance differs materially according to the focus of the lens, the size of the stop, and what is allowed as the diameter of the diffusion disc of a mathematical point. The diffusion disc for ordinary photographic work is usually taken at 1-100th of an inch. The mathematical formula as given in the text-books is not a difficult sum, but my own adaptation of it reduces the calculation to one of mental arithmetic. I say my own adaptation, because I have never heard of any one else using it. It is:—Square the focus of the lens in inches and take the result as feet. To be exact, there should be added half an inch for each foot. That will give the hyperfocal distance of the lens at  $f/8$ . For example, a 5-inch lens will be  $5 \times 5$  in. = 25 feet + 25 half inches = 26 feet  $\frac{1}{2}$  inch. For other stops the distance is in direct proportion to the stop diameter, and the rule is:—Multiply by a fraction, having 8 as the

numerator and the stop fraction as the denominator, thus:— $f/4$  8-4 or 2;  $f/16$  8-16 or  $\frac{1}{2}$ ;  $f/32$  8-32 or  $\frac{1}{4}$ , and so on. The intermediate stops, which include decimal fractions, involve a few more figures. To the user of a stand camera calculations relative to depth of field are comparatively unimportant; he can adjust his stop to suit the picture as he views it on the focussing screen, but to the user of the hand camera they are all-important. The whole question of depth of field is so lucidly treated in "The Lens," by Thomas Bolas, F.I.C., and George E. Brown, F.I.C., in the chapter devoted to the subject that it is a very practical hint to refer my readers interested in the subject to the book."

**SHEFFIELD Photographic Society Exhibition.**—The prospectus for the forthcoming exhibition in February next, at which Mr. Chas. Bayley will be the only judge, has been published, and is obtainable from the Secretary, Mr. James W. Wright, 62, Vale Road, Sheffield. The Society has made arrangements for the free carriage of exhibits between the Sheffield, Nottingham, and Leicester Exhibitions, and has also instituted reduced fees for exhibitors at all three towns. One entry form only is required for all three shows.

A MEETING of the National Photographic Record Association will be held at the Midland Grand Hotel, St. Pancras, Wednesday, November 14. Afternoon tea will be served at four o'clock. A report will be presented and a discussion invited upon "Record Work," and a collection of photographs by Sir J. Benjamin Stoddart and other members of the Association will be exhibited.

**COLOUR Photography.**—A small exhibition is being held this week at 43, Basinghall Street, London, E.C., of carbon three-colour prints by Mr. Otto Pfenninger, of Brighton, by whom all the negatives have been taken and the prints prepared on "Autotype" tissues. This exhibition, we are informed, is to demonstrate the possibilities of Mr. Pfenninger's camera for one-lens one-exposure colour photography, the inventor's object being to come into touch with those interested in placing the apparatus on the market. A number of the specimens shown were exhibited at the exhibition of colour photography at our offices in the spring, where they attracted some unfavourable comment. We are therefore glad to see in the collection at Basinghall Street a number of later prints which are fine in advance, technically, of those previously exhibited. Mr. Pfenninger will be in attendance until Saturday next, on which date at four o'clock, the collection will be removed. The collection will be on view, however, the next week, November 12 to 17, at the Photographic School, Polytechnic, Regent Street, W., by courtesy of Mr. Howard Farmer.

At the recent Milan Exhibition the firm of Dr. J. H. Smith and Co., of Zurich, represented in this country by Mr. Oliver Dawson of 254A, High Holborn, were awarded a gold medal for their photographic plates, films, and papers.

**THE Society of Colour Photographers.**—In accordance with the resolution passed at the meeting held at the offices of the BRITISH JOURNAL OF PHOTOGRAPHY on October 16 last, members of the newly formed Society of Colour Photographers are asked to attend a meeting at the same address on Thursday next, November 15, to receive the draft of the rules and recommendations drawn up by the committee and already published in the press. It is intended that the meeting be open only to members or those seeking membership. The time is fixed for 6.30 p.m.

**MR. R. LAUSTE**, of the Warwick Trading Company, is at present in Mombasa, Uganda. Mr. Lauste has already sent home some 2,000 ft. of films containing moving pictures of Mombasa City and of the Freretown C.M.S. Station. He will take pictures of our railway and the game herds on the plains; he will also visit Uganda and Lake Victoria Nyanza. The Colonial Office has granted special privileges to the Warwick Company so as to assist their agent in obtaining the best views the country affords. Mr. Lauste expects to secure some 30,000 ft. of films before returning.

A GREAT photographic exhibition is to take place in Dresden from May to September, 1910. It will not be confined to pictorial and scientific photographs and apparatus, but is intended to afford a comprehensive view of photographic art industry to its full extent. The making of cameras, the working of optical and process establishments (for heliogravure, phototype, rotary reproduction, etc.), will be shown in operation on the premises. The interest of public authorities has been secured for the exhibition, and distinguished specialists as well as reputed firms in Germany and abroad have promised the

support. The active co-operation of photographers' associations and photographic periodicals of every country will be invited, that the great object in view, a complete representation of photography, may be successfully attained. The management of the undertaking has been entrusted to the Deutscher Photographen Verein (German Photographers' Association), which is engaged with the preliminary arrangements in union with the Dresden Society for the promotion of Amateur Photography, and a considerable number of makers and dealers.

**Stoves for the Studio.**—Messrs. R. Beckett and Son, The Grove, Hackney, N.E., write us:—"Referring to your article on the warming of studios, we beg to draw your attention to enclosed list of gas stoves which we are putting on the market. They give a maximum heat with a medium amount of gas, and are guaranteed absolutely odourless. The prices, as you will see, are very low, and stoves are made to heat rooms from 7ft. square up." We suggest to our readers that many of them might do well to apply for the list of heating appliances.

**MESSRS. SANDERS AND CROWHURST, 71, Shaftesbury Avenue, London, W.,** have issued a new descriptive price list of the "Southport" enlarging table.

## Commercial & Legal Intelligence.

**PHOTOGRAPHIC Trade Mark Action.**—Mr. Kerby, in the London Chancery Division, on Nov. 2, before Mr. Justice Kekewich, said he had a motion on behalf of Kodak (Limited), for an injunction to restrain Mr. Grenville, a gentleman carrying on business in Corporation Street, Birmingham, from infringing the plaintiffs' trade mark known as "Brownie" films, which was the plaintiffs' registered trade mark. Counsel said there had been a good deal of litigation about this particular trade mark, but it had been decided, before Mr. Justice Swinfen Eady, that the plaintiffs were entitled to an injunction in cases where the parties sold photographic films other than the plaintiffs' when asked for "Brownie" films. Mr. Kerby read affidavits showing that a messenger was sent to defendant's shop in Birmingham for a Brownie film, and that he was supplied with another film, which was not of the plaintiffs' manufacture. Mr. P. Hayden Lawrence read affidavits on behalf of the defendant, to show that the messenger who went for the film was told that there were no Brownie films in stock, and was asked if another film would do. He said that it would. Mr. Justice Kekewich said that as at present advised he did not see where infringement came in, and as there was no urgency in the matter, he said he should make no order on the present motion, except that the costs of the motion be costs in the action.

**MR. CHAMBERLAIN'S Photograph.**—At the Birmingham County Court last week, before his Honour Judge Bray, E. H. Harris, printer, Constitution Hill, sought to recover £1 14s. 6d. for printing from Stewart E. Smith, lithographer, Jamaica Row, while the defendant counter-claimed for £7 13s. 2d. for loss alleged to have been sustained through the negligence and bad workmanship of the plaintiff. The case had reference to the printing of the portrait of Mr. Chamberlain in the centre of a decorated card bearing the words, "Souvenir of the celebration of the Right Hon. Joseph Chamberlain's birthday, and thirtieth year of Parliamentary representation of Birmingham." The plaintiff explained the rush with which the cards had to be produced, and maintained that those printed were up to sample. Mr. A. Ward (instructed by Mr. H. C. Edwards), who appeared for the defendant, produced one of the cards for inspection, and in cross-examination of the plaintiff pointed out that there was not a line across the sample, but, he added, "On those printed you give Mr. Chamberlain a mustachio." His Honour found for the plaintiff on the claim, and gave judgment for £5 15s. on the counter-claim.

### NEW COMPANIES

**PHOTOGRAPHIC NOVELTIES SYNDICATE, LIMITED.**—Capital £2,000, in 10s. shares. Objects: To adopt an agreement with R. M. Houldsworth, and to carry on the business of manufacturers of photographic novelties, manufacturers of picture postcards, etc. No public issue. Registered without articles of association.

## Correspondence.

\* \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE OZOBROME PROCESS.

To the Editors.

Gentlemen,—Referring to my recent letter on the Ozobrome Process (B.J., Oct. 12, p. 816), I have now tried the suggested addition of potassium citrate to the solution with a view to obtaining increased contrast, but cannot at all recommend it. Its action, even in very small quantities, is to cause all the lighter gradations to wash away in development, with the result that the gradation ends abruptly in the half-tones and the lighter gradations are absent. This gives an apparent increase of contrast, but at the expense of all truth of gradation.

There is one very important point in connection with Method I., or Non-transfer Process, to which attention is not drawn in the Ozobrome instructions, and that is that the bleached image beneath the carbon picture must either be removed by hypo and ferricyanide reducer, or else re-developed with developer or sulphide solution. The reason for this is that the bleached image is sensitive to light, and will in a short time, by exposure to light alone, become blackened almost to its original state. The Ozobrome instructions simply say:—"Should any of the black silver deposit remain under the gelatine in the very deep shadows, it may be easily removed by the ferricyanide and hypo reducer"; and again in the addenda to the instructions:—"In Method I. the bleached image beneath the carbon picture may be re-developed partially or entirely"; but I wish to lay stress on the necessity of either removing or re-developing this bleached image, as otherwise the print will entirely alter by exposure to light. It seems to me the only satisfactory way to make use of this bleached image in order to modify the picture would be to re-develop it entirely, and then remove portions of it with the reducer.—Yours faithfully,

S. C. PUDDY.

Arrington House, 87, Crouch Hill, N., November 6, 1906.

### THE STABILITY OF THE PYRO AND SODA DEVELOPING SOLUTIONS.

To the Editors.

Gentlemen,—In common with the rest of your readers I am keenly interested in your articles on the pyro-soda developer, and in connection with your comparative table and remarks thereon in to-day's issue, the following incident may be of interest.

I have been in the habit of using a pyro-soda developer that approximates as nearly to Mr. Bennett's formula as Mr. Herbert's does to yours, viz.:—

Pyro .....	1½ grs.
Potass. metabisulphite .....	½ gr.
Soda sulphite.....	11 grs.
Soda carbonate.....	11 grs.
Potass. bromide .....	½ gr.
Water .....	1 oz.

I do not know if I mix it differently in some detail, but I certainly do not find it keep as Mr. Bennett finds his, and some twelve months ago, having only a small batch of plates to develop, I made up only one-fourth of my usual quantity of solutions, but inadvertently weighed out metabisulphite for a full quantity.

I thus had four times the usual proportion, viz., two grains instead of half grain metabisulphite to the ounce of mixed developer, and the result considerably astonished me.

I always time first appearance of image, and with the above developer this takes place pretty generally in 40-50 seconds, development being complete in about five minutes.

With the developer containing the extra quantity of metabisulphite



the appearance of the image was delayed to such an extent that I concluded I must be developing an unexposed plate, and was on the point of putting it aside when I saw traces of it coming up.

Development prolonged to 20-25 minutes gave a negative distinctly less dense than the usual developer gave in five minutes.

Several plates behaving in the same way, the operation became too tedious and unsatisfactory, and I threw the developer away and mixed fresh solutions on the usual lines, and the rest of the plates developed quite normally.

As the proportion of metabisulphate was the only one varied, it would certainly appear that in a given proportion it acts as a powerful restrainer, and would not that theory coincide with your own experience with the developer you recommend before you increased the pyro and carbonate.—Yours faithfully,

R. E. WESTON.

Grove Lodge, Clarendon Road, Watford.

November 2, 1906.

#### To the Editors.

Gentlemen,—With regard to the notes which have appeared in recent issues, will you allow me to point out that litmus is not the most suitable reagent for testing the alkalinity or otherwise of sodium sulphite. Phenolphthalein is better, and if this be used it is quite possible that the neutral sodium sulphite solution will not be found neutral.

I venture to point this out because metabisulphite, being an acid salt, will, if pure, neutralise no less than 0.96 per cent. of the sodium carbonate crystal. Now, I can only imagine that carbonate can be the only alkaline salt in sulphite, and therefore 2 grains of metabisulphite would neutralise 1.92 grains of carbonate, and would mean that more than one-fifth of the sulphite was carbonate; surely this could not happen.

With regard to the note in your last issue, p. 863, as to Mr. Bennett's developer acting more rapidly, can this not be ascribed to the action of the bromide? When using Watkins' time development system, which I always do, I have found that invariably the addition of bromide reduces the factor, and this is shown by the following extract from Mr. Watkins' excellent little "Manual."

Grains pyro per oz.	Factor.	Bromide per oz.	Factor.
1	18	$\frac{1}{4}$	9
2	12	$\frac{1}{2}$	5
3	10	$\frac{3}{4}$	$4\frac{1}{2}$
4	8	1	4

Now as all three formulæ given by you have only  $1\frac{1}{2}$  grains pyro per oz., the factor would be 15 and 7 respectively. Would this not explain the anomalous behaviour of Mr. Bennett's developer?—Yours faithfully,

ARTHUR GASCOIGNE.

London, E.C.

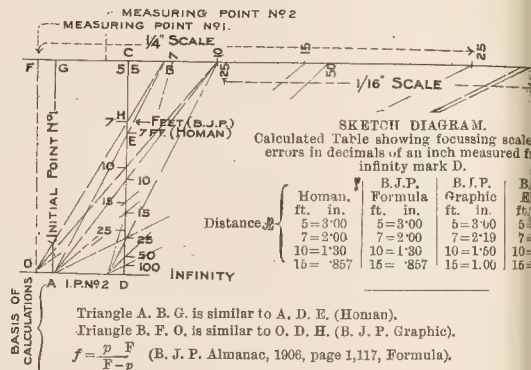
[We are obliged to our correspondents for the above suggestions, which will all be subjected to tests when we take up the further experiments. With regard to the neutralisation of the sulphite, there is probably a little carbonate present, though barely enough to detect. Independently, however, of the presence of carbonate, soda sulphite has an alkaline reaction, and so the question is somewhat complicated. The alkaline nature of the sulphite is noted by both Bloxam and Tilden. No doubt bromide lowers the factor, but it lengthens the time of appearance, and we can hardly realise that it is likely to considerably shorten the total time of development. Mr. Weston's experience is on all fours with ours, and is equally curious. We assume that he preserves the pyro with metabisulphite, and keeps the sulphite in the alkali bottle, in which case the want of stability is explained.—Eps. B.J.P.]

#### FOCUSING SCALES.

##### To the Editors.

Gentlemen,—A graphic method of delineating focussing scales appeared—I believe towards the end of last year's issue—in your Journal which was based on the principle of obtaining five inches of the required scale by actual test with the camera. The method was simple, but unfortunately not accurate, the errors being greater in the longer focal lengths, where accuracy is more essential, owing to the less apparent depth of definition they give on

the focussing screen, the error for an object ten feet distant amounting to upwards of 1-5th of an inch for a lens of twelve inch focus—a serious discrepancy. This is shown on the diagram below, which, for the sake of comparison, is superimposed on the diagram of my method, which is shown correctly on the right of CD; in juxtaposition with the other graphic method, the value showing the amount of error. This is the diagram of a focussing scale for a lens of twelve inch equivalent focus, and its correctness may easily be verified by the data given below.



The error diminishes as the focal lengths become shorter, is only .017 of an inch for a lens of six inch focus, but is never less incorrect; and in the present state of photography—where focussing by scale is coming daily more to the fore—not up-to-date—doubtless it has proved useful for the shorter focal lengths, thus justified its existence; but the advent of an exact method is my apology for troubling you at what I imagine must be a busy period of the year.

The diagram (enlarged up to 2 diameters) and description explain themselves, and will be endorsed with this letter.

If the diagram is reduced to exactly  $\frac{1}{4}$  the size—i.e., half scale—it will give a working focussing scale for a lens of six inch focal length, and might prove useful to those having lenses of this equivalent focus.

Trusting that the enclosed may prove of interest to you, remain, yours truly,

JULIUS H. HOMAN, Civil Engineer,

Vice-President, Mosman Photographic Society,

Redcot, Lennox Street, Mosman, Sydney, N.S.W.,

September 28, 1906.

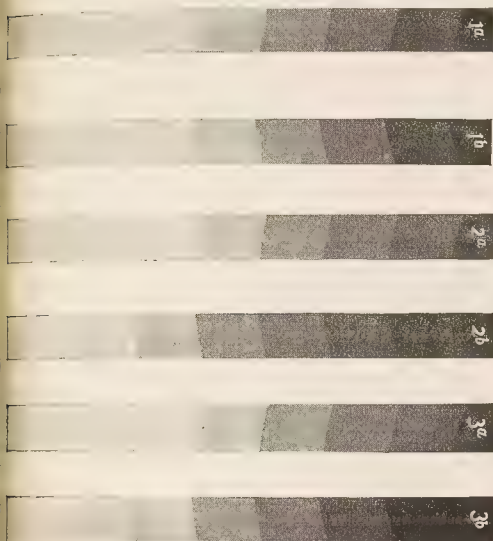
[The article referred to by Mr. Homan appeared in our issue of June 1, 1906, and it was followed by a letter from Mr. Braniff of June 15, raising almost the same points as are called in question by Mr. Homan. Mr. Homan is mistaken in his assumptions as to our graphic method, which is absolutely accurate, as stated in the article itself. The trouble is that Mr. Homan omitted to observe that the distances given by our method are extra-focal distances measured from the front principal focus of the lens, while those given by his method are nodal distances measured from the entrance node of the lens. Therefore, if he wishes to check our method by his he must add one focal length to our distances. With a twelve-inch lens the mark on the scale that represents an extra-focal distance of, say, seven feet also presents a nodal distance of eight feet. Owing to this miscomprehension of our method, the figures given in his comparative table are all wrong and meaningless. We must congratulate him on the diagram given in his article, which, as we know from experience, represents the solution of a very difficult problem. He gives proofs, but, the results being accurate, we assume the diagram to be correct. Its complexity, as compared with the simple diagram given in our article, shows the great disadvantage of measuring conjugate distances from the nodes. If extra-focal distances alone were considered, all problems relating to conjugates are perfectly easy while the use of nodal distances renders the simplest problem unnecessarily complex. We fear that Mr. Homan's diagram is too

complex to be of use in drawing an actual scale, which with short focus lenses is a very minute affair.—Eds. B.J.P.]

## THE SENSITOMETRY OF PLATES.

To the Editors.

Gentlemen,—In reference to my letter published in your issue of October 26, and stating the value which, in my experience, screened acetylene light has in testing orthochromatic plates, I send some results which will confirm what I said. They are reproductions of two sets of sector-wheel exposures: (a) on a panchromatic plate; and (b) on an ordinary extra-rapid plate. The exposures (1) are to unscreened acetylene, and it will be



you that the panchromatic gives the same number of sectors as the ordinary plate; (2) are to screened acetylene, and it will be seen that the panchromatic is only half the speed of the ordinary; (3) to daylight, and give results practically identical with b.—Yours faithfully,  
C. E. KENNETH MEES.  
Croydon.

Stage Photography.—A great fuss is made in the "Manchester Spectator" of a photograph by Mr. F. Fielding, reproduced in our contemporary's pages on the 31st ult. It foreshadows, we are told, a revolution in winter and indoor photography." and refers to the experiments of the photographer, who "by means of a special dye has so increased the sensitiveness of an ordinary photographic plate as to make it, in artificial light, from 20 to 30 times as rapid as the quickest commercial dry plate. The dye process, has, of course, been the subject of experiments for years by many photographic chemists, but this Manchester gentleman has obtained exceptional results. This photograph was taken from the dress circle of the theatre with an exposure of 1-10th of a second, with a lens aperture of F8. No flashlight was used—nothing but ordinary lights of the stage. With the full aperture of the lens the photograph could have been taken with an exposure of 1-40th of a second. With the quickest of unprepared plates the exposure necessarily would be, under the best circumstances, at least 10 seconds." The photograph represents one of the "living statuary" now being shown in many music halls, the living model posing for, perhaps, half a minute. Why, under these circumstances, it should be thought desirable to give an exposure of one-tenth of a second it is difficult to understand. We should say that the process, thus extolled, consists simply in the use of a home bathed or a commercial bathed plate, as described in our pages by Mr. Arthur Payne in July last.

## Answers to Correspondents.

\* \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.

\* \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

E. V. Parkin, 58, Wilkinson Street, Sheffield. Two Photographs of the Sheffield United Football Team.

W. E. Lewthwaite, 1 Park Road, Blackpool, Lancs. Photograph of the County Borough of Blackpool. Roll of Honour.

A. Lamb, Newsagent, Gowthorpe, Selby, Yorkshire. Photograph of Miss M. J. Hodgson.

T. C. Bowyer, South Ascot, Berkshire. Photograph of Raglan Castle.

A. Barton, 74, Stratford Road, South Acton, London, W. Photograph of the Clergy Staff at All Saints' Church, Acton, London, W.

T. Taylor, 33, St. Albans, Liverpool. Photograph of the Liverpool Association Football Team, Season 1896-7.

INSURANCE CLAIM.—I have recently had destroyed by fire, amongst a few other things, about 2,000 cabinet negatives. The damage was not very great in all, but the negatives are quite spoilt; but the Insurance Company seems to regard them as of no value whatever, as they were not in use, and only valuable in case of a re-order. I do not know how the matter generally stands in the case of negatives destroyed by fire, and should be glad to know if you can advise me as to whether I can claim for them.—G. W.

Without seeing the policy or knowing its conditions, we cannot express an opinion. If negatives are insured in the policy you can certainly recover something for them.

TINSELLING POSTCARDS.—Could you tell me the name of a firm where I can get the materials for tinselling or jewellery postcards, such as are on the market at present?—HUDDERSFIELD.

The Vanguard Manufacturing Co., Maidenhead.

STATUS.—A small tradesman in this district has for some years attended all sports, race meetings, and other events, sends prints to all the illustrated papers, obtains fees when used, and sells copies in large numbers to stationers and other postcard printers, and again receives 7s. 6d. to 10s. 6d. each subject. Will you kindly let me know if, in your opinion, he is qualified to enter a class of photography in a local exhibition as an amateur, and take prizes in a section in which he would compete with those who practise photography as a pastime only?—CURIOUS.

We should not disqualify him. He does not depend upon photography for his livelihood. Surely you do not suggest that payment for occasional photographs to newspapers or postcard publishers constitutes a man a professional photographer.

VARIOUS QUERIES.—I shall be much obliged if you will supply me with (1) a formula for a platinum bath which gives greyish-black or warm black tones on Collodio chloride paper. The baths I have used tend to throw brown, reddish or purplish brown, or cold black tones. 2. Can you inform me why the term "carbon" is applied to the process of that name? 3. Kindly let me have a formula for a bath to reduce high lights on film negatives. I have tried ammonium persulphate, but can obtain hardly any reduction, even though the films were allowed to remain in the bath with a glass negative, until the image on latter completely vanished.—GEOFF.

1. If you can get the tones you mention with the bath you are using, you should be able to get those you desire by stopping the toning at a different stage. You do not say if you use a preliminary gold bath, if so, carry the toning in that to a deeper stage. You should bear in mind that the tones yielded depend more upon the character of the negative than the formula for the



toning bath. 2. Because carbon is the principal pigment used, and from that the process took its name. 3. The persulphate of ammonia works as well with films as it does with plates, and we cannot see how you have failed with it, as you give no particulars as to how you have used it.

**PROCESS WANTED.**—I have coloured for a customer of mine some mother-of-pearl by the silver process, exposed to light, after which it becomes a nice steel colour. My customer now wants me to get a sepia colour something like self-toning paper. I should esteem it a great favour if you would kindly give a process to get the sepia colour.—F. P. HITZER.

We cannot understand from your letter what you mean by coloured mother-of-pearl by the silver process, which is of a steel colour. If you desire to produce sepia, or any other, colour pictures on mother-of-pearl, or other material, you can do it by the carbon process. Possibly that will meet your requirements.

**LIGHTING.**—You will find an article on mercury-vapour lamps in the "Almanac," 1906, p. 745. One on the Westminster arc lamps has appeared in our pages this year. See our advertisement pages for the names of firms.

**BACKING.**—1. Will you kindly inform me where I can obtain "Caramel"—the lump, I believe—for backing dry plates, as I understand that the burnt sugar preparation is of no use. 2. In making backing, will methylated spirit serve as efficiently as alcohol? 3. Please advise good book on framing.—T. V. B.

1. Lichtenstein and Co., Chemical Works, Silvertown, E.  
2. Yes. 3. "Mounts and Frames," by the Rev. F. C. Lambert (Hazell, Watson, and Viney), 1s.

**LENS QUERY.**—1. I have a lens offered me, working at  $f/5$ , and bearing the name of Henry Crouch, London. Kindly inform me whether he is a good maker and if the lens is suitable for all-round photographic purposes? 2. Also, can you tell me where I can procure, in London, photographic brasswork and woodwork?—NERO.

1. Henry Crouch has a good name as an optician. You do not mention the form of the lens you have offered you, whether of the Petzval portrait, or the R.R. type. A lens of the latter form, working at  $f/5$ , is a useful one for general purposes. If, however, it happens to be of the Petzval type it is better adapted for portraiture than for anything else. Better try it and see if it will answer the purpose for which you require it.

2. The Kodak Company, Clerkenwell Road, supply brass fittings for cameras, etc., but we are not aware whether they supply the woodwork. We rather think not.

**STUDIO QUERY.**—I am shortly to be building a studio, and, having the choice of two positions, should be greatly obliged for your advice as to which is the better of the two. At the one I could have a studio on ground floor with a north light, but premises are not in the best position for business. At the other the studio would have to be on the first floor. Could get a good length and width, but the light would be a west light, as the east side is too close to adjoining property. This latter is in the best position for business, and much better premises. Would an ordinarily constructed studio, with ground glass, answer, or should it be specially constructed to make this light workable?—STUDIO.

By all means decide on the premises that are in the best position for business. A west light is an exceedingly good one to work in. It is quite a fallacy to suppose that good work can only be done in a studio with a north light. The only advantage of that aspect is that the light is rather more uniform throughout the day, but that is of little moment to a photographer who understands his work. Amongst some of the best portraits we have ever seen were some that were taken in studios with a south light. The late Mr. Valentine Blanchard, and the late Adam Salaman, of Paris, preferred a south light to any other, and had studios constructed with that light. Either ground glass or plain can be used, and the latter is the cheaper of the two; but the former will be the preferable if the studio will be much overlooked by the neighbours.

**ARTICLE.**—May I ask if you would kindly inform me whether, and if so at what date, an article has appeared in the BRITISH JOURNAL OF PHOTOGRAPHY on "Lens Rapidity," by F. Grenfell Baker, since October, 1904. I would not trouble you about this,

but being away from all means of reference and files of JOURNAL, I cannot otherwise obtain the information I require. VIATOR.

"Lens Rapidity," September 9, 1904, is the only article which has appeared.

**TONING VIGNETTES.**—2. I shall be very much obliged if you can give me some advice on a toning trouble. Can you tell me how to prevent the margin of a vignette or the high-lights on a white dress from giving a nasty yellow colour, fading into purple at the edges. I use a sulphocyanide and gold bath, and then pour it away, but add sulphocyanide each time I have finished toning, and gold just before I start next time, and also as the bath weakens during a batch of toning. It is impossible to get a good blue tone, as when the prints get to a certain pitch of discoloration appears and they have to be fixed or it will be so pronounced. I do not suffer with double tones—that is, by all sorts of tones in patches, due to too quick a bath, cannot get to the root of the evil. Can you give me a good formula in good, large quantities—say, enough to tone a glass of cabinets or thereabouts?—S.E.

1. We cannot. 2. Your experience arises, we should think, from an imperfectly ripened bath. We think you would be rid of the trouble if you were to work on the system of definite quantity of fresh but ripened bath for each batch of prints. According to your present method, you are constantly working the bath too weak, and very probably have too much sulphocyanide in it. We should advise you to adhere to the maker's formula.

**SAFE LIGHT.**—You said, some time ago, tartrazine 2 parts, and bengal 1 part, made a good liquid dark-room lamp. I find these things are dry powders. What strength should the solution be for a given thickness of solution (I mean the amount of the solution the light shines through) to make a safe light?—E. H.

The thickness of solution is of no moment; what one has to determine is the area of the tank, and to every square inch should be allowed one-tenth of a grain of tartrazine and one-twentieth of a grain of rose bengal, dissolved in distilled water. Assuming that the face of the tank measures 10 by 10 in., it is obvious that the quantities of dyes would be 10 and 5 grains respectively, and it would be immaterial whether these amounts were in a thickness of 1 in. or 3 in., the spectrum absorption would be the same. Theoretically, of course, water has some absorption, but this can be ignored.

**FIREPROOF FABRIC.**—Could you kindly let me know any solution that may be applied to ordinary linen to make it sufficient fireproof for use with a flash-lamp; or where I can obtain material ready prepared?—A SUBSCRIBER.

If our correspondent will refer to p. 722 of our issue of September 16 he will find a list of salts which are efficacious. It is also pointed out there that Professor Vivian Lewis finds a mixture of ammonium phosphate and borax as efficacious as any. If a saturated solution of each be made and mixed in equal parts, and then diluted with an equal quantity of water the results will be satisfactory.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

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No. 2428. Vol. LIII.

FRIDAY, NOVEMBER 16, 1906.

PRICE TWOPENCE.

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## SUMMARY.

A French worker, M. André Cheron, describes his experiments in direct colour-photography by prismatic dispersion on the lines of Dr. Julius Rheinberg's communication in the *BRITISH JOURNAL* nearly two years ago. (P. 904.)

In a paper before the London and Provincial Photographic Association, Mr. C. E. K. Mees described a method by which any desired degree of exaggeration of colour contrast might be introduced when copying a coloured original. (P. 911.)

Lead salts in self-toning emulsion for P.O.P. is claimed as a novelty at the Patent Office. Squeegees and plate-holders are among other patents of the week. (P. 913.)

Two cases of frauds by canvassers are reported this week under Commercial and Legal Intelligence." In one instance the offender was sentenced to two months' hard labour. (P. 917.)

We draw attention to the aid which the Press can give the public and photographers in repelling the attacks of fraudulent "free portrait" canvassers. (P. 903.)

The need of rapid production in Christmas trade is the subject of some notes from "Provincial Pro." (P. 909.)

Accompanying the reproduction of two photographs of Herr Ahnkoop's new studios we print some notes on the use of rooms other than the conventional studio for portraiture. (P. 907.)

The "largest photographer in the world" has expressed himself satisfied with the photographic portrait business in the hands of men who are ready to apply themselves to it. (P. 909.)

National Photographic Record Association. At the annual meeting on Wednesday an encouraging report of the spread of record work was presented. (P. 912.)

The winter reunion of the Photographic Convention of the United Kingdom is to be held on January 11. (P. 918.)

## EX CATHEDRA

### Society of Portrait Painters.

The New Gallery, Regent Street, which recently contained the fifty-first exhibition of the Royal Photographic Society, now holds the pictures of the sixteenth annual exhibition of the Society of Portrait Painters. The two shows are quite different in character, and those, particularly photographers, who visited the former will do well to pay a visit to the latter. In the former there were examples of pictures by our leading photographic portraitists, and in the latter pictures by our leading present portrait painters, among whom we may mention the names of Mr. J. S. Sargent, Sir Lawrence Alma-Tadema, Mr. Fanlin-Latour, J. J. Shannon, C. M. A. Orchardson, Thos. Hardy, and other present-day portrait painters. While the remembrance of the former is in mind it will be well to compare them with the latter. In the matter of posing the sitters, we think that our leading photographers have not very much to learn from the painters. It is more in the direction of lighting and background that photographers may profit. It is well known that painters pay as much attention to the background as they do to the portrait, and this is a point that the photographer, more especially the middle-class portraitist, appears to almost ignore. It is true that we do not see the glaring incongruities in backgrounds and accessories of a few decades ago; still, there are many to be met with at the present day amongst what may be termed second and third rate workers, who go in for scenic backgrounds. In many instances the sitters look as if they were stuck on to the background, or, indeed, let into it. Sometimes the lighting of the sitter and the background are not in accord. One very frequent defect in photographic portraits is that there is no atmosphere between the sitter and the background through his being placed so close to it. This is often necessitated by the shortness of the studio, but there is not always this excuse. The greater the distance between the sitter and the background the greater will be the atmosphere, and the greater the roundness and relief in the portrait. The portraits at the New Gallery should be particularly studied in this direction.

\* \* \*

### Popularity of the Picture Postcard.

Some idea may be formed of the increasing use made of postcards from a statistical abstract for the United Kingdom which has recently been issued. From this it appears that in 1891-2—that was before the picture postcard was popularised in this country—the number was something over two hundred and forty millions; last year it was over eight hundred millions. It is very questionable if postcards for general correspondence are much more used now than they were a dozen or so years ago. Therefore,



the extraordinary increase in the numbers may fairly be attributed to the picture cards, which now almost amount to a craze. There is no doubt that they have greatly increased the work of the Post Office, though not perhaps, proportionately, its revenue, for one or two picture cards with a few sentences on them are frequently made to take the place of a letter, particularly from persons travelling about. Be that as it may, the picture postcard has brought "grist to the mill" of a great number of photographers, and, possibly, the new regulation with regard to them, which we referred to last week, will bring still more. We are pleased to see that the vulgar, not to say indecent, things that were shown in some shop windows a year or two back, and which threatened to injure the business, have practically disappeared. Probably the exemplary punishments inflicted on the offenders has had the desired salutary effect.

#### Sketching in the Law Courts.

It will be remembered that some little while back the President of the Divorce Court, Sir Gorell Barnes, gave out that in future he would not permit the sketching of portraits of parties to the suits, or the witnesses in the cases, for the use of newspapers that make a sensational feature of such trials—snapshotting, as some of the daily papers termed it. These portraits—they can rarely be photographs—may possibly flatter the vanity of some, but to others they have caused much annoyance, to say nothing of inducing nervousness in a witness while giving evidence. It was for this reason that the President of the Divorce Court put his foot down upon it. Now each judge is the ruler of his own Court, and it was thought that, at a meeting of the judges some little time back, that others would follow the example set by Sir Gorell Barnes. But, according to the "Yorkshire Post," it will not be followed by his colleagues in the Chancery and King's Bench Divisions, or in the Bankruptcy and Referees Courts. On the other hand, should occasion arise by reason of special circumstances, each of the judges will be left absolute discretion as to issuing a similar order, for the time being, or in perpetuity. Thus it will be seen that, although sketching is prohibited in the Divorce Court, it is, for the present, freely permitted in all the others.

#### Local Restraint in Development.

The article by Herr R. Walter published in our issue of last week has brought us the letter from Mr. E. J. Mills, F.R.S., which appears on another page, and confirms the value of the method suggested. Our attention has also been drawn to a paragraph in the booklet "Paget Prize

Plates and How to Use Them," wherein the author, Mr. W. J. Wilson, notices the same phenomenon. To quote from the booklet:—"If two plates be treated in every way the same except that one is rocked during development and the other not, the difference between the resulting negative is surprising; the one which has not been rocked will be found poor and flat in comparison with the other. The reason of this is curious. The action of development releases bromine from the silver bromide of the plate, which bromine immediately combines with alkali, forming a bromide. Now this additional bromide, if not disturbed by rocking, remains in the developer at the place where formed, so that development at that part of the plate is additionally restrained. It will be easily seen that more bromide will be formed, and most restraining action occurs just at those places where action ought to be most vigorous and less in the less exposed parts; the latter will therefore develop more, and the former less, than they should, producing less contrast—i.e., flatness—in the resulting negative." The process in this paragraph is apparently regarded as of theoretical interest chiefly, and credit is due, we think, to Herr Walter for his advocacy of the system, in conjunction with the glycin developer, as a means of preventing undue harshness in negatives.

#### Impaired Light.

Though we are now in the middle of the month proverbial for its fogs, there has not yet been much to complain of as regards climatic conditions. The light has really been above the average for the time of year, and the temperature, too, above the normal for the season. Yet these conditions cannot be expected to prevail much longer, and, as it is, exposures in the studio have to be much longer than they were a month ago. That alone, however, is not a serious matter as the plates have developed much as usual by reason of the moderate temperature. The impaired light in conjunction with a greatly depressed temperature would, possibly, have brought trouble to some. Since last winter not a few, who practised photography as amateurs, have entered the ranks of professionals, either as assistants or in business on their own account. It is to these inexperienced ones that trouble may arise, and more through temperature than light. If the image is tardy in making its appearance, under-exposure is generally suspected by them, and a longer one is given, with the result that the negative is really over-exposed and lacks vigour in the end, the slow appearance of the image being due entirely to the coldness of the developer. These conditions are perfectly understood by all experienced workers, and fully realised by them.

### THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

The forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached the total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

#### THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the

ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers all the world over as a daily reference guide in practical work. The standard matter and formulae will be revised and added to where necessary, and, wherever practicable, new features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—Our publishers ask us to inform Agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.

this time of year. It is only with the novice that the trouble arises, as he does not recognise the effect that temperature has upon development, and in obtaining density in his negatives.

**Depressed temperature.** Again, some amateurs may still have undeveloped plates left over from their holiday tour, and, when development is commenced, underexposure may be imagined and the negatives treated as such, while, as a matter of fact, they are fully exposed. It is universally known, or should be known, that the best temperature for development, both for the developer and the room, is from 60 to 65 deg. Fahr., and anything less than that should be taken into consideration in the operations, and longer time allowed. There is another point that novices should take into account, namely, that all chemical actions are slow in a depressed temperature. Therefore, a longer time in the hypo bath should be allowed for both negatives and prints, if yellow stains are to be avoided, than is necessary when the temperature is normal. Furthermore, very cold water has not the same solvent action as warmer; therefore a longer washing is necessary in order to ensure the entire removal of the last traces of the hypo. We are led to these remarks because, in previous years, we have had so many inquiries from correspondents, professional as well as amateur, as to the cause of yellow stains on prints, which have been entirely due to too short a time in the fixing bath for the temperature at which it was employed.

**The interior of the camera.** At the present time of the year the difficulty of getting fog-free negatives is one that frequently confronts the studio worker. The haziness of the atmosphere penetrates the building, and even the efficient heating of a room is not always effective as a method of keeping it fogless. Negatives taken under slightly foggy conditions may be made to give brilliant prints if a fairly strong and well-restrained developer be used and development prolonged; but, as such negatives are slow printers, such a method of working is hardly practicable where daylight printing processes are used. The operator must, therefore, see that there are no other contributory causes of fog. The plates used should be particularly clean-working and of good latitude. The black-room window should be renewed and carefully tested to make sure that no fogging is occurring there. The lens should be carefully examined, the glasses cleaned with a piece of well-washed silk slightly moistened with alcohol, and any bright edges on the brasswork inside painted with dead black. The condition of the inside of the camera is as likely as not helping very greatly to produce foggy plates. While grey dust settles on some of the inside surfaces and promotes reflection, or if the inside is frequently dusted the surfaces are rubbed more or less smooth and bright. All these surfaces should be carefully packed, some drop black mixed with negative varnish answering fairly well as a dead-black paint. As a further precaution a cardboard diaphragm may be cut, having, of course, a square opening large enough to avoid obstructing either upright or oblong pictures, and this may be fixed in the folds of the bellows about two-thirds of the way between lens and plate and nearer the plate. Such a diaphragm is better covered with black velvet than painted black.

**Society programmes.** In reference to our note on the non-photographic fixtures which enter largely into a number of society programmes, Mr. Gordon R. Lynch, junior, the honorary secretary of the West London Photographic Society, writes us as follows:—"I should like to point out that the programme of the West London

Photographic Society is almost entirely given up to the technical side of photography, and contains for the current session such subjects as emulsion making, home-sensitised paper, enlarging, ozobrome, systematised exposure, and photo-micrography. All these subjects are being given by our own members, and in no case do we have outside help. Only one meeting this year is given up to the artistic side—i.e., the after treatment of the negative for pictorial purposes—and in this it is intended to deal with the practical side as much as possible." Mr. Lynch misunderstands our comments if he assumes them to deprecate the discussion of art subjects in a photographic society. Such was not our intention, for we would be glad to see a greater interest in true art subjects among photographers, and we can imagine no more suitable occasions for educative talks on art subjects than the meetings of photographic societies. Our protest was directed against the purely "entertainment" lecture of travel or industry, the tendency of which, we believe, is to weaken a society from the photographic standpoint, even though members may thus be added to the membership roll. Numbers, however, are not a sound criterion of a society's strength.

#### CANVASSING FRAUDS.

"I SHALL never employ a canvasser again." The remark, made to us by a prosperous photographer whose customers are chiefly of the lower middle classes, is indicative of the disastrous effects of the fraudulent canvasser upon photographic businesses of this description. And not upon those of this class only, but, by the indirect lowering of prestige, upon the whole photographic profession. We suppose there is scarcely a town of any importance in these islands where the unscrupulous methods of the canvasser has not made a bad name for photographers, by associating them with a gang of sharpers who trade upon the ignorance and gullibility of a large and poor section of the public. The magic catch-word, "something for nothing," has only to be shouted, and a procession of ignorant persons come walking into the canvasser's net. We have exposed the proceedings of these gentry so often that none of our readers can be unfamiliar with their methods; and many know of them to their cost. And yet neither we nor anyone else have been able to prescribe a formula which would protect photographers and the public from the insidious attacks of men who are no better than thieves, and only a stage or two removed from blackmailers. Prompt advertisement of the system on which the canvassing trade is done has had the satisfactory result of moving the gang on to places where photographers are less keenly on the defensive, but even then a good deal of damage has been done. Some time ago we called attention to the valuable aid which local newspapers can render in enlightening their public as to the true character of the trade. One or two papers, we are glad to say, have shown their public spirit by calling attention to the fraudulent basis of the canvasser's offer of a free enlargement, and to them we must now add the "Perth Constitution," which has taken up the cudgels in the interests of the public and of photographers in its district. As its articles on the subject may be of service at any moment to those of our readers who find themselves attacked by the travelling canvasser, we quote them from our contemporary's issues of November 5 and 7:—

"Complaints have reached us that Perth is at present being visited by photographic canvassers, whose method of doing business is alleged to be misleading. It is said that they are making calls on behalf of an unknown Art Photo Company, said to be contemplating starting busi-



ness in the city, and, purely for the purpose of advertisement, they ask for photographs for enlargement, which will be carried out free of charge. The offer is tempting, and many housewives are said to have taken advantage of it. The photograph secured, the canvasser, a very persuasive and genial individual, takes his departure elated at his success, and after a lapse of a week or two returns to inform the housewife that the photograph has been enlarged. The enlargement is exhibited, and the lady of the house is informed that she can have it for 15s. Naturally the housewife remonstrates, and reminds the canvasser that the photograph was to be free of charge, whereupon she is informed that the price is only a charge for the frame, and that the enlargement is a gift. The other day a housewife refused to pay the sum, and demanded the original photograph. This was refused, and it was only when proceedings were threatened by the husband that the photograph was returned. It is alleged, however, that a number of people have not been so fortunate, and two families in the city are said to have lost half-a-dozen photographs between them. Now that attention has been called to the matter, no doubt housewives will be placed on their guard."

"The announcement made by us on Monday regarding the individuals who are engaged in the city canvassing for photographic enlargements has caused quite a sensation in some districts, as it appears that the individuals engaged in this work have made a pretty systematic canvass in particular districts of the city, and so far as obtaining original photographs for the purpose of enlargement is concerned, they have met with considerable success, although they appear in some instances, at all events, to have found it very difficult, if not impossible, to get people afterwards to pay a sum for the frame. In many instances those concerned have also found it equally

impossible to obtain a return of the original photograph. One of the reasons given by canvassers for this method of doing business is that they intend starting business in Perth, that they are on the look out for suitable premises in a leading thoroughfare, and that they have adopted a plan of giving free enlargements of photographs as a novel means of advertising. The other day a party who had given a photograph, and been promised the free enlargement by yesterday, wrote demanding back the original photograph, and this morning received the following reply:—"Dear Sir,—In reply to yours, our representative will call on you some day this week and submit proof. Hoping this will suit you." The proof-submitting stage is the time when the happy housewife desirous of bargains finds that all is not gold that glitters, and that she only receives the free enlargement on condition she pays 14s. or 15s. for a frame."

This article is headed "A Warning to Householders" and is given a prominent position among other news. Its clear exposure of the clever ruse on which the canvassers depend for their trade should open the eyes even of those who have not heard of Monsieur Tanqueray and his similar amiable philanthropic designs conveyed through the post. We suggest that every photographer, soon as his district is assailed by the canvassing fraud, should take steps to convince his local newspapers of the real character of the business, and such is our confidence in the Press of this country, that we venture to offer the assurance that an appeal for fair play will never be made in vain.

We commenced by quoting the resolution of a photographer never again to employ canvassing in his business. We imagine that every professional photographer who values his business status must inevitably and immediately come to the same decision.

## PHOTOGRAPHY IN COLOURS BY PRISMATIC DISPERSION.

THE following article is from the current issue of the paper devoted to colour photography recently founded by M. Chas. Mendel, at 118, Rue d'Assas, Paris, under the title of "La Photographie de Couleurs." We are indebted to M. Mendel for the use of the illustrations.—EDS., B. J. P.

IN the first number of January,<sup>1</sup> 1904, of THE BRITISH JOURNAL OF PHOTOGRAPHY, Dr. Julius Rheinberg explained the principles of a process of photography in natural colours by spectral prismatic dispersion. This communication, unfortunately, was not published in France, which explains the fact that researches were undertaken on a similar process, the priority of which is still to be claimed.

I have had for some years the idea of using the phenomenon of dispersion, and of using the prism, that marvellous instrument of the analysis of colour, for a new method of photochromy. Having been able, last February, to complete some conclusive experiments, I took out on March 23 of this year a patent for an apparatus based on this principle.

According to a recent number of the "Photo-Revue," M. Raymond, although employing another arrangement, appears to have worked on the same lines. Finally, M. Gabriel Lippmann, to whom is due the discovery of the beautiful interferential method, and who was ignorant of this patent and of Dr. Rheinberg's article, made a communication on July 30,<sup>2</sup> to the Académie des Sciences on an identical process of photography in colours.

There are at the present time, properly speaking, two known

processes for obtaining photographs in colours, the interferential method of M. Lippmann, and the three-colour process in its various applications.

The interference method, which still remains without doubt the most beautiful and the most scientific of all, because it enables one to register the actual vibrations of light, presents unfortunately in practice so many difficulties as to dishearten amateurs, and especially on account of the long exposures that are necessary.

Trichromy, on the other hand, is based on an analysis of colours that is quite arbitrary, for it requires the use of selective screens of artificial tints. On the other hand, it also leads to long and complicated manipulations, which constitute a serious obstacle to its development and popularity.

That which is particularly attractive in the process of prismatic dispersion, is that one is working entirely without scientific analysis of colour, based on a physical principle which is absolutely constant; there is no necessity (apart from a somewhat longer exposure and the use of more cumbersome apparatus), for any operation more difficult than that of taking and printing an ordinary photograph. It presents at the same time the advantage of giving absolutely pure colours, for there does not enter into their composition the slightest atom of pigmentary dyeing, and the colouration of the image

<sup>1</sup> "B. J. P." January, 1904, p. .

<sup>2</sup> B. J. Aug. 17, 1906. p. 644.

only to the play of light passing through a ruled screen and a prism, both transparent and colourless.

No serious apparatus has yet been constructed for the practice of this process, so far as we know—it is true we have only laboratory experiences—but the principles are the same whatever may be the apparatus employed, and the manipulation will be still simpler if suitable apparatus is at hand.

Everyone knows the result of allowing a ray of white light to fall upon a prism and of receiving upon a screen the image (spectrum) formed by the dispersion of the simple colours contained in the ray; each of the colours being diverted at a different angle, which is a constant for the same incidence. Supposing, now, that we replace the screen E, Fig. 1, by a photographic plate, and that we wish to obtain a record having the power to reproduce the colour of the ray which has acted on it. If the incident ray, A B, is green, for example, it will be deviated in passing through the prism P according to the angle of refraction of the colour (green), and will act on the plate at a point situated on B O. Suppose that, after having developed this plate and printed a transparency, we replace it exactly in the place occupied by the negative.

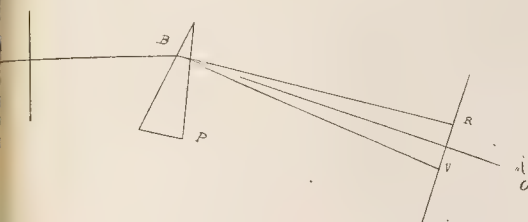


Fig. 1.

Now we let a ray of white light fall on the prism following the same incidence as the ray A B, the simple colours contained in this ray will be dispersed by the prism, and will form on the transparency a complete spectrum. But for the observer seated at O, this spectrum will be masked by the opacity of the plate, except, however, at those points which, being impressed on the negative, will alone be transparent on the positive, and will allow naturally a green ray to pass; since, as stated above, it will correspond to the deviation of the green ray contained in the incident ray A B. We shall have thus obtained the reproduction, with its exact colour of a ray issuing from a given point by a very simple photographic process. An image being composed of an infinite number of points, it is easy to see that if the operation gives everywhere the points of the image, we shall be able to reproduce it with all its colours.

However, the process is more complicated in practice, and I confess that I was some years in finding the second element which, combined with the prism, enabled me to obtain the desired result.

I could obviously not think of photographing at once all the points of the image, for each point giving a spectrum that enlarged, the latter would be superimposed on the spectra of the neighbouring points, and the result would be merely a bluishness on the edges of the image. The idea occurred to me to photograph successively, in a kind of cinematograph apparatus, a series of luminous slices of the image, which could be then dispersed by passage through the prism and projected on a plate in the form of a disc, which should be in rotation. But the fatal vibrations which are produced by a cinematograph apparatus would cause a mixture of the colours, and would render any result impossible, and I gave up the experiment, to follow my researches in another direction. Finally I had the idea of dividing the image into an infinite number of lines separated by opaque bands. Each line would

then act as an independent source of light which, photographed by a lens placed in front of a prism, would form a spectrum in the interval left by the spectrum of the neighbouring lines.

I then obtained a screen ruled with opaque lines of 5-30 mm., separated by a transparent space of 1-30 mm. It was actually necessary to have a space as large as possible between the breadth of the transparent lines which should act as luminous sources, and that of the opaque lines on which are extended the spectra on the photographic plate, if one desires the colours to be well separated.

On the other hand, it is not possible to increase indefinitely the breadth of the opaque lines without running the risk of absorbing too much light and consequently increasing out of all proportions the duration of exposure. The ratio of 1 to 5 appears to me to be the mean between these two considerations, and it has given me sufficiently satisfactory results. Unfortunately, such special screens as those which I required are necessarily difficult to make, and after having waited several months for mine, and then not having had them delivered, I thought of making some myself which, though somewhat coarse, would serve in place of better ones.

I do not believe that it is altogether uninteresting to mention here the first results at which I thus arrived, for everyone knowing slightly the photographic manipulations, and desirous of repeating the experiment, will certainly be able to obtain similar results; the only apparatus necessary being a bellows camera, a box of panchromatic plates, a compensating filter, and a prism of 12 degrees, which can be obtained of any optician.

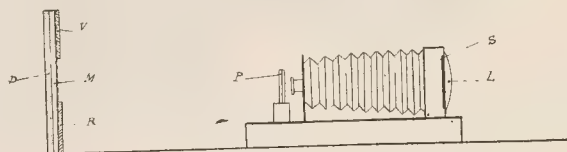


Fig. 2.

M, mirror; D, ground glass; V, green glass; R, red glass; P, prism; S, cliché; L, magnifying glass.

Here, then, is how I set to work: I obtained a mirror about 20 by 30 cm.; I made marks at every 5 mm. on the two small sides, and with a ruled plate and with a jeweller's screwdriver 1 mm. wide I scratched the mirror with a series of lines which formed the transparent spaces of the screen. These transparent lines, 1 mm. wide, were separated the one from the other by opaque lines 4 mm. wide, formed by the intact parts of the mirror. Obviously, I could not hope to form by means of the first lens the image of an object on such a rudimentary screen, but I could nevertheless photograph flat and transparent objects, such as pieces of glass, by applying them to the mirror. I commenced with very simple experiments. I fixed the mirror, quite vertical, on a horizontal board, and I affixed to the ruled side two squares of glass, a red one at the top, a green one at the bottom, with a white one in between (Fig. 2).

I placed my prism, of about 12 degrees, with the refracting edge vertical and parallel to the lines of the mirror, on a small wooden support, which could be revolved on its axis, in front of the lens of an ordinary 9 by 12 cm. camera, and I fastened this chamber at the other end of the board, after having turned the prism support so that the prism was at its angle of minimum deviation, a condition that is essential to obtain sharp spectra. Finally, I calculated the distance and the focus, so that the spectra given by the transparent lines of my mirror were exactly side by side without overlapping one on the other. Naturally, I placed the reflecting side of the mirror away from the lens, with a sheet of ground glass



in contact with it, and I placed the board so that daylight passed through the lines on the mirror. I then examined, by means of an eyepiece, the image thus formed, before taking the photograph, and I found that the rays from the central part of the mirror, illuminated by white light, gave me perfect spectra, and that, on the other hand, at the top of the mirror, and consequently at the bottom of the photographic image, the

the upper part of the green glass, and the image is to so extent vignetted.

Perceiving that I was on the right road, I aimed at photographing a more interesting subject, and cut out of paper a gelatine a reddish iris, a green stalk and leaf, a yellow leaf and a blue fly. I mounted these on a ground glass, and placed the whole against the ruled mirror, after having operated



Fig. 3.

rays illuminated by red glass were deviated to the left by the prolongation of the reds of the complete spectra, whilst at the base of the mirror, that is to say, at the top of the image, the rays illuminated by the green light, corresponding to a region rather more central, were in a prolongation of the green of the complete spectra.

Then I took a negative of this image, and printed a positive and replaced this as exactly as possible in the place which the negative occupied in the apparatus, removing, of course, the coloured glasses from the mirror. Finally, I fitted a magnifying glass of a diameter almost equal to the photographic image, at the back of the apparatus, against the positive, so as to increase the visual angle, and on placing the eye at the focus of this lens, I perceived an image composed of three bands superposed. At the top was a green band formed by a series of green lines, in the middle a white band formed by a series of complete spectra, and at the bottom a red band formed by a series of red lines. The result was easy to foresee, for the transparent parts of the positive were substituted for the parts impressed on the negative, and only passed those rays which had undergone, through the prism, the same deviation, that is to say, those rays of the same colour. Naturally, the replacement of positive for negative plate ought to be perfect, for if the image of the positive is not exactly substituted at the place where the image was formed on the negative, the colours change—the red, for example, becoming green, the green yellow, and so on.

Fig. 3 is a reproduction of one of the first records obtained with this arrangement; only, as I used artificial light for taking the negative, the result was irregular illumination in



Fig. 6.

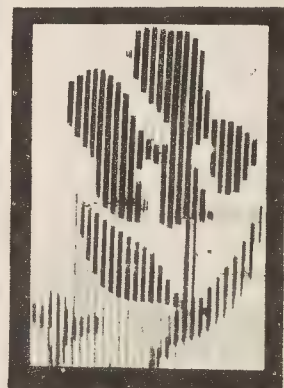


Fig. 4.

exactly as before. Using a panchromatic plate and a compensating filter, I obtained the positive, reproduced in Fig. 4, which, when placed in the apparatus, gave me actually a satisfactory result. The displacement of the lines of the image resulting from the dispersion of the different colours through the prism is still easily seen in this proof.

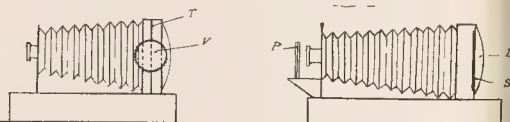


Fig. 5.

T, screen; V, micrometer screen; P, prism; S, cliché; L, magnifying glass.

Immediately after these experiments, I received the screen for which I had waited for such a long time, and which enabled me to follow up my experiments in a more perfect and more conclusive fashion.

I was not now obliged to take the photographs in a normal way. I had been obliged to use flat and transparent subjects so that I could place them directly on my mirror, the enormous lines on which appeared on the positive as villainous bars which gave a very bad effect.

With a screen of 1.5 mm. I was able, on the contrary, to combine two cameras—Fig. 5—the first intended to form on the screen, by means of the first lens, the image of the object to be photographed, which might be anything, either opaque or in relief; the second intended to re-take this image

lines by a second lens (in front or behind which is the prism), and to project it on a photographic plate in a series of spectra side by side. Naturally, the lines of the screen are very close together; the angle of the prism was much reduced (2 degrees 40 minutes). Under these conditions focussing was effected by means of a micrometer screw, which shifted the screen minute distances to the right or left. Two magnifying glasses were employed, and were absolutely necessary, the one behind the screen to make the rays converge towards the second lens, the other behind the second lens to converge the rays striking the positive, to the observer's eye.

Fig. 6 is a reproduction of the best positive that I have yet obtained with this combination.<sup>3</sup> The bouquet is composed of a green fern leaf, a violet iris, a white convolvulus with greenish centre, three yellow marguerites, and two cornflowers, then an orange to complete the subject. All the flowers are well seen in their respective colours. The orange alone, which is on the margin of the image, had suffered, doubtless the effect of optical aberration, and persistently appeared violet! As this process is still in its infancy, and will doubtless make the subject of criticism, it may not be out of place to reply to those now.

One reproach is that it is necessary to use an apparatus to examine the positive in colours; the positive, seen in the hand, is nothing more than an ordinary black and white

<sup>3</sup> The image loses sadly much of its interest through the crosslined screen used in making the blocks. But one can still see the lines of the screen used by the artists.

photograph. I do not consider that this criticism is really formidable, considering the increasing success of the stereoscope.

Then, having accepted the necessity of using a stereoscope to see an image in relief, there is much more reason to resign oneself to the use of an analogous apparatus, when it enables one to see the subject in relief and in colours at the same time. Recognising, once for all, that there is still a little further complication, as the result of the use of the micrometer screw for focussing.

A more scientific criticism is that the photograph obtained by this process is not an exact reproduction of the object photographed, the image undergoing an alteration in consequence of its division into a number of lines, and a deformation in consequence of its passing through the prism. This criticism will always be mathematically exact, but one may reply that the certainty of further diminishing the separation and the thickness of the lines will render the latter quite invisible. As regards the distortion resulting from the passage through the prism, it diminishes in proportion to the separation of the lines, the angle of the prism being naturally reduced as the lines become nearer to one another. With a prism of 2 degrees 30 minutes, this distortion is quite imperceptible.

Finally, a criticism based on practical grounds reproaches this process with the necessity of using a double apparatus, and consequently of being very cumbersome. This is undoubtedly a great objection, but I do not believe it is insurmountable, and I shall perhaps return to it again.

ANDRÉ CHERON.

## THE ORDINARY ROOM AS THE PROFESSIONAL STUDIO.

More than ordinary interest attaches to the opening of the new establishment of Herr R. Dührkoop in the largest block in the leading thoroughfare of Hamburg, because the rooms in which Herr Dührkoop has elected to carry out his photographic portraiture, and which he has most handsomely decorated for this purpose, are not provided with the illumination which is usual in photographers' studios. Except that their size and furnishing are specially directed to the purpose of the apartments, the latter are ordinary rooms. They are not supplied with a top-light as a studio is, and they are innocent of the time-worn accessories which still survive in many establishments. By courtesy of Herr Dührkoop we give views of two of these studios, from which an idea will be obtained of the original nature and thought expended on the decoration and fittings. The main character of the rooms may appear somewhat loud to English thinking, but the German mind tolerates a more lavish use of ornament in public and domestic apartments, and the plainness of a room furnished on reserved English lines would doubtless impress Herr Dührkoop's clients as poor, however much money it had cost to produce the effect pleasing to British eyes. The chief interest, however, of the new establishment lies in the fact that in these rooms, deprived of the facilities of the average studio, Herr Dührkoop has settled down to produce the portraiture which is familiar to our readers who saw it at our offices in the spring, or have since seen it at one or other of the exhibitions in the country. In making this move, Herr Dührkoop, we have no doubt, does not claim to be the originator of a new idea. He is a man of wide interests, and probably has studied, through the Press, the success of Mr. W. Crooke in Edinburgh, whose studio is arranged on lines which give him facilities of the kind which Herr Dührkoop has deemed sufficient. Mr. Ralston, in Glasgow, also, has found the sufficiency of a side-light studio

for the most varied requirements of professional work, and other examples could be cited. Yet we doubt if there is a photographer who, in expending large sums of money in installing himself in a new place, designedly elects to work in a studio which is such a wide departure from conventional



A Studio-room in Herr R. Dührkoop's new establishment in Hamburg.

models. That Herr Dührkoop's experience has led him to take the step should encourage other photographers to inquire whether they may not employ their own premises more advantageously. Magnesium light is used by Herr Dührkoop extensively in his business, though we believe we are correct in



assuming that in his new studio he does not rely on artificial light even as an auxiliary in ordinary portraiture.

The German papers, in noticing Herr Dührkoop's new enterprise, mention the numerous awards and medals which have fallen to him of recent years, including the gold medal at the recent art exhibition at Dresden. We may also refer in this

Nowhere in this brochure is there a word about prices—though Herr Dührkoop has a fixed tariff, and does not adopt the Gilbertian policy of making the punishment fit the crime according to the means of his customer. There is not a word in it about "art photographer." Nothing, indeed, in the way of personal beating the drum, but a fair amount of editorial



Herr R. Dührkoop's new premises in Hamburg.—A reception-room.

connection to the book published by Herr Dührkoop and issued to the public in Hamburg about the present time. It is a volume containing the announcement of the new premises and extracts from the Press references to his portraiture, including those made on the occasion of the exhibition of his photographs at the BRITISH JOURNAL offices. It also contains reproductions of about a dozen portraits, simply inserted without comment as "Professor-So-and-So," or "Geh. Regierungsrat Hoffman."

**PHOTOGRAPHS as Presents.**—Messrs. Pearce and Co., of St. George's Press, Brentford, write:—"We have read with interest the article in last week's issue, entitled "Letter to a Middle-class Professional." The idea of photographs being used as presents is one that we have been doing a lot of business with this season, in the form of the enclosed booklet, which we have supplied to photographers in all parts of the country. Some have had it illustrated with half-tones of their different lines, while others have incorporated a brief price list. We think that many of your readers will be glad to know that the advice given to them in the article can thus be easily followed, the only respect in which we feel inclined to differ from your correspondent being that of having to wait until next spring for an adequate reward for the outlay." The booklet sent by Messrs. Pearce is a very nice example of effective typography and two-colour printing.

licence in the way of granting space to others who are prepared and glad to perform this necessary task. In short, while Herr Dührkoop is acknowledged in this country as a photographer of a strong and refined individuality in his work, an examination of his business methods shows him to be an astute man, having the instinct of saying the right thing in the right way and devoting his talents in this direction towards the necessary end of drawing people towards his studio.

**WITH** the forthcoming December number that successful magazine, "The World's Work," which has dealt instructively with photography in its pages, proposes to celebrate its fifth birthday and the beginning of a new volume, with all manner of novel features, and with a general broadening of its unique scheme. The pressure of public and other work has caused Sir Henry Norman, M.P., to relinquish the editorship, and with his departure the magazine will abandon all partisan politics. Mr. Heinemann, the publisher promises that the magazine shall devote itself quite independently to interpreting the progress and recording the manifold activities of the world which works, of men and women who do things, of nations as well as industries in the making, with beautiful pictures which will mirror the time and the wide opportunities throughout the Empire which to-day await the enterprising Briton.

## MORE LETTERS TO A MIDDLE-CLASS PROFESSIONAL.

DEAR J.—In my last letter, mentioning Christmas work, I had space to deal with quick production.

By quick production I do not necessarily mean the use of artificial light paper. I mean rather the rapid turning out of the ordinary work of the studio. A little organisation and common-sense arrangement of batches of work frequently results in great saving of time. You should immediately examine your method of working, see if the various steps can or cannot be made less steep, or even steps cut altogether. Often habit and use have sanctioned arrangements that have been out of date since some improvement in your premises, increase in hands, or change of process.

Much can be done by rapid drying of negatives and quickness of fixing. As an instance, I will describe the procedure when an order for an enlargement was required that had to be begun and finished same day. At ten o'clock a bromide transparency was made in contact, developed, and fixed. Washing was conducted by suspending the transparency on an old pyro bottle, immediately under a running at top pressure. Ten minutes was considered sufficient, as the film received clean water every second in place of soaking in hypo-tainted water. The plate was now dried on both sides with a fluffless cloth and placed within a yard of a slow combustion stove. A warm air dried the film in half an hour, and we prefer the plan of methylated spirits, as the latter sometimes gives a milky sediment, makes tears.

When dry the transparency was covered with tracing paper, and the latter worked upon. Also hair was put in, hair darkened, nose and mouth altered, and wholesale improvements generally made upon it. (N.B.—The enlargement was for exhibition purposes, and was to resemble closely a famous picture.)

Four enlargements on dry plates were now made from the worked-transparency. These were treated in an exactly similar fashion to the transparency, and were put on to print in platinotype at two o'clock in the afternoon.

Platinotype is quicker than carbon, P.O.P., or even bromide, when good prints are wanted quickly, for the fixing and washing are not, and the print has the advantage of not deteriorating when dried by artificial heat. Our prints were dried for cutting out in ten minutes, mounted, and again dried by the fire, and were detached by the evening mail.

This method, however, can hardly be used when a quantity of prints are to be made within a day or so and artificial light papers must be used. At one time only bromide paper was possible; now either gaslight or bromide has to be decided upon. If you are not in the habit of using either I should advise you not to leave the matter until the last minute. No one can expect to make perfect

prints on either paper straight away, and bad prints on bromide or slow contact paper are very bad indeed.

Bromide paper in particular, though capable in the right hands and with the right negative of making prints every whit equal to platinotype, is more likely in inexperienced hands to give harsh or badly-coloured prints.

Gaslight paper, since it requires a longer exposure than bromide, has been rather neglected by the professional worker, though it has many points in its favour.

The appearance of a good gaslight print is far softer and more full of velvety rich shadows than the quicker variety. The surface of many of these papers closely resembles collodio-chloride matte, and takes far better with the public than does the ordinary bromide. There is rather more latitude in exposure also. Be sure, however, that your developing formula is compounded exactly to the maker's directions. I know several photographers who have given the slow paper a bad name because they have used their ordinary bromide paper formula. The quantity of bromide of potassium should not be a matter of guesswork, but must be measured most carefully, otherwise fog or greenish prints will probably appear.

For printing on these slow papers we proceed as with daylight, arranging several frames round the illuminant together, thus making the question of long exposure of no consequence. The developing tray is screened off from the printing light by a large piece of canary fabric. No great care need be exercised in fixing this up, but it is better to develop by this light, since there is no need for the care otherwise requisite to avoid fog.

The one great drawback of gaslight papers has, in the past, been the need for very thin negatives useful for no other process.

Now, however, there is a brand on the market which gives more beautiful soft prints equalled by none except carbon or collodio-chloride from the regulation dense carbon negative.

We see that we have given the ordinary bromide paper most recognition. This, however, is only because the gaslight variety has been misunderstood by the profession, and not because of any unsuitability of the rapid bromide.

When the printer is in the habit of using artificial light for printing year in and year out, and does not only take it up for a week or so, it is, without doubt, more suitable than the slow variety, for negatives and working are naturally arranged to suit its peculiarities.

Great care should be exercised in the drying of prints at this season; slightly damp prints placed together so that the air cannot dry them will in all probability develop some defects.—Yours,

PROVINCIAL PRO.

## THE EXPERIENCE OF THE LARGEST PHOTOGRAPHER.

THE following confession of faith (and hope) in the photographic profession is made by one whose claim to be the largest photographer rests upon the unassailable grounds of the physical dimensions of: Height 6 ft. 7 in., and weight 340 lb. For the breezy expression of the writer's optimism we are indebted to our New York contemporary, "The Photographer."

Much has been said in the past five years by the fraternity about their business being a failure that I naturally am a trifle doubtful about approaching the subject and making any claims to success, but, feeling sure that not all the craft are getting such meagre as they should out of it, I gladly accept an invitation from a friend to talk a little on the subject.

Photographers as a rule are all kindly dispositioned and willing to accept from a brother any advice which may be of benefit to him, so draw near while we have a little heart-to-heart talk upon a subject which lies nearest my heart.

Thirty-five years behind the gun doing business in thirteen different cities and villages, working for all classes of people, has naturally opened my eyes as to the proper methods to successfully conduct a photographic studio. I have always showed in small towns, 12,000 inhabitants being my largest. I learned all branches of the business so far as I was able, so I have been my own operator, developer, printer, finisher, and office boy, consequently I have put

in a great deal of overtime; in fact, made such hours as my business required for the faithful performance of it, many mornings reaching my studio at 3 a.m. My time has been fully occupied always, with no time to grumble or complain about business, or to wish that the sun had never shone the morning I took up photography as a livelihood. Starting in life with scarcely a dollar, I owe all I am financially to Rotten Photography (as many call it), and no stock house ever had a dollar's claim to my studio and no stock dealer ever settled my bill by taking less than a hundred cents on a dollar, and my one great ambition in life has been to keep my faith and credit good with all. My studios have made money from the start, and I am making it to-day and doing all my own work, or greater part of it. I am located in the beautiful village of Lebanon, N. H., which was never considered much by anyone as a field for photography—but let us see about it.

I opened my studio for business August 1, 1905, with two other studios in the village and other in near and adjoining towns, and



the prices of work were from 25 cents a dozen to anything that could be had. I put in a good line of card stock and opened at \$4.00, \$5.00, and \$6.00 a dozen, according to mounts and finish. Crayon portraits (so-called) were given with trade at stores and also made and framed by local artists and agents canvassing from door to door at from \$1.75 to anything they could get. What happened? And why do I to-day hurrah for portraiture? I am getting same prices as when I started. My business has increased to such an extent that lately I have been obliged to send a part of my retouching away, and looking over my books October 1, 1906, I find I have made 1,000 negatives, 61 (sixty-one) 16 x 20 and 20 x 24 portraits, and thirty-six (36) plain enlargements, the portraits ranging in price from \$10 to \$35 apiece, consequently I figure a nice little profit on fifteen months' business. Handy thing to have, this profit. Now then, do I hear you say, "Oh, well, Lebanon, N. H., is an exception"? If so, I ask you why? Do not people want portraits in other places as well as here? Most assuredly they do, and yet to-day there are hundreds of places of this size with studios who do not average six life portraits a year, and where the travelling salesmen are met with the report that business is rotten. But I say it is the man, not the business.

Failure to get a dollar to-day out of photography cannot be laid at the door of the art but rather to the methods under which it is conducted. I care not what you may say in regard to your neighbour having a better light or better appointed studio. I say good work can be made under any light if it is intelligently understood, even by a common window, and I call to mind to-day a young man with no advantages who served an apprenticeship with me and then opened business in a town of not over 1,000 population and in a room 8 x 15, and only one room at that. Buffed his paper before silvering on the floor and made his work all by a side window, yet made his first dollar and got his start in life in such quarters, and his stock dealer told me himself that he was as good as gold, and his name good for anything he wanted, and to-day he is a prosperous artist in New York State with a good bank account and doing good business—and good work, too.

You who grumble, is it the profession or the man in the profession?

There are several reasons why we fail. We talk too much, we cheapen our productions in the mind of the public by trying to cut

prices down to nothing simply to do the other fellow and get down ourselves.

Strive to educate the public as to what constitutes good work, have a certain amount of dignity under the light, and give people to understand that you have made a life study of faces and that they should place themselves entirely in your hands for the best results, and then be never satisfied with your work or think for a moment you have reached the last round in the ladder. Never grumble at resittings, but carry a cheerful air into the reception room. No matter what the conditions, make the patrons feel you are perfectly willing to try again, and the results will be even an astonishment to yourself. Above all things, never let a patron go away dissatisfied, no matter what the sacrifice is to you. Contrive in some way to get the people with you. It is the secret of success. Above all things, keep in touch with late mountings and styles. Use good goods, do good work, and get good prices. Risk a little something in the line of large work. No matter if they call you "the man who dares." Get up nice portraits of your patrons with their permission, in sepia, colour, or pastel. Place them on exhibition, show to the public that you mean business, and I guarantee if you do well you will have none of them left on your hands after Christmas, but all this must be done in a business way.

Try to educate the people to know that the time of a natural artist is valuable, and portraits with merit in them cannot be made for nothing. Appeal to their good taste and judgment, have better qualities of work on hand, point out the difference between the good and the poor, use a little diplomacy on your part, and it will scarcely ever fail to win them over to the best work and unlock the strings of their pocket-books, and one No. 1 job out of your studio is worth more to you than a dozen cheap ones. But if you are incompetent and not adapted to handle the public and make success of photography, get out of it and give way to some one who has business methods at his fingers' ends. Don't for ever ride on the rear end of the train and grumble because you can't pay your bills or make a dollar at your profession, for the public will soon see the point and have no respect for you, or your business either.

If this talk shall be the means of producing a hustle on a grumbler and accomplish the mission upon which it is sent, then I am content.

W. H. SWAN.

## THREE - COLOUR PHOTOGRAPHY.

(Abstract of Lecture by Mr. A. J. Newton, at the Croydon Camera Club, on the 7th inst.)

THE Croydon Camera Club is fortunate in having so many friends and members willing and capable of giving first-class lectures and demonstrations. It need hardly be said that when Mr. A. J. Newton is conversing about three-colour work he is talking about a subject with which he is thoroughly acquainted in all its bearings, and, in addition, he has the capacity of expressing himself in terms which are readily understood by all.

### General Principles.

The principles underlying "colour," Mr. Newton said, apply equally when copying pictures, as in direct work. Light is purely a subjective phenomenon, and must therefore be considered in relation to the apparatus of vision. The composite nature of white light can be demonstrated by means of a prism, and the almost universally accepted theory is to consider it as composed of a series of complex undulations, or waves in the aether, each differing in length, "wave length" being the distance from crest to crest. This is adopted as the basis and method for calibrating, or mapping out the spectrum. The unit adopted by Angström of wave-length is the "tenth metre," equal to 1-10,000,000 millimetre. Red, for instance, has a wave length of 7,000 A.U.; violet 4,000; each colour having its own particular wave length, by which it can be identified. Substances appeared coloured merely owing to the composite nature of white light, which suffers partial absorption by a coloured substance; the mixed remainder is reflected back, and creates the visual impression of colour.

### Method of Recording Colour.

The procedure of taking an ordinary monochromatic photograph may be regarded as recording "white" by "black," and then printing in minus black—viz., white. Similarly, one can represent "red" by recording this colour, and printing as minus "blue and green," viz., "red." Clerk-Maxwell showed that all colours could be imitated by a mixture of three colours, a certain red, green, and blue-violet, and Mr. Newton pointed out that this might be independent of the fact that the machinery of vision was supposed to have only three sets of different colour-sensitive nerves, as it would possibly be true if there were more than three sensations.

If three plates were obtainable, one sensitive to red only, one only to green, and the third to blue-violet, it would obviously be an easy matter to record these three colours, one on each plate. Such plates are non-existent, and in practice the so-called "colour-sensitive" plates are employed in conjunction with colour filters, which trap all the colours not wanted, and allow the others to pass, and impress an image on the sensitive film. These three colours then record themselves as black deposits of silver, and may be printed as positives.

### Additive and Subtractive Processes.

Projecting through suitably coloured light, the three positives will can reproduce "red" by "red light," "green" by "green light," and "blue" by "blue light," and if they are superimposed we shall then reconstitute the colours of the original. Usually the subtractive

method is employed. In this process, the negatives are printed in their complementary colours, which may be tabulated as follows:—

(a) Negative recording "red," as white, minus red, viz., blue-green.  
(b) Negative recording "green," as white, minus green, viz., magenta.

(c) Negative recording "blue," as white, minus blue, viz., yellow. Or carrying the matter a step farther, the three colours will be rendered:—

(a) Magenta + yellow = red.  
(b) Blue-green + yellow = green.  
(c) Magenta + blue-green = blue.

### Printing Inks.

The right selection of colours for printing, Mr. Newton said, was a most important matter, and he showed a series of measurements of various inks, which, as a rule, fell short of theoretical requirements. Blue-green was the worst of all, but the lecturer stated he had obtained a blue-green superior in hue to any of the pigments used in ordinary photographic tri-colour printing processes, but it was not quite satisfactory from the printer's point of view in the way it worked on the machine. The magenta printing inks were also at fault, in not reflecting enough blue-violet, and here the photographic dyes were undoubtedly superior, but printing inks made from these dyes did not usually work well, and generally were fugitive. An original coloured picture was here shown, with flat-etched proofs reproduced with two different blue inks, which conclusively showed the advantage of a blue which reflected more green. The correct inks usually gave flatter reproductions, and consequently incorrect inks are universally used in business. The evening terminated with a display of slides, illustrating points in three-colour and orthochromatic photography, an explanation of the use of selective filters in process work, and a hearty vote of thanks to the lecturer.

### THE RENDERING OF COLOUR CONTRASTS.

The following is a portion of a paper read before the London and Provincial Photographic Association on November 1 by Mr. C. E. Kenneth Mees, B.Sc.:—It is frequently remarked, sometimes as an objection to orthochromatic photography, that since it is not possible to render the effect of colour contrast into monochrome with accuracy, better results may frequently be obtained by avoiding any attempt to correct the true luminosity values.

For example, if we have green and red patches of the same luminosity value in juxtaposition, then, although neither of them will appear brighter than the other, yet they will appear to be very different to the eye. But if they are photographed with a plate and screen which render luminosity values correctly, then they will appear of a uniform tint, and the bright visual contrast will be lost. The usual way of avoiding this difficulty, for it cannot be said to be surmounted, is to use a screen which does not give full correction, and which, for instance, renders the green as lighter than the red.

The chief objection to this course arises from the fact that, if complete correction is not obtained, it is very desirable to know to what extent the correction is incomplete, and it is almost impossible to ascertain this in the manner indicated.

A plan which may or may not be original, but to which I can find no reference, has been designed. If a set of three colour filters be mounted on a slide-past holder fitting in front of the lens, then the plate can be exposed through one, two, or three filters successively so as to make up the total exposure by exposure to different portions of the spectrum. With a "Wratten Panchromatic" plate and "Wratten" tricolour filters, complete correction was obtained by an exposure of  $\frac{2}{3}$  to the green filter and  $\frac{1}{3}$  to the red filter. No exposure to the blue filter is required, as the green records quite enough blue. (It will be noted that orthochromatic rendering will not be obtained by giving the ratio of exposures required for three-colour photography, because this gives isochromatic rendering, in which all colours of equal saturation are rendered as of equal intensity, and not of the intensities which the distribution of luminosity in the spectrum shows them to require.)

Now, having the ratio for correct rendering, we can accentuate any colour at the expense of others to any extent required. Towards the red and  $\frac{1}{3}$  to the green, for instance, gives exalted

reds and degraded greens;  $\frac{1}{2}$  to the red and  $\frac{1}{2}$  to the blue exalted reds and blues and very degraded greens. The whole exposure to the green filter gives much the effect of the ordinary green and yellow sensitive plate fully corrected, but renders reds as blacks.

And in this way error can be introduced in order to facilitate the rendering of colour contrast with the constant knowledge as to the deviation from the truth and the consequent error produced.

### THE NORTHERN PHOTOGRAPHIC EXHIBITION.

In reference to the Northern exhibition to be held in Liverpool in March next, we have received the following announcement from Dr. C. Thurstan Holland, the chairman of the exhibition committee and ex-president of the Liverpool Amateur Photographic Association. Its publication, we hope, will serve to keep before our readers the determination of the Liverpool people to make the second Northern exhibition to be held in their town an advance even on their record of 1904:—

Once more it is the turn of Liverpool to hold the Northern Photographic Exhibition, once more C. F. Inston is the honorary secretary, once more the splendid rooms of the Walker Art Gallery are available, and once more it is hoped to repeat the success of 1904.

It is now ancient history that, as an outcome of the first open photographic exhibition held by the Manchester Amateur Photographic Society in the Athenæum in the spring of 1903, the Manchester, Leeds, and Liverpool Societies joined hands to inaugurate the first Northern Photographic Exhibition at Liverpool in March of 1904. The anxieties of the work of promoting this exhibition are still remembered, but the great artistic and financial success well repaid the organisers.

The illustrated catalogue, based on that of the Manchester open exhibition of the previous year, formed the model for the future shows at Leeds and Manchester. The example of the Liverpool Corporation in granting rooms at the Walker Art Gallery was followed at Leeds in 1905, when the City Art Gallery was used, but not, alas! at Manchester in 1906, as here the corporation authorities did not see their way to lend the art gallery, and the somewhat unsuitable Athenæum was the only other possibility.

From the pictorial photographer's point of view, from the artistic point of view, and from the point of view of the general public, all three exhibitions have been greatly successful, and it is not too much to say that at the present time the "Northern" exhibition attracts the best work of the best workers in the United Kingdom, and can well hold its own with even the two London annuals.

After the splendid collection of pictorial photographs, the standing features have been the series of lantern lectures, the large entry of lantern slides, and the manner of exhibiting these, the catalogues, and the trade exhibits. All the tried successful features of the last three years are to be repeated at Liverpool in the spring of 1907, whilst certain alterations in the line of improvement and advance are to be adopted. Everything points to still another great success, and it is the intention of the executive to leave nothing undone to ensure this success. Manchester is to be congratulated as the originator of the idea of these exhibitions, Liverpool as the organiser to point the road to success, Leeds as the most successful from the pictorial and artistic standpoint, and it now remains to Liverpool to set a still higher standard of excellence for the emulation of her friendly colleagues.

### MR. J. T. SANDELL'S APPEAL.

The following additional contributions to the fund, which we are glad to see is receiving continual support, have been received by Mr. Thos. K. Grant, who with Mr. J. B. B. Wellington will be glad to acknowledge further donations:—

F. B. ....	£2 2 0
Rotherham Photographic Society (per H. C. Hemmingsway) ..	1 2 0
Anonymous (Vienna) ..	1 1 0
Edinburgh Photographic Society (per J. S. McCulloch) ..	2 13 0
Handsworth Photographic Society (per A. E. Teague) ..	0 10 6
Amount already acknowledged ..	122 3 6
Total ..	£129 12 0



## NATIONAL PHOTOGRAPHIC RECORD ASSOCIATION.

## ANNUAL REPORT.

THE annual meeting of the National Photographic Record Association was held on Wednesday last at the Midland Hotel, St. Pancras. After some brief informal proceedings, Sir Benjamin Stone (president) took the chair. The hon. secretary, Mr. Geo. Scamell, then presented the following report:—

THE Council of the National Photographic Record Association have the pleasure of presenting their Ninth Annual Report, and it must be gratifying to all interested in the subject to note the steady progress that has been made not only in this country, but also on the Continent, in photographic record work. As a natural consequence of so many local societies now carrying on record work in their own districts, and depositing the prints in local libraries or museums, our own Society has not received as many contributions as in former years, but this we cannot regret so long as records are being made and deposited for public use. At the same time we must again express a hope that photographers will forward us duplicates for the British Museum Collection.

Since our last meeting we have received 372 prints, now making the total of our collection at the British Museum 3,857. From the President, Sir J. Benjamin Stone, we have received 103, comprising a series from Hereford, including views of the Cathedral and the chained library in All Saints' Church, the interesting old Treaty House at Uxbridge where sixteen commissioners for King Charles I. on January 30, 1645, met sixteen for the nation, but the negotiations terminated unsatisfactorily—the house had formerly been the residence of Sir John Bennet, Judge of the Prerogative Court of Canterbury, and afterwards was occupied by Cromwell—some of the old houses and Norman wall at Southampton, St. Cross Hospital at Winchester, and portraits of some of the brethren; Compton, Wynnyates, Warwickshire; door of the old county gaol, Bedford, which was in use when John Bunyan was confined there; from Oxfordshire, Burford Priory House and Churchyard Wall, showing shot marks, and sundry photographs from Gloucestershire, Staffordshire, Worcestershire, and Carphilly Castle, South Wales; a series from Canterbury, including the cathedral and some of the monuments, and the King's School; some interesting records of 1906 pageants held at Warwick and Ripon, including Warwick Castle and Ripon Cathedral, and a specially interesting relic of an old custom, the Old Ducking Stool at Fordwich in Kent.

We are again indebted to Mr. G. Bingley for fifty-five prints, including the Gatehouse and Chapter House of Thornton Abbey, Lincolnshire; font, etc., Burnstall Church, Yorkshire, and from the same county, views of Mount Grace Priory, Charters of Allerton and Kirkstall Abbeys of the 13th century, Byland Abbey and Gatehouse, Rievaulx Abbey and Refectory, and a series of Irish antiquities, Muiredach's Cross, Round Tower of Monasterboice; Cross in St. Kevin's Kitchen, Glendalough, etc.

From Mr. H. W. Fincham—church, monuments, alms houses, and Moor Hall at Harefield, Middlesex; the unique silver processional cross inscribed F. P. DECLVS, 1527, now in the museum at St. John's Gate, Clerkenwell, and a series of St. John, Swingfield, Kent.

From Mr. H. T. Malby, a continuation of his most valuable series of studies of the people of the East End, Sunday morning in Bethnal Green, Limehouse waifs, Bethnal Green children and Poplar gutter children, young hooligans and the mothers of hooligans, Poplar High Street, and similar subjects.

From Mrs. Catherine Weed Ward, a continuation of the series of fonts, including the one in Winchester Cathedral, and examples from the churches of Kent, Devon, Somerset, Derby, Warwickshire, Oxford, Surrey and Yorkshire.

As illustrating some of the sports of to-day we have a series of twenty-one from Mr. Edgar Scamell of the motor trials held in the Isle of Man. May 30, 1905, over a course of 51 miles, when the highest speed recorded was at the rate of 88 miles per hour. The cars photographed include the 90 h.p. car driven by the Hon. Charles Rolls, and those driven by Lee Guinness, C. Bianchi and W. Earp.

Miss J. Niblett has contributed a set having reference to the poet Wordsworth, showing his garden and grave at Grasmere, and views of Bishop Court, Herefordshire, where he stayed in 1827, etc., and the cedar tree he planted during his visit.

From the Hon. Sec., Mr. Geo. Scamell, 124 of the churches of

Essex and Kent, and some of the monuments. From Kent, the churches of Deal, Sandwich, and Minster, and from Essex churches of Fyfield, Little Baddow, Newport, Great Chesterford, Whittle, High Easter, Ingatstone, Barking, Landon, Witham, Dedham, Runwell, etc.

The Association, at the request of the Council of the Photographic Convention, exhibited a series of prints, contributed by Messrs. G. Bingley, E. Scamell and the hon. sec. at their meeting at Southampton, and a set of lantern slides were lent by Sir J. Benjamin Stone and exhibited by Mr. H. Snowden Ward illustrative of record work.

We have received from the executors of the late Mr. R. P. Breton, 1,222 negatives of churches and ecclesiastical details from the districts of North Hants, Rutland, and of the Church Towers of Somerset. As a caution to some amateurs, it may be mentioned that unfortunately some of these negatives, not having been marked or lettered in any way, cannot be identified.

As illustrating what can be accomplished by well-organised and energetic societies, your council would wish to draw attention to the work being done in Essex and Surrey, and it is to be hoped that other counties may be induced to follow their example. The Photographic and Pictorial Survey and Record of Essex had a successful meeting at Colchester on Saturday, June 23, when, after a day's ramble round the old town, the annual meeting was held, which, it is to be hoped, will be the inauguration of a systematic survey of the town as well as an incentive to those able to assist in the work of our general survey and record. The annual meeting of the Photographic Survey and Record of Surrey was held at Kingston-on-Thames, under the Presidency of Viscount Midleton, Lord-Lieutenant of Surrey, who delivered an address, and an exhibition was held in the Art Gallery of the public library of a representative selection from the 2,000 prints already in the Survey collection.

It is also evident that the work is attracting attention in our Colonies, as we have had a letter from Mr. Bladen, Librarian of the Public Library, Sydney, New South Wales, asking for general information respecting record work. In it he states that he proposes to inaugurate in Sydney a similar collection to our own, "as accurate photographic representations of the beginnings of life in Australia will undoubtedly be of great interest years hence."

Reference must also be made to the important meeting held at Marseilles in October, especially as many questions were then discussed of equal interest to the work in this country. The *Congres International de la Documentation Photographique*, under the Presidency of General Sebret, arranged the meeting, to which our President was invited, and various questions in reference to record work were discussed, including such interesting points as to the arrangement in the libraries and method of access, the means of exchange and communication between the various museums and public bodies, indexing and the establishing of a central office as a connecting link for all the existing societies in order to facilitate the exchange of documents, and where a complete list of all record photographs could be kept for reference.

Our own collection has not been of the public value it might have been through not being sufficiently known, and if our funds were in a state to allow of our printing and circulating a complete index of the many very interesting and unique prints now in the British Museum, the collection would doubtless be much more appreciated, and for the same reason your council have been unable to carry out much that they would otherwise have accomplished, and we would now appeal to all interested in record work for a liberal support.

CHRISTMAS P.O.P. postcards are being issued by Mr. H. W. Green, Rotherham. The samples before us bear suitable decorative mottoes on the address side.

THE amateur photographer of Birmingham, according to a report in the "Chemist and Druggist," has another thorn in his side. If the water authorities learn that he uses water to wash his prints he has to pay an extra rate.

At the Society of Arts a paper is to be read after Christmas by Mr. J. Craig Annan on "Engraving and Photogravure." Admission to the lecture, in accordance with the usual custom of the Society of Arts, may be obtained on application to a member or to the Secretary, Sir Henry Trueman Wood, John Street, Adelphi, W.C.

## photo=Mechanical Notes.

### A Patent for Resistant Process Blocks.

According to the Patent Specification of W. F. Cooper, 7, Grosvenor Road, Watford (No. 26,716, 1905) just issued, the process consists in employing for block making a metal plate of greater hardness towards the surface layer, the thickness of the hard layer or layers being such that they are penetrated by the etching at the deeper parts of the finished block, whereby sharper undercut projections are produced.

The invention further consists in employing for block making a metal plate having layers of various hardness decreasing from the surface so as to obtain a stiff and strong form of undercut on etching. A block is obtained having a surface of very hard metal capable of being etched so as to form very strong undercut projections, and with more depth than can be obtained by any method heretofore known to the trade.

In carrying the invention into effect a truly polished surface is taken and coated with plumbago in the well known manner before electro-deposition. We then first deposit a layer of hard metal, such as nickel, then a layer of copper and nickel, the nickel being in predominance, and then another layer of copper and nickel, the copper being in predominance. We then deposit the main body of a plate of copper, the thickness of the nickel layers being such that the deeper parts of the relief penetrate to the pure copper layer.

When a plate manufactured as above described is used for making blocks, the undercuts formed by etching are of a stronger and stiffer character, and the edges of the projections remain thicker and stronger than is the case with blocks heretofore manufactured. The number of impressions that can be obtained from the block is much increased, and at the same time much more perfect impressions are obtained.

Also in order to obtain a fine polished surface for the process block the hard metal should first be deposited to the required depth, and then the softer metal, as if the copper or other soft metal is first deposited, the surface of the block is liable to be rough and uneven.

It will be seen that the blocks having layers of different degrees of hardness may be prepared by other methods than that above described, as, for instance, by rolling, the essential feature of the invention being the use of a plate harder towards its surface than below the surface, the harder material being of such thickness that the etching penetrates the harder material and reaches the softer material.

A CATALOGUE of an exhibition of studies and drawings at the Manchester Municipal School of Art has been produced by the Printing and Photographic Department of the Manchester Municipal School of Technology, now a part of the Victoria University. The volume is a specimen of block-making, printing, and binding of which Mr. Charles W. Gamble, the head of the Department, may be consulted.

## Patent News.

Process patents—applications and specifications—are treated in *Photo Mechanical Notes*.

The following applications for patents were made between October 9 and November 3:—

FILMS.—No. 24,046. Improvements in photographic films. Theodore Birnbaum, 21, City Road, Finsbury Square, London.

BACKGROUND.—No. 24,065. Improved process for preparing combination photographs with any desired background and foreground. Carl Pietzner, 111, Hatton Garden, London.

PLATE-HOLDERS.—No. 24,227. Improvements in photographic plate-holders and casings therefor. Thomas Freshwater Caldwell, 31, Bedford Street, Strand, London, W.C.

SWINGING LENSES.—No. 24,260. Swinging lenses for focal-plane reflex cameras, hand-cameras and the like. Charles Henry Dierks, Aberystwyth, Cardiganshire.

CINEMATOGRAPHS.—No. 24,475. Improvements in apparatus for

obviating the risk of fire in the operation of cinematographs. Hippolyte Martin, 14, Middle Street, Stockton-on-Tees.

CINEMATOGRAPHS.—No. 24,480. Improvements in cinematographs. Ernesto Herrmann, 57, Barton Arcade, Manchester.

LENS-HOLDERS.—No. 24,652. Improvements in lens-holders. Hewlett Scudder and Richard Karl Hohmann, 615 F. St. N.W., Washington, U.S.A.

PHOTOGRAPHS.—No. 24,667. Improvements relating to the production of photographs. Thomas Bolas, 7, Southampton Buildings, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

SELF-TONING PAPER.—No. 5,276, 1906. The invention relates to an improvement in the preliminary treatment of photographic prints made on self-toning paper. The self-toning paper referred to is coated with emulsion, which, in addition to the usual silver and other salts, also contains a certain amount of gold salts. In the treatment of these papers it is usual to employ a preliminary bath; that is to say, the prints are first of all put through a bath composed of a weak solution of sodium chloride or of sulphocyanide of ammonia or other suitable chemicals. The invention consists in the use of solution of aluminium chloride in place of such other chemicals for the preliminary bath.

In carrying the process into effect it is preferred to take the aluminium chloride in the proportion of one-quarter ounce by weight to twelve fluid ounces of boiled or distilled water. The photographic prints, after being washed for ten minutes, are kept moving in this bath for ten minutes or thereabouts, are again washed, and then fixed in ordinary hypo. The photographic prints thus treated are found to possess a very beautiful, rich tone, and the results are highly permanent and superior to those obtainable by the use of the preliminary baths hitherto known.

The two claims are:—

1. Treating prints on self-toning paper in a preliminary bath containing aluminium chloride. 2. A bath for the preliminary treatment of prints on self-toning paper composed of one-quarter ounce weight of aluminium chloride dissolved in twelve fluid ounces of water. Francis John Shepherd, of Park View, Beauchamp Road, East Molesey, Surrey, and John J. Griffin and Sons, Ltd., Kingsway, London.

SQUEEGES.—No. 11,224, 1906. The claim is for a squeegee the upper portion of which is joined to a frame the ends of which are formed in such a manner that the pin by which the rubber portion is connected to the frame has an extended bearing produced

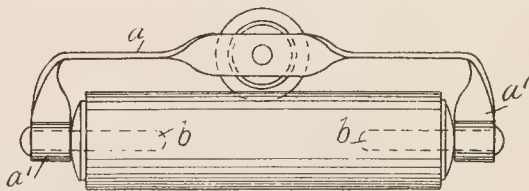


Fig. 1.

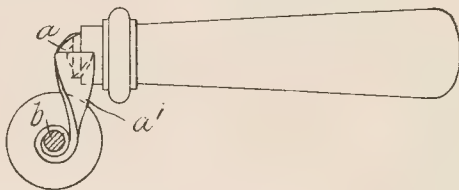


Fig. 2.

by the ends of the frame being either coiled, folded, or extended or by other equivalent means.

In an ordinary squeegee, owing to the pressure on the



squeegee when in use, the bearing in the part of the frame through which the pin is passed (being limited to the thickness of the metal of frame), rapidly wears a groove into the pin, and the head of the pin breaks away. In order to remedy this defect an extended bearing is provided for the pin either by bending round the ends of the metal frame and coiling these ends as shown in Figs. 1 and 2, or in other ways. John Wilkinson and Alfred Wilkinson, St. Oswald Street, Rochdale Road, Manchester.

**PLATE-HOLDERS.**—No. 23,226.—The invention consists of a paste-board dark-slide or plate-holder within which the film plate or sheet is offered for sale. This sheath is made of thin, opaque pasteboard or the like, and great economy of space and weight is hereby afforded, the cost of the package being quite trifling, so that after once using the same may be torn to pieces and thrown away without materially increasing the cost of the photographic support.

The improved package may be used not only for flexible, but also for rigid films, plates, and supports of photographic images of any description, the same being ready, immediately after exposure, to be subjected to development independently of any other plate and film which may happen not to have been subjected to exposure. Pietro Torrani, 4, Via Vittor Pisani, Milan, Italy.

## Exhibitions.

### HACKNEY PHOTOGRAPHIC SOCIETY.

FOR three days last week this exhibition was on view in the King's Hall of the Hackney Paths. The hall was brightly lit, lofty and commodious. The trade stalls in the centre were made to look interesting, and the walls, covered with over five hundred pictures, maintained, we need hardly say, the Society's reputation for producing a show that is hard to beat in London, except by the R.P.S. itself and the Linked Ring. In addition to these legitimate attractions, however, the people at Hackney, offered a delirium of delights in the shape of string quartettes, vocal concerts, lantern shows, and finally an award distribution. Small wonder that the annual function wore such an air of life and prosperity.

The awards were positively too numerous to mention. Twenty-five bronze plaques, for instance, savours more of the bun distribution at a Sunday school than of the achievement of awards of merit. Certainly the more the awards the lower the merit. In addition to this wholesale disposal of bronze, there were two silver plaques, three certificates, and an honourable mention. Even the trade stalls came in for prizes.

About half the exhibition was made up of the work of members, and the other was designated as "open." We are inclined to think that the section which showed most healthy individuality was the "Portraiture and Figure Studies" class. In this department were to be seen some novel subjects; and novelty of subject is a rare thing in these days. Mr. Hensler's "Shoeing the Cow" had humour as well as other good qualities. It showed three men concerned in the operation, of which one seemed to be steadying the animal's hind quarters. "A Young Jessop," by Mr. H. W. Lane, was another amusing thing, displaying the antics of a youthful cricketer. One of the best character heads was "The Smacksman," by Mr. H. F. Edmonds. It was vigorous and well treated with regard to the textures of the face, beard, and oil-skins. Many exhibits we had admired before at the two great London shows, and in reference to this fact we must admit to being struck with the curious idea that these particular prints did not look so well on these walls as they did on those of the New Gallery and the Pall Mall Gallery. One reason for this is the unmerciful crowding of pictures at Hackney. Quite one-third of the exhibition might have been dispensed with to the enormous advantage of those that remained. Quantity, it should be remembered, is the easiest thing to get, and counts for nothing; whilst a dozen good things may be seriously discounted by a dozen poorer things hung around them cheek by jowl. Another year we should like to see each picture detached by a few inches from its neighbour. This would entail the covering of the roughly red-ochred boards on which they were hung; and that would be an immense artistic gain. One of the things that seemed to suffer was "The Wayside

Inn," by Mr. Wm. Rawlings. At the Royal Society's show we thought this an exceptionally fine thing. At Hackney we might have passed it as no better than the average, had we not noticed that it had won a plaque. Yet it was possibly the identical print. This reflects upon the general character of the show more than upon the mood of the critic.

Since there were so many plaques to spare we were surprised that Mr. Hensler's "Sunshine and Mist" did not win one. This is work that possesses the qualifications of a good landscape, besides those of an excellent photograph. It represents a little glade copse through which the slanting sunbeams strike with fine pictorial effect. It has all the romance of woodland in it; its tones are true, and its effect convincing. There were many similar effects both in landscape and street scenes, as well as in architecture; but none was better than this. Mr. Roofe had secured the effect nicely in his "Housebreakers," which also had the new idea of men upon wall breaking away with their picks the bricks from beneath the feet. Other styles of work seemed to have a "run" upon them besides this of opaque sunrays. That is probably inevitable in pictorial photography, where the flattering imitation of anything that has been successful always runs strong. More often than not, however, such imitation has the most salutary results. For instance, there were at this show quite a quantity of capitally presented animals of the out-of-the-way type that Mr. Douglas English first brought our notice. There were, besides, the large mammalia of the menagerie, such creatures as prairie wolves, meercats, mongooses, and monkeys. Mr. O. G. Pike likewise has his following, though he, of course, holds the field with his excellent series of such rare birds as kites and eagles, the secret haunt of which he alone knows. The magnificent and all but exterminated birds he shows perched upon their native rocks all unconscious of the nearness of a camera. His "Kite" makes a fine picture by reason of the unusually decorative lines of its body and wings, recalling the best triumphs of the Japanese bird painters.

The point, already mentioned, of the crowding of the frames was naturally most apparent in the architectural sections, because there it was aggravated by the similarity of the subjects. Wherever one looked one saw pillars and arches. When these occur like sardines for arrangement the effect is tiring. Originality seems to run low in this section. Years ago Mr. Evans delighted the camera world with his "Sea of Steps" as he called it, of the Chapter House Wells. He has been frequently copied. There were two more versions at Hackney, and one was "plagued." Mr. Evans, however, had the best right to that bronze distinction.

Not only in animals and architecture do our Hackney friends practice the sincerest form of flattery. One gentleman sent a huge rudder. It was not an iron structure like Mr. Coburn's, but a most picturesque wooden one.

In view of the fact that the exhibition is now closed, it would be folly to speak very exhaustively of individual prints, and even the briefest mention of our favourites would interest nobody but the authors. We are therefore compelled to remain in silence about many works both of members and of that section of the community known as "open," which have given us delight and confirmed our views as to the photographers of Hackney.

### PHOTOGRAPHS BY MR. H. W. BENNETT AND BY MEMBERS OF THE PARIS PHOTO-CLUB AT THE R.P.S.

THE house exhibition at 66, Russell Square takes the form of gathering of prints, for the most part architectural, by Mr. H. W. Bennett. Certainly Mr. Bennett's name is well known, owing to his journalistic writings, his voluminous correspondence upon debatable questions in the photographic Press, and also by his lectures. Yet we should scarcely think that the Royal Photographic Society would hold this, in itself, as a reason for displaying Mr. Bennett's work. On the walls of that stately and rebeautified house usually expect examples that show us a new outlook on photographic art; we look for demonstrations of new processes; for specimens of the skill of workers whose names are new. In none of these respects can we honestly say that the present exhibition is indispensable.

Mr. Bennett makes excellent records of architectural features, details of carving, mouldings, the ravages and stains of time, and so forth. These are perfectly satisfactory as far as they go, but

are they fitted for an exhibition claiming to be artistic and pictorial? These works rely entirely upon their skill and careful technique. Whatever other interests they possess are archaeological, not pictorial.

In a few cases, however, Mr. Bennett has made obvious pictorial effort, as in those he uses the chequered light and shade of ecclesiastical interiors to supply a motive for a picture. This is a field of work wherein mathematical temperament is an incubus. It is not too much to say, perhaps, that the very apparatus which excels in archaeological records is not the very best for good pictorial work, and so altogether Mr. Bennett does not shine as an architectural picture maker. He cannot make an impression. It appears to him impossible to catch a ghost of the overwringing spirit that falls upon and possesses the impressionable being who places foot within a cathedral—that hush, that sense of solemnity and weight and loftiness, the unearthly remoteness of the highest roof and the consequent feeling of the ground as man's inevitable place. He cannot make us realise the atmosphere that the warm, grey walls enclose, or its swelling effect adown the perspectives of nave and choir. In his interiors the distant organ and its little spots of shadow are as clean, sharp, and full-toned as the carved pew stall under our hand. He calls us up no dreams, no holy or hellish associations of history. He gives us guide-book facts and hands us a telescope. Mr. Bennett's knowledge and experience is not doubted for a moment; but he does not press to the front in pictorial matters. His ambition seems to be to beat the photographers of the 'sixties on their own ground.

#### "ARTISTIC LENSES."

By way of contrast, the visitor who steps up to the second floor will see an exhibition of prints obtained by means of anachromatic lenses, by four members of the Photo-Club of Paris, namely, MM. R. Demachy, C. Puyo, G. Besson, and A. Hachette.

These gentlemen belong to that class that is always in a turmoil of excitement for the latest development in ways and means. They are in the forefront, experimenting and delving into technicalities of chemistry and optics, always in the eager hope of finding out something that will bring their beloved art one step higher. And whose work, we may ask, is more instinct with the true artistic feeling?

In our issue of April 13 we went into the question of the new lenses to which these exhibited results are due. What we have now to do is to judge of the artistic merit of their results, and we may say that, taken as a whole, they may be pronounced satisfactory in the extreme. Nevertheless, it is very certain that much of the charm of such works, for example, as Major Puyo's "Etude de Portrait," and "Pronl," is not due so much to the *téléobjectif anachromatique* as to the beauty of the sitter and the unerring taste of the operator. Finer heads, with richer colour and a more delightful soft-sharp definition, we have never seen. It certainly is not always the lens, for the same soft-sharpness in near dark tree branches before a hazy distance which we see in M. Hachette's "Berge de la Seine" is missing in M. Demachy's "Paysage normand," where the strength of tone is accompanied by hard edges. Both of these, however, are by the "Adjustable Landscape Lens." M. Demachy's portraits of Mme D. are perfect pieces of characterisation, and so are his rich and soft portraits of a painter. "Etude du Nu," by M. G. Besson, is a sumptuous piece of lighting, possessing the quality of a mezzotint. Another nude, by M. Demachy, of an entirely different class, is a tiny thing, with lines finely disposed, and of open lighting wherein the modelling is given by the most exquisite gradations of tender tones.

The man counts for much in all these examples, of course, but there is no doubt that the slight remove from hardness and the preservation of firmness that comes of these lenses will make them valuable tools in the hands of artistic workers who are tired of faddy extremes.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Nov.	Name of Society.	Subject.
16.....	Sutton Photographic Club.....	"Carbon Process" Demonstrated. A. P. Hoole.
16.....	Tunbridge Wells Amat. Ph. A.	"Marvels of Photography." H. Snowden Ward.
16.....	Aberdeen Photo. Art Club.....	"Leading Features of Velox Manipulation."
19.....	Luton Camera Club.....	Exhibition of Members' Work.
19.....	Preston Camera Club .....	"What Can be Done with a Hand Camera." C. P. Goerz.
19.....	Stafford Photo. Society .....	"Sports and Pastimes with the Goerz Auchutz Folding Camera." Goerz Lecture.
19.....	Bowes Pk. and Dis. Ph. Soc.....	Print Criticisms.
19.....	Willesden Photo. Society.....	"Telephotography." C. P. Goerz.
19.....	Leek Photo. Soc'ety.....	Photography Prize Slides.
19.....	Lancaster Photo. Society .....	"Rise and Progress of Photography." Mr. Porteus.
19.....	Southampton Camera Club .....	"Some Spanish Pictures and a Bull Fight." Illustrated. Arthur Marshall, A.R.I.B.A., F.R.P.S.
19.....	South London Photo. Society .....	"Figure Studies." E. H. R. Hills-worth.
19.....	King's-n-on-Thames & Dis. P.S.	"Enlarging Simplified."
19.....	South Manchester Photo. Soc.	"Leading Features of Velox Manipulation."
20.....	Manchester Amat. Ph. Soc. ..	"One Man Show." C. F. Inston.
20.....	Worthing Camera Club .....	"Enlarged Negatives on 'Rotograph' Negative Paper."
20.....	Royal Photographic Society ..	"Italy, Past and Present." Albert Cheese.
20.....	Birmingham Photo. Society ..	"Nothern France and Normandy." Mr. G. Bankart.
20.....	Glasgow Southern Ph. Assn.....	"Lito" Gaslight Paper." Demonstrated. R. Pollock.
20.....	Darlington Camera Club .....	"Self-Toning Papers." Demonstrated. J. J. Griffin & Son, Ltd.
20.....	Blyth and District Cam. Club.	Demonstration. Kodak, Ltd.
20.....	Bristol Photographic Club.....	"How I Won my Plaque." Members.
20.....	Workington Photo. Society ..	"Tabloid" Brand Photographic Chemicals.
20.....	Hackney Photo. Society .....	"Excursion Prints Judged and Criticised."
20.....	Warrington Photo. Society.....	"Theory and Practice of Self-Toning Papers."
21.....	Borough Polytechnic Ph. Soc.	First Lantern Slide Competition.
21.....	Croydon Camera Club.....	"Practical Notes on Lenses." E. A. Salt.
21.....	Newton Heath Camera Club.....	"What Can be Done with a Hand Camera." C. P. Goerz.
21.....	Ealing Photo. Society.....	"Enlarging on 'Rotograph' Bromide Paper, including a Chat on Toning Bromide Paper."
21.....	Tunbridge Wells Amat. Ph. A.	"New S.C.P. Lantern Plates." Demonstrated. A. H. Dunning.
21.....	Redhill and Dis. Camera Club	Members' Slides.
21.....	Central Tech. Coll. Photo. Soc	"The Theory of Photographic Processes." C. E. Kenneth Mees, B.Sc.-F.C.S.
21.....	Edmonton and Dis. Ph. Soc....	1. "Miscellaneous Continental Slides." 2. "Brief Description with Examples of 'Trichromatic Photography.'" F. Goldby.
21.....	Woodford Photo. Society .....	"After Treatment of Slides." E. Marriage, F.R.P.S.
21.....	Sheffield Photo. Society.....	"Medieval Architecture and the Camera." W. A. Clark.
21.....	Chorley Photo. Society.....	"Enlarging Simplified."
22.....	Richmond Camera Club .....	"Theory and Practice of Self-Toning Papers." Demonstrated. Messrs. J. J. Griffin & Sons.
22.....	London & Prov. Photo. Assoc.	"Bathed Plates and Ortho-Work Up-to-Date." A. J. Bull.
22.....	Blenheim Club.....	"Fans and the French Revolution." Alfred Whitman.
22.....	North London Photo. Society ..	"Notes on the Work of Two Leading German Photographers." E. O. Hoppe.
22.....	Hull Photographic Society.....	"Retouching." John Way.
22.....	Liverpool Amateur Photo Assoc	"The Photographic Lens." Illustrated. C. P. Goerz.
22.....	L.C.C. Staff Camera Club .....	"Royal Photographic Society Prize Prints."
22.....	Harrogate Camera Club .....	"Steroscopic Photography." C. P. Goerz.
22.....	Blackburn & Dis. Photo. Soc.	"Theory and Practice of Self-Toning Papers."

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the General Committee was held at the Royal Photographic Society, 66, Russell Square, W.C., on Friday, the 9th inst. Present: Messrs. G. P. Abrahams (Kewick), F. A. Bridge, Alfred Ellis, S. H. Fry, H. E. Hull, Martin Jacolette, P. Lankester (Tunbridge Wells), A. Mackie, D. Prodder, E. Scamell, H. C. Spink, and Fellows Willson. Mr. Martin Jacolette, president, in the chair.

The collection of photographs by Mr. C. F. Inston recently shown at the Liverpool A.P.A. is now to be seen at the rooms of the Manchester Amateur Photographic Society, 57, Market Street, until December 15. The exhibition is open daily from 6 to 9, on Saturdays from 2 to 5.



Mr. A. Mackie, hon. secretary, said that, in accordance with the resolution of the committee at their last meeting, he had written to the Postmaster-General with reference to the case of the photographic postcard which had been surcharged 1d. on account of the film having become detached at a corner, asking that a deputation of the association be received to explain that photographic postcards were not in contravention of the regulation that nothing may be attached to a postcard except the penny stamp, and had received a reply agreeing to receive the deputation. Since that reply the Post Office had issued new regulations with regard to postcards, and now it was allowable to affix a photograph.

**Artistic Copyright Bill.**—The hon. secretary reported that he had had a long interview with the hon. secretary of the Artistic Copyright Society with regard to the agreement between that society and the P.P.A. as to the provisions to be made for dealing with photography in the new Bill, and it had been agreed between them to suspend negotiations until the Bill in its present condition could be printed, so that the representative of the P.P.A. would be in a position to consider the matter in all its bearings.

**The Annual General Meeting.**—It was pointed out that the date fixed for the conversations of the Photographic Convention was that of the P.P.A. January members' meeting and the experience of this January meeting when the same occurred was that many members preferred the festive gathering. It was therefore agreed that the next January meeting be held on the third, instead of the second Friday, and the hon. secretary promised that, in addition to the general notice in the P.P.A. circular of the change in date, a special notice of the meeting and of all future members' meetings, should be sent to each member.

The hon. secretary referred to a notice published in the P.P.A. circular, of December last, asking members who had had unsatisfactory dealings with a certain background painter to communicate their experience. The attention of the manager of the *BRITISH JOURNAL* had been directed to the methods of the individual referred to, and his advertisements were not accepted. He had succeeded, however, in getting another advertisement inserted from a different address and under an initial, and a member had complained that he had been defrauded. The hon. secretary was instructed how to deal with the matter.

A letter was read from a member suggesting that, with a view to combating the unfair competition of the cheap enlargement canvassers, the association should have a circular printed, warning the public, and that members should be supplied with copies at a nominal price for distribution. The hon. secretary was directed to inform the member that if he supplied the draft the circular should be printed.

#### ROYAL PHOTOGRAPHIC SOCIETY.

**MEETING** held Tuesday, November 13, Mr. J. C. S. Mummery (vice-president) in the chair. Mr. H. W. Bennett delivered a short address on the collection of photographs by himself, which forms the present house exhibition at the Royal Photographic Society. He said that much of the present-day pictorial photography exhibited such deplorable features as imitation of prevailing vogue, imitation of other forms of art, and even imitation of the work of other photographers, in some cases of the work of those acting as judges. The only defensible course, however, was to record one's own impressions in one's own way without regard to any reigning fashion and without the desire of pleasing any judge or critic. Mr. Bennett described his own aims in pictorial photographs as adherence to the qualities which were characteristic of photographs—viz., rendering of form and texture, qualities which, he said, were not obtained in out-of-focus and coarse prints. He regarded the gum bichromate process as retrogressive, as the image produced by it was not that of the lens. Putting a print out of focus, he maintained, destroyed atmosphere and did not suppress detail. Suppression of detail was a matter of lighting, etc., at the time of exposure. A good photograph should possess neither distinct sharpness nor distinct unsharpness at the normal distance. Mr. Bennett believed himself justified in adopting methods of control which could be employed with certainty, but he discountenanced the use

of methods such as gum, by which a number of identical prints could not be obtained. He thought "control" was the wrong word for these processes.

In the subsequent discussion, Mr. E. T. Holding, basing his remarks on a portion of Mr. Bennett's address, protested against the narrow limits within which Mr. Bennett would imprison the pictorial worker. If control was legitimate in one department it was legitimate in all.

Mr. W. Thomas despondently suggested that unlimited control was obtainable by substituting a piece of charcoal and a sheet of white paper for the photographic process. Mr. Thomas was understood to disparage pictorial photography as a means of benefiting the human race.

Mr. Hector McLean demurred to Mr. Bennett's definition of impressionism. Impressionism meant the artist's temperament in his work, and an impressionistic photograph might have any character whatever.

Rev. F. C. Lambert dwelt on the need of knowledge and the evil of imitative methods, and Mr. E. Dockree spoke.

The chairman agreed with Mr. Bennett that it was useless to try and please the judges. He was sorry Mr. Bennett did not favour gum bichromate, as he (the chairman) was sure he would work it very well.

Mr. Bennett, in reply to criticisms, said that his photographs were advanced as expressing his own impressions of the subjects.

Owing to a misapprehension of information received, the report of the opening of the Royal Photographic Society's rooms in our last issue wrongly described Lord Crawford as presiding. This duty was discharged by Mr. J. C. S. Mummery, a fact of which, owing to our inability to be present at the opening of the proceedings, we were ignorant and in regard to which we were incorrectly informed.

**WEST LONDON PHOTOGRAPHIC SOCIETY.**—At the meeting of the West London Photographic Society, held in the Broadway Lecture Hall, Hammersmith, W., on the 9th inst., Mr. W. G. Cullen gave a lecture entitled "How a Dry Plate is Made." After briefly reviewing the process, and illustrating his remarks with test-tube experiments, Mr. Cullen proceeded to make an emulsion. Taking the necessary quantity of potassium bromide dissolved in gelatine, the silver nitrate was added, resulting in the formation of silver bromide in gelatine. It then became necessary to eliminate the potassium nitrate, which is formed with the silver bromide. This is usually done by prolonged washing. However, to expedite matters, it was accomplished by pouring the emulsion into hot alcohol, which must be of the purest kind. The emulsion having become set, portions were handed round for inspection, after which it was coated on glass. Mr. Cullen, not content with this stage only as soon as the plate had set, exposed it behind a negative, which resulted in an excellent transparency.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At the meeting on Thursday, November 8, 1906, Mr. French in the chair. Mr. W. F. Slater gave a lecture on Holland, and in the course of which he eulogised the country as a hunting-ground for landscape, architectural, and genre photography. He strongly recommended that headquarters be made in such towns as Middleburg, Rotterdam, or Amsterdam, and daily excursions taken into the surrounding country. Plates and cameras gave no trouble with the Customs. Some 150 fine slides were used to illustrate the various places visited, which included Flushing, Middleburg, Veere, Bergen op Zoom, Dordrecht, Rotterdam, etc., each slide being fully described, and such was the pictorial possibilities shown that one wished he could have a three months' holiday and go over at once. An interesting evening was fully enjoyed by the members, and a vote of thanks, proposed by the chairman, was heartily carried.

The Dublin Camera Club has just opened the winter season which promises to be most successful. Papers and demonstration on enlarging, followed up by a lecture on "High-Speed Photography" (this latter by a Mr. Wignall, who hails from Japan), have proved very interesting and instructive. The programme for the remainder of the session embraces, besides, lectures from members on their own photographic experiences, papers and demonstration relating to lantern use, carbon printing, photography in genera

microscopic photography, etc., so that this young club shows evidence of a strong vitality. The secretary is Mr. W. H. Ebbs, of 2, Belvidere Avenue, Dublin. Dublin readers will be interested to know that the club's headquarters are at 1, Upper Sackville Street.

**BIRMINGHAM PHOTOGRAPHIC SOCIETY.**—Mr. A. Pumphrey gave a lecture on the 6th inst. on stereoscopic photography, in which he reviewed this branch of photography as practised by himself and others in past years, saying that in some respects the older methods were the better. He explained the three different methods he had employed in taking the pair of stereoscopic negatives—viz. (1) moving the camera between the two exposures, (2) with a camera fitted with two lenses, and (3) with two cameras separable to any required distance. The advantage of the one-camera method was that pictures could be taken the full size of the original, which, with the two-lens method, would be impossible owing to the distance of the camera being too close for binocular work. A repeating back would enable the two negatives to be obtained on the one plate. When using two cameras the lecturer was accustomed to secure them to a board about 20 in. in length and attached to the tripod top, a slot in the board allowing the instruments to be placed at any desired separation. The lecturer considered it better to mount the negatives than the positives. For this purpose he examined the two negatives in a stereoscope, first finding which was the right and which the left-hand picture. The negatives were then laid down until the most distant objects in each were not more than 2½ in. or 2½ in. apart. The combined negative was best made of the dimensions 5½ in. by 3½ in. (postcard size), and attached to the middle of a half-plate glass plate with gummed strips of paper.

**CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.**—On November 7 Mr. F. Martin-Duncan, F.R.P.S., gave a lecture before the above society on "Forest Life: Studies of the Haunts and Life of some of the Inhabitants." The slides were very much appreciated by those present, and especial interest was shown in some photographs of insect life and micro-photographs.

**WORTHING CAMERA CLUB.**—Mr. A. R. Sergeant, President of the Worthing Camera Club, gave a most interesting lecture on "Ancient Egypt" on the opening night of the winter session. It was illustrated with a number of beautiful limelight views, depicting the temples, tombs, etc. During the course of the lecture Mr. Sergeant remarked that on a future visit to Egypt he should provide himself with many more yards of magnesium wire than he took on the past visit, as photographs of the colossal statues and other beautiful carvings, also the paintings (for which iso plates and screens are essential), in the interior of the tombs, could only be obtained by artificial light.

**PHOTOGRAPHIC CLUB.**—The annual general meeting was held in the club room, Red Cross Hotel, Paternoster Square, on Wednesday, 7th inst., Mr. F. A. Bridge in the chair. The report of the committee and the balance sheet were adopted. The election for the officers and committee for the ensuing year resulted as follows:—Messrs. F. A. Bridge and H. Snowden Ward; committee, Messrs. R. R. Beard, D. Bradford, G. E. Brown, A. Corbett, G. Day, A. Mackie, H. Müller, and C. H. Skillman; hon. secretary and treasurer, T. W. Derrington.

**PLYMOUTH PHOTOGRAPHIC SOCIETY.**—Fleet-Engineer R. A. Shapton, R.N., who opened the lecture session of this society, took as his theme travel and photography as education, though the title of his subject was "In Foreign Lands." He dwelt upon the value of the camera in travel, illustrating his remarks by lantern slides of negatives made by himself in Ohio, U.S.A., Kamtschatka, Korea, Japan, and Venice. In proposing, seconding, and supporting a vote of thanks, those who followed said there could not be the slightest doubt that intelligent observation with the camera could be highly educational. The lecturer had had a bad experience with roll films, but it was pointed out that these were valuable for long journeys, as were cut films, and that, despite shortcomings, the use of them lightened baggage and made for comfort.

At the Northern Tasmanian Exhibition, which opens at Launceston next February, supplementary prizes are offered by Messrs. R. G. Rouse and Rouse (Melbourne). Messrs. Burroughs, Wellcome, and other donors, including the secretary to the exhibition, Mr. Bryant Browne, 112, Brisbane Street, Launceston.

## CATALOGUES AND TRADE NOTICES.

Mr. Robert W. Paul, of 68, High Holborn, London, W.C., sends us his latest catalogue of animated photograph films, a volume of nearly 100 pages, almost everyone of which contains one or more reproductions in half-tone of the subjects catalogued, thus giving the purchaser the opportunity of obtaining a very good idea of the films. The list includes a number of the most up-to-date productions, and we shall be surprised if anyone interested in cinematograph entertainment fails to find it of service. Mr. Paul will send it, post free.

A CIRCULAR from the Metallic Compositions Company, Ltd., 333, Gray's Inn Road, London, W.C., is sent to us, evidently from its inclusion of magnesium powders (guaranteed 99.7 to 99.8 per cent. of purity), of magnesium ribbon, and of photographic flash-powders. The company invites inquiries as to these of its specialties.

## Commercial & Legal Intelligence.

**CANVASSING FRAUDS IN BELFAST.**—In the Belfast County Court last week John Hinds was charged with having obtained sums of 3s. 6d. from Mrs. King and Mrs. Smith, of Little Brunswick Street, by false pretences. Mrs. King said prisoner called at her house, representing that he was travelling for the Irish Art Company, asking had she any photographs she would wish enlarged. She gave him a photograph of her sisters, to be enlarged for 10s. 6d., payable by instalments. She paid him 1s. then, and weekly instalments up to 3s. 6d. She called for the photograph, but he said the enlargement was not finished. She never got the photograph or enlargement. The constable who arrested the prisoner stated he found four photographs in his possession, and at his lodgings forty-one photographs, and a number of billheads purporting to be issued by the Irish Art Company, State Chambers, 75, High Street. There was no such company at that address. About twenty people had come to him (the constable) claiming photographs given to the accused. Prisoner was remanded for a week, Mr. Taghan, who defended, protesting that the proceedings were uncalled for and monstrous. Prisoner had an agency for a well-known London firm, and the photographs in question would have been enlarged in due course. Bail was fixed at £10.

**HARD LABOUR for a Canvasser.**—George Seals, described as a canvasser, of Nottingham, was charged at the Shire Hall, Nottingham, last week, with having obtained 3s. from Mrs. Hatfield, a similar sum from Mrs. Dring, and 2s. 6d. from Mehalah Braybrook, all of Carlton, during October. The alleged fraud consisted of the collection of instalments on photographic orders that he had obtained as a canvasser for a Nottingham photographer, but the defendant denied having collected the money with any fraudulent intent, but as a convenience for the customers. The Chairman remarked that Seals had a bad record, as he had twice served terms of imprisonment amongst other things, and he would have to go to gaol for two months with hard labour.

**A SMALL FAILURE.**—In Dundee Sheriff Court, on November 8, before Sheriff Campbell Smith, a petition for cessio was brought against Messrs. Elder Bros., art photographers, Broughty Ferry, by Messrs. John Dawson and Son, wholesale stationers, Kirkcaldy. The bankrupts began business in July, 1904, and did not feel themselves pressed until the spring of this year. They attributed their failure to dull trade during the winter. The assets amounted to £53, preferable claims totalled £31 3s. 1d., while the liabilities were stated at £205 1s. 3d., giving a dividend of 2s. 1d. per £1, subject to expenses. Sheriff Campbell Smith granted the petition, and appointed Mr. W. L. Clark trustee.

**PHOTOGRAPHS in the "Bondman."**—Mr. Justice Neville, in the Chancery Division last week, gave leave to the Dover Street Studios and Art, Ltd., to serve notice of motion for to-morrow week for an injunction against Mr. Hall Caine, the Associated Newspapers, Ltd., and Ballantyne and Co., Ltd. Counsel for the plaintiffs stated that his clients were the registered proprietors of certain photo-



graphs which had been reproduced and put in a book called "The Bondman."

**A LIKENESS Case.**—An enlarged photograph was the subject of proceedings at Limerick Petty Sessions last week by Miss Margaret Carey, who summoned the "L. and I. Portrait Company" to recover 14s. which she had paid by instalments for the enlargement of her photo. "The picture," she said, "but for the blouse, might be anyone" (laughter). "I think," said Mr. Hickson, R.M., "the picture is very like the photograph. Look at the lock of hair." "My eyes and hair are all wrong," replied Miss Carey (laughter). "These are the colours she gave us," said the defendant, and the Bench ruled a dismissal.

## News and Notes.

**THE Convention Social.**—This enjoyable function, which was so successful on the last occasion, has been fixed for Friday, January 11, at the galleries of the Royal Society of British Artists, Suffolk Street, Pall Mall, London.

**ROYAL Institution.**—A Christmas course of lectures, adapted to a juvenile auditory, will be delivered at the Royal Institution by Mr. W. Duddell, on "Signalling to a Distance; from Primitive Man to Radio-telegraphy." (Experimentally illustrated.) The dates of the lectures are December 27, 29, 1906, January 1, 3, 5, and 8, 1907, at three o'clock.

**CINEMATOGRAFH Accident.**—A piece of hot carbon dropped into a basket of biograph films in a theatre in Evansville (Indiana). The films instantly flamed up, causing a wild panic.

**LONDON and Provincial Photographic Association.**—On Thursday, November 22, visitors will be heartily welcomed at the White Swan, Tudor Street, E.C., when Mr. A. J. Bull will lecture upon "Bathed Plates and Ortho' Work up to Date."

**PINATYPE Demonstrations.**—Messrs. Fuerst advise us that they are arranging to give a limited number of demonstrations of the "Pinatype" process of colour photography before photographic societies in and around London, and will be pleased to hear from any secretaries who may desire their demonstrator to visit their society, with particulars as to open dates.

**THE Ilford Urban Council** has refused permission for its seal to be photographed for reproduction on picture postcards.

**THE funeral** of the late Mr. William Hill (of the firm of Messrs. Hill and Son, photographers, Standishgate) took place last week at the Wigan cemetery.

**THE Cinematograph on Steamships.**—A fresh method of entertaining passengers on a long voyage is to be tried by an Italian steamship company. British shipowners have been approached time after time to install bioscope, but they have turned a deaf ear to every project, and it has been left to a foreign company to initiate a new movement and to popularise its route by nightly entertainments with the aid of the cinematograph.

**A BRONZE medal** was awarded to the Beck Celverex shutter at the Hackney Exhibition. Messrs. Beck's stall was of a novel and attractive character, a clock tower which surmounted the edifice serving to give prominence to the new shutter. A bronze medal was also conferred upon Messrs. Burroughs, Wellcome, and Co., for their exhibit of "Tabloid" photographic chemical.

**A SILVER salver** has been presented to Mr. Lang Sims, the treasurer of the P.P.A., "in recognition of his valuable services as secretary of the Conservative Party on the Lambeth Borough Council."

**STOLEN Lenses.**—The following lenses have been stolen from a messenger going to the premises of Mr. C. P. Goerz, of 1-6, Holborn Circus, E.C., and a reward for their return is offered by the firm from whom they were stolen:—1 Goerz Telephoto Attachment, IIB, 48, m/m 156765; 1 Goerz Double Anastigmat IB/o, 111273; 1 Goerz Pantar Combination, No. 11, 14in., 183825, 11½in. 183497. Any gentleman coming across or being offered any of these lenses will oblige by immediately communicating with Mr. C. P. Goerz.

## Correspondence.

*\*.\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*

*\*.\* We do not undertake responsibility for the opinions expressed by our correspondents.*

### ARC LIGHT IN THE STUDIO.

To the Editors.

Gentlemen,—In your issue of October 26 I notice you were good enough to refer to the demonstration held here before the Light Committee of Middlesbro'.

As some particulars may be of interest to your numerous subscribers I should be very pleased to place them at your disposal.

The light I have installed here is, in some respects, different from that constructed from what is generally used, and its cheapness and portability would give it many advantages.

I use four open arc lamps in series, suspended on an iron frame work, running on large metal castors, constructed so as to be taken readily asunder. Each light has a suitable reflector behind it, arc, arranged at an angle so as to project the rays downward upon the sitter. In the front of the light there is a transmitting screen of thin gauze, which softens and diffuses the direct rays.

This arrangement has many advantages. The light generated is from a lamp, horizontally placed in a reflector, which causes considerable loss of light, from the fact of the light being reflected.

My light is perfectly noiseless, as the lamps are perpendicular and automatic, and a considerably greater power of light is obtained by the use of the arc in this way. The cost of a similar installation covering all expenses ought not to exceed £15.

Should any further information be of interest I shall be pleased to place it at your disposal. Regarding the merits of the light, I shall leave this to your judgment. I forward a few prints of the first photographs taken with it.—Yours truly,

R. E. FAIRCLOUGH.

93, Linthorpe Road, Middlesbro'.

November 12, 1906.

[The four photographs (retouched) sent by our correspondent are very harmonious prints, evidently from fully exposed negatives. It would be interesting if our correspondent gave the actual figures of plate, stop, and exposures.—Eds. B.J.P.]

### DEVELOPMENT WITHOUT ROCKING.

To the Editors.

Gentlemen,—Reading in the current number the article by Dr. Neuhaus and your remarks, I am led to mention some facts bearing on the principle there laid down. Some dozen years ago, passing a period of three years in Switzerland, near Lausanne, before going again to Germany, I had got out my photographic apparatus again, and was making trials of new plates and papers which I found on the market, as well as of different photographic processes. Among others, while in England during the Christmas holidays, I had procured a certain number of the Christmas illustrated periodicals, that I might gain experience in photographing engravings. I had also gone to Messrs. Marion and arranged with them to prepare a dozen of their medium plate 12 x 7½ for a Geo. Hare camera specially made for me, and to send them with others which at that time were supplied to an agent in Lausanne. While waiting for these I had fixed uprights at the end of a broad board—my drawing board—to which to fasten the engravings with drawing pins, and placed my camera on the board, so that I could fix it at different distances, and focus the print to the right size. In this way, bringing it up to a window open to the sky, I could most easily expose and learn for such kind of plate the time necessary for the larger plates came. I obtained from the agent here a half-plate packet of Marion, with the same vignette. Believing them to

low plates, such as I had ordered, I exposed accordingly, and found the plate on developing, altogether beyond control, and in my further exposures treated them rightly as rapid plates. When the 12 x 7 1/2 in. plates came, I believed they would be the same, and exposed the first of them accordingly, on a fine engraving of St. Paul's Schools, London. When I came to develop, it seemed like a plate that had not been exposed, and if I had forced it I should have had a hard, worthless negative; but I had formerly read many things in the Journal, in different numbers of the ALMANAC, and elsewhere, and recollecting the theory of the weak developer, I diluted it, covered up the developing dish, and when I came back, after several hours, found the negative beautifully developed, entirely harmonious and satisfactory. The theory given in what I had read on the subject was a little different to that mentioned in the article, but in substance amounts, I think, to the same thing. It was said that the developing fluid, standing immediately over the more fully exposed parts gradually exhausted its developing power in these, while that over the less exposed parts continued its work reducing the under-exposed parts. The glycin, I suppose, renders the fluid less mobile and so favours this action.—I am, dear Sirs, faithfully yours,  
W. WASHAM.

Villa Cornelia, Chemin de Villard, Lausanne.  
November 12, 1906.

To the Editors.

Gentlemen,—The article in last week's Journal reminds me that have practised this method for some years, and with the glycin developer recommended by Herr Walter. Nothing can be more satisfactory. I dilute the usual stock developer ten times, and development is complete in from a quarter to half an hour, according to circumstances. There is absolutely no mottling, as with the usual developer when worked still. Now it is well known that the usual developer shrinks the film and renders it less penetrable; on the other hand, the strongly alkaline glycin developer penetrates with ease. It would appear therefore that any developer, generally similar to glycin and similarly used, should work more or less advantageously, and this, whether the dish be rigorously level or not. At any rate, I have never taken any special precautions to keep the plate properly horizontal. Still, development with the glycin developer enables one to arrest development more exactly to one's wish than is the case with the usual method.

EDMUND J. MILLS.

64, Twyford Avenue, West Acton, W.  
November 10, 1906.

#### PHOTOGRAPHIC SOCIETIES AND THE PRESERVATION OF HISTORIC BUILDINGS.

To the Editors.

Gentlemen,—May I draw your attention to the marked paragraph in Selby Abbey, on enclosed circular, and suggest that other photographic societies might be invited to do likewise.

Photographers are greatly indebted to the authorities of the various cathedrals, abbeys, and churches throughout the country for the privileges afforded to them in connection with the photographing of these buildings.

Many members of societies would, no doubt, be willing to contribute a small amount to a society fund, which they might consider as trifling to send direct.—Yours faithfully,

JAMES W. WRIGHT,  
Honorary Secretary.

Sheffield Photographic Society.

The paragraph runs as follows:—

"Selby Abbey Fire.—The council have decided to open a subscription list, in the name of the society, towards the restoration fund. Subscriptions of any amount may be forwarded to the honorary secretary."

[We commend the public spirit of the Sheffield Society, and hope to see the concrete expression of it in a list of donations.—EDS. J.P.]

## Answers to Correspondents.

\* \* \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\* \* \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\* \* \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.

\* \* \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

- F. Foot, 6, Pitt Street, Jersey. Photograph entitled, "Ye Olde Jersey Milk Can."  
D. Ross, Norman Place, Leslie, Fife. Photograph of Inchdairnie House Leslie, Fife.  
A. Walker, 86, Queen Street, Maidenhead, Berks. Photograph of the Interior of High Wycombe Town Hall.  
W. Elliott, 98, Bordesley Green Road, Birmingham. Photograph of an Oil Painting by W. Eddy, Representing a Nymph Reclining.  
H. Shrivington, 10, Church Road, Cadroxton, Barry. Photograph of Whitmore Bay, Barry Island.  
C. C. Bedford, Carr Street, Ipswich. Photograph of the New Hall and Offices, East Suffolk County Buildings, St. Helen's Street, Ipswich.  
W. Baldry, 69, Fores Road, Nottingham. Photograph of a Drawing of Nottingham Forest about Sixty Years Ago.

BOOK ON ARTIFICIAL LIGHT.—I want to take portraits at night by artificial light, and would be very much obliged if you could give me any information about it. Is there any book published on the subject? If so, where could I get one? I have looked through the list of books in your ALMANAC, but I do not see any there.—A. H. STYLES.

There is no book other than "Magnesium Light Photography," by F. J. Mortimer, published by Dawbarn and Ward at 1s.

W. WASHAM (Lausanne).—We can only suggest that you now apply to Messrs. Guitermann, 35 and 36, Aldermanbury, E.C. They are wholesale dealers in celluloid, but they might, as a matter of courtesy, supply you with the precise weight of the material which you require.

FORMULÆ.—Can you give me a good formulæ for (1) reducing hard negatives so as to bring to proper printing density without making the shadows too thin—that is to say, which will affect the high lights more strongly? (2) Ditto for intensifying hard, thin negatives, to intensify the whole image, and not only the high lights, as mercury does? (3) Can amidol be used in re-developing after reduction by Eder's method?—G. E.

(1) Ammonium persulphate, 10 to 20 grs. per oz. (2) The uranium intensifier, or Wellington's silver intensifier. (3) Yes.

ENQUIRER.—See the paragraph on "Stage Photography," on page 899, of last week's issue.

VIATOR.—The article on September 9, 1904, was by F. Grenfell Baker.

FLASHLIGHT.—Will you please give me your advice as regards the following, and oblige? (1) What lens should I use to take a flashlight dinner party, in a room about 20ft. long, people to be sitting at table? (2) Would three or four flash candles, to burn two or three seconds, be better than a flash of powder?—P. A.

(1) If you can get sufficiently far back to include all the party, an R.R. lens will be about the best to employ. If not, you will have to use a wide angle lens, which will be slower in action. (2) Either will do, but by using the flash, there would be less chance of movement of the figures than there would be with a light burning for some seconds.

FLASHAXE.—A good deal depends on the surroundings, i.e., on the amount of reflected light, but we should think the light you suggest would suffice. But the best advice we can offer you is



that you make a trial exposure under as nearly the same conditions as you can.

**RETOUCHING LANDSCAPE PHOTOGRAPHS.**—Could you kindly, through the "Journal," indicate to me any little work giving concise instructions for the retouching of landscape photographs? I have an excellent one in German for portraits and groups, but my work is almost entirely with landscapes.—W. W.

We know only "Retouching," by Arthur Whiting (Dawbarn and Ward, Ltd., ls.), which deals with the treatment of landscape negatives.

**J. HARRIS and Others.**—In our next.

**ALUMINIUM SHUTTERS.**—I have a half-plate hand camera, the shutters in the dark slide of same being made of aluminium, and I find that if I leave plates in these slides a day or two they are invariably fogged. Can you tell me a way I can black the shutters, or otherwise avoid this fog?—CORNISHMAN.

This subject has been dealt with recently in several of the German papers, and the conclusion come to is that if the aluminium is varnished there is no action. The formula for blackening aluminium will be found on p. 989 of the ALMANAC for 1906; but we should think it would be preferable to give them two or three coats of a hard varnish, such as celluloid, if it is considered desirable to use a black varnish, then some asphalt and lampblack, or the latter alone, might be added to the varnish.

**TONING BROMIDES, ETC.**—(1) Will you kindly tell me what varnish is used for coating toned bromides to prevent fading? (2) I shall be glad if you can give me any information regarding the permanency of toned bromide and gaslight prints, using the following processes (Dr. E. Sedlaczek's): "The Iron Process," page 625, B.J.P., 1906; "The Copper Process," page 645, B.J.P., 1906; "The Ferricyanide Process," page 646, B.J.P., 1906. (3) I am extremely obliged for the answers to my former queries, and should like to mention, with reference to the ammonium persulphate query, that I used a 2 per cent. solution of the salt, at least three days old, on well-washed plates and films. Reduction proceeded normally on former, but hardly at all on latter.—GEORF.

(1) An ordinary celluloid varnish is probably the most satisfactory, as this does not confer any gloss on the prints. The usual strength is 5 grains of celluloid in an ounce of amyl acetate. (2) Whilst the tones obtained by all these processes cannot be considered as absolutely permanent, there is no doubt that, with proper treatment, the prints will stand for a long time. The copper tones are more stable than those of iron, but the latter can be improved by treating the prints after toning to a 2 per cent. solution of hypo. Probably the ferrocyanide process on p. 646 would give the most permanent results. We may add the caution that when Dr. Sedlaczek advises the use of hydrochloric acid great care must be used not to exceed the quantity stated, otherwise trouble is sure to be met with, and with some of the formulæ if the acid be increased the tones stated cannot be obtained. (3) We have never met with a case in which persulphate would not reduce a film, and can only imagine that some hardening agent was used as a developer, or subsequently. It would probably be worth while trying sanzol on the films.

**FOREIGN INFRINGEMENT.**—A number of my photographs, taken in a Portuguese colony, are being copied, and reprints done from them at a cheap rate in Italy. Can you tell me, through your paper, whether I can do anything to stop this, as there is no protecting copyright law in Portugal? Can I stop it in Italy, and if so, how?—ANGLO.

The infringement being in Italy, and that country subscribing to the Berne Convention, you have the right to take action. It is a clear case of infringement. We advise you to put the matter in a solicitor's hands. The law of foreign copyright is dealt with to some extent in the 1906 ALMANAC, p. 680.

**L. E.**—(1) You give us absolutely no idea of the method of working, so that we can only make a guess in the dark. The small black specks are due, we think, to metallic or chemical particles which have settled on the print prior to toning; these can be prevented by immersing the print before washing in a 10 per cent. solution of salt. The dark brown stains on the boys' portraits are

due to dirty fingers, as the corrugations of the skin are clear to be seen. Some of the round spots with light centres are due to splashes of something, or metal particles coming in contact with the print after fixation. The chief fault with your "autumn" picture is, of course, the obvious posing of the figures, and the distorted perspective for the men at the back are pigmies, compared to the boy, and the front horse is mammoth compared to the plough horse. The distance is rather too heavy and distinct, due, we should imagine, to too small stop. We are afraid it would stand little chance in an exhibition.

**ART EMPORIUM (Vancouver, B.C.).**—The view publishing business here has been practically supplanted by the postcard trade, and the most useful outlets for your photographs are the large postcard publishers, such as Raphael Tuck and Co., Raphael Houmoult, E.C.; or the Photochrom Company, Hosier Lane, E.C. "The Picture Postcard," published by the Postcard Publishing Company, Imperial Buildings, Ludgate Hill, E.C., is the only journal, and will give you an insight into the trade.

**FREE-PORTRAIT FRAUDS.**—Tanqueray's circulars have appeared in this district, and I have been asked by many if his offer is genuine. Unfortunately, many have already sent him money. To prevent others doing likewise I should like to have some copies of the "Judy" skit on free-portrait swindles which appeared in the B.J.P. of September 7. I shall be very thankful if you will kindly let me know where I can get those reprints to buy, and the price.—W.S.

The reprints were issued by the Professional Photographers' Association, 89, Albany Street, London, N.W. If you are a member you can obtain them from the Secretary, to whom you had better apply for further information.

**TERMINATION OF SERVICES.**—I am engaged by a photographer as a weekly employee, having to work seven days a week. When taking the situation I was promised work for the winter, and consequently gave up an idea of going abroad. On Saturday evening I received a week's notice, saying that the place was being closed. My question is this: I started on a Saturday morning, which would mean my week ending on Friday night. Am I bound to accept this notice, as, in my opinion, I should have received it on Friday? I found it was posted at 12.15 p.m. in London on Saturday, and I received it at 4.15 the same day. I should be greatly obliged for information in reference to this.—H. GREGORY.

It is usually understood that the working week begins Monday morning and terminates on Saturday night, and, presume you were paid on Saturdays. Therefore you receive a full week's notice, which is all that is required. It seems to us that you should have been paid for the day's work on the Friday Saturday you were there. A mere verbal promise that you should have work through the winter is of no value. An agreement to that effect should have been made in writing. It is a pity that assistants, when making engagements, with promise of winter employment, do not have a written engagement to that effect, with a sixpenny stamp affixed. Verbal promises are of no value.

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## The British Journal of Photography

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## SUMMARY.

Photographic Record and Survey. We publish a paper by Mr. James Harrison read before the British Association in which the value of photo-survey work is insisted upon and the organisation detailed. The Marseilles Conference of Photographic Record has taken place, and, as reported in our last issue, the spread of survey work in other countries was mentioned by Sir Benjamin Peacock at the meeting of the National Photographic Record Association last week. We draw attention to the desirability of a central directing body to undertake the work of classification of the records. (P. 923.)

Free-portrait canvassers who have been busy recently in Perth and Rosmoy, Hants, have had a warm time owing to the exposure of their methods in the Press and the personal opposition of the photographers. We give a lengthy report proving over and over again the fraudulent nature of the business. (P. 932.)

The Traill-Taylor Lecture. We give the text of Mr. E. Walter Maunder's very interesting lecture delivered at the New Gallery on November 23 on "Photography in the Work of Greenwich Observatory." (P. 926.)

Frequent applicants for advice on so-called "Rembrandt" lighting are advised to refer to the article on Page 930.

The precautions which should be observed in taking out a policy of fire insurance are the subject of an editorial on Page 922.

A country professional reader records his satisfaction with the Christmas trade brought in on his adopting a suggestion in the British Journal. (P. 938.)

A case in which a pugilist claimed damages for libel by cinematograph films has been dismissed. (P. 938.)

Technical classes at photographic exhibitions. The Southsea Society deserves commendation for its endeavour to foster the technical side of photography. (P. 933.)

J. Antoine Lumière, of Lyons, has been made an officer of the Legion of Honour, in acknowledgment of his firm's contributions to colour photography. (P. 937.)

## EX CATHEDRA.

### Technical Classes at Exhibitions.

For some years now the wave of pictorial photography has been sweeping over the country, and has, certainly at provincial exhibitions, entirely swamped the technical side. It is, therefore, with a good deal of pleasure that we note that an attempt was made by the Southsea Photographic Society, at their exhibition held this week, to encourage technical and scientific work by a special class both for prints and lantern slides. Whilst the response was hardly so satisfactory as regards numbers as one would wish, we think that the committee of the above society should be thoroughly satisfied, not only for having had the courage to recognise this side of photography, but also because they have set a good example to others. Looking at it from a sordid point of view, a technical and scientific class means the pocketing of entry fees which would not otherwise be obtained. From the point of view of the outside visitor, the visitor who does not use a camera, one can well understand that such technical exhibits as bird and animal studies may appeal far more than the finest nocturne buried in the gloom of gum, for the simple reason that the latter is utterly beyond his powers of understanding.

\* \* \*

### Is Good Technical Work Easy?

The plea, sometimes advanced, that good technical work is easy will not hold water. It may be possible, under the present conditions, when everything is made for him, for the mere beginner to turn out a print showing good technique as regards mere printing and mounting, but it is entirely a different thing when it comes to the specialisation of photography in certain directions, whether it be bird, animal, or fish life, or even what is always considered a very easy subject, the proper rendering of flowers and fruit. The photographer who uses his tools merely for the production of good technical work, or even for mere records of places he visits, without any hope of attaining to the pictorial heights of the leading workers, has a vast field open to him, in which his technical skill will not only lead to satisfaction to himself, but give immense pleasure to those who like to see something which they can understand without a long explanatory title, even though this be three or four lines of poetry. It is not necessary to follow the bird photographer into swamps or down almost inaccessible cliffs, but there are around us innumerable subjects that can be made, if specialised, interesting, and almost every one of these special branches calls for skill of an order above that of the average commercial photographer.



### The Pyro-soda Developer.

We have received from a correspondent three negatives, developed with the three formulæ, A, B, and C, which we gave on page 863. All these negatives were exposed for the same time, and developed for the same time, and the three are very much alike, with the exception that the one developed with formula B shows that the bromide has had a slight effect. This experiment is valuable, but we are afraid our correspondent has mistaken the points at issue. There is no reason known to us for expecting that these developers corresponding to our table would show any marked differences if made up in the same way. The differences occur when the mixing of the solutions is varied. In the formulæ represented by A and C the metabisulphite and sulphite are both kept in the pyro stock solution, the carbonate being dissolved alone in a second bottle. In B the metabisulphite is with the pyro, and the whole of the sulphite is contained in the same bottle as the carbonate. These are the essential differences. The result is that while A and B keep better than B and give quite stainless negatives, even when months old, yet they are both very much slower. In the table, both are diluted, B being full strength. To make A work with something like the same rapidity as B the solution must be concentrated until it contains at least 4 grains of pyro to the ounce. Mr. Herbert, in his formula, uses 4.4 grains. Our correspondent does not state the temperature of the developers, but simply explains that he developed for nine minutes. His negatives differ so little that it is evident the method of mixing has either increased the speed of A and C or reduced that of B. Possibly both effects were produced, for the negatives are all of fair density, and if the temperature was anything like normal nine minutes is rather a long time for B, and much too short a time for our formula when diluted down to the strength of A. The experiment is very interesting, and appears to offer a possible clue to the varied behaviour of the stock solutions used in our formula and in Mr. Bennett's. If our correspondent can supplement his information by giving the temperature at which he developed, and will also state the precise manner in which he mixed formulæ A and B, we shall be greatly obliged. The details of mixing cannot be too precise, for much may depend on the manner and order in which the ingredients were dissolved.

### The N.E.A.C. and the R.W.S.

The New English Art Club is not lying up to its reputation. Its mad, irreverent, revolutionary spirits are on the wane, and the show begins to be disappointingly good and sane and earnest. The brilliant and masterly landscapes of

Prof. Brown are no longer "New English," but admirable old English, and so are the excellent London street scenes of Mr. F. Dodd, and the strong and early-mannered sketches of Mr. Rich, to mention these only. The romanticism of Mr. McEvoy and the earnestness of Mr. C. J. Holman quite outshine the vagaries of one or two artists who may yet have shown a piece of work taken beyond the career sketch stage—perhaps for a good reason. We think that the best exhibition yet of this society. The Royal Water Colour Society, on the other hand, is content to be known as "old," not as "new," and its exhibits are always freshest, because the cleverest and best of them all, mention names would be futile. We recommend all to desire an artistic treat, to know what is meant by pictorial qualities, and to see what lies within the range of the artistic temperament in the employment of colour and values, the charms of style, composition, and all else makes a perfect picture, to spend a shilling at No. 5A, Mall, now, not when the walls are lined with drab and the gallery sports a Frenchified name.

### FIRE INSURANCE CLAIMS

A QUESTION of some importance to photographers generally is put to us by a correspondent this week with regard to compensation for injury to negatives arising from a fire on the premises. In his letter he says that some thousand negatives have been quite spoiled, presumably by water, as the other damage was not great. He adds that the insurance company seems to regard them as of no value whatever, as they were not in use and were only valuable in the case of re-orders. If the negatives are named in the policy as part of the property insured, he certainly can claim for their value. But the question arises—what is the value of an old negative? The insurance company's contention in this case is that it is only valuable in the event of copies being required, and that is a reasonable one. In most policies the value of any individual negative is limited to a certain small sum—such as sixpence or a shilling. But it must not be assumed from that that the amount can be recovered for all those destroyed. The insurance company will require proof that those that were had value to the insurer, which is a somewhat difficult matter. Now the question arises: What is the value of a stock of old negatives? We think that it will be admitted that as a rule, by far the larger proportion of them are valueless.

## THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC FOR 1907.

Edited by GEORGE E. BROWN, F.I.C.

THE forty-sixth annual issue of THE BRITISH JOURNAL PHOTOGRAPHIC ALMANAC will be published on December 1. This year's ALMANAC reached the total of 1,616 pages, and the entire edition of 25,000 copies was sold out before publication. Of no other photographic book ever issued can two such unique facts be recorded. The edition for 1907 will also consist of 25,000 copies.

The editorial article will deal very completely with the important subject of

### THREE-COLOUR PHOTOGRAPHIC PRINTING PROCESSES,

and the systematic review of the work of the year under the title "Epitome of Progress" will be a strong feature of the volume.

The lines followed in the previous editions of the

ALMANAC will be maintained in general, but in a number of particulars the arrangement of the volume for 1907 will be modified to make it more than ever the book of universal photographic reference.

The ALMANAC for 1907 will appeal to photographers the world over as a daily reference guide in practical work. The standard matter and formulæ will be revised and added to where necessary, and, wherever practicable, features of an informative nature will be added.

**\*\* IMPORTANT NOTICE.**—Our publishers ask us to inform Agents that it will be as well to place their orders for copies immediately, as the issue is always booked before publication, and a second edition will not be printed.

there is but little probability of copies ever being required from them; they are simply useless lumber and not worth the room they take up. The case may be different with the negatives of public characters, but we are referring now to a general portraitist's business. At the present time the re-orders from old negatives are very different from what they were a few decades ago. Then people did not sit so frequently for their portraits as they do now. The orders for copies from old negatives were more frequent, even if they were years old—sometimes because the portraits appeared more youthful than if they were freshly taken. With present-day retouching methods at condition does not still obtain. In the case of each it is the last portrait that was taken which is the one usually required. As portraits are done so cheaply now, and fashions, especially amongst ladies, change so frequently, it is usual for people to prefer to sit again rather than order from previous negatives, in which they are portrayed in out-of-date costumes. Hence it will be seen that a stock of portrait negatives is not of the same value it used to be at one time. One frequently sees, when a business is advertised for sale, so many thousands of negatives mentioned as being a valuable asset, but are they so valuable after all? The only way to assess the true value of a stock of old negatives, whether in the case of fire damage in the sale of a business, is to ascertain the amount they bring annually in the form of re-orders.

Photographers, when they effect an insurance on their property, are frequently very negligent in the matter. In many cases the insurance is effected through a local agent, who takes down rough particulars and receives the first premium: the policy is forwarded from the head office. Of course this arrives, and the insured simply reads out the amounts of the different things are rightly specified and then rests content. He very frequently fails to read the terms or more conditions upon which the policy is issued, and the infringement of any one of which is sufficient to invalidate it, and no claim in the case of fire can then be legally sustained. Furthermore, when a policy is once invalidated it is always void, even if premiums upon it have subsequently been paid. In most policies there is a limited sum placed on different items insured, as in the case of negatives, or, for example, lenses, that no one exceeds a value of, perhaps, £10. Thus, if one is worth £50 no more than ten can be recovered if it happens to be destroyed. The same with pictures and the like. If lenses or other items of high value are to be insured, the insured must see that the fixed limit includes their value. One of the conditions of a policy is that the company reserves itself the right to reinstate what has been destroyed. This does not mean that it will supply new goods, but only that as those destroyed. This is very rarely done, yet the office cannot be expected to pay the price of new things for what are secondhand ones. Although all policies contain such a number of conditions that they may easily, unwittingly, be rendered void, companies usually deal fairly, sometimes very generously, with their customers, when they are satisfied that when a claim is made on them it is a reasonable one, and that it is not made with a fraudulent intent.

the collections now being formed in various provincial centres. Photographers who thus employed their leisure have now the satisfaction of seeing their labours emulated in other countries. In France the movement is being promoted by an eminent committee; the United States, as a result of Sir Benjamin Stone's exhibit at St. Louis, is taking steps to organise a national effort; Australia is asking for guidance; and Japan has proclaimed its intention of recording its national scenes and customs by photography. Record photographers, therefore, may feel a pardonable pride in these evidences of approbation, the only ones almost to fall to their lot. Unlike the practitioners of "pictorial photography," the photographers devoted to record work can hope to make no bubble reputation, nor be flattered by reproductions, usually unlike the originals, of their works in the amateur papers. Such signs, therefore, of the importance attached to their unadvertised labours should be all the more gratifying, and at the same time stimulate individuals and societies who have hitherto taken no part in this greatest and important application of photography.

But to drop a complacent tone, we would point out the danger which exists of the energies of present and future participants in photographic record work being wasted, and we would lay stress on the urgent need for central organisation and direction. This need, we think, is just as real in regard to the classification of record completed photographs as in regard to the supervision of work undertaken. In fact, in view of the final aim of all record associations, that is to say, a complete pictorial history of the present time and of the relics of previous historical periods, it is more important to have a complete and workable scheme of classification than it is to avoid the same work being done twice. The former impairs the usefulness of the work at any stage towards completion, whilst the latter merely gives the opportunity of discarding a number of photographs for better ones. The time would seem to have come when a committee composed of representatives of the record associations and of one or two persons accustomed to classification, such as librarians or indexers, should prepare a series of sections and sub-sections for the classification of the photographs already made, and, more important still, of the immensely larger amount which will be added to the number. From our experience of filing documents it seems to us inevitable that every print in a record collection must be a separate unit, removable from its present place and transferable to a different series. The mounting of prints in albums, unless the leaves are removable, is a course which we cannot discountenance in sufficiently strong terms. Every provision should be made for the growth of collections and any re-arrangement which future work may show to be desirable. The wisdom of this course, we believe, will be obvious to anyone who has had experience in filing information, correspondence, or any documents to be referred to at a minimum of trouble.

The question of cataloguing is one which Sir Benjamin Stone referred to as one of the things urgently needed to develop the true value of the prints in the British Museum, but at present in abeyance for lack of funds. When such a catalogue is prepared, it seems to us highly desirable that it should include not only the prints of the National Photographic Record Association, but those also of the other bodies, which in Surrey, Sussex, Essex, Worcestershire, Kent, and Warwickshire, have systematically been accumulating photographs of their respective districts. Possibly some expense-sharing scheme may be promulgated whenever the financial position of the various organisations justifies the publication of a catalogue. The question of copyright in the prints also requires to be considered.

#### PHOTOGRAPHIC RECORD.

BENJAMIN STONE's address at the annual meeting of the National Photographic Record Association last week was of encouragement to those in this country who have set themselves in contributing to the accumulation of the thousand odd prints in the British Museum, or to



## PHOTOGRAPHIC RECORD AND SURVEY.

THE gathering of those interested in the National Photographic Record Association, which took place last week on the invitation of Sir J. Benjamin Stone at the Midland Hotel, St. Pancras, was reported in our last issue, where we gave the text of the annual report of the association as read by the hon. secretary, Mr. George Scamell. In proposing the adoption of the report, Sir Benjamin Stone referred to the continued spread of interest in record and survey work in other lands, and spoke in recommendation of the establishment of a central body, under Government or other national auspices, for the circulation of lantern slides of educational value

among the elementary and secondary schools of the United Kingdom. Sir Benjamin also appealed for the elimination of vulgarity in photography, and expressed the hope that the photographic art would lend its aid in discountenancing the tendencies which lower the art in public estimation. Sir Benjamin Stone acknowledged valuable assistance rendered to the association by Mr. G. Scamell (treasurer), and Mr. George Scamell (secretary). On the proposal of Mr. Philip Norman, seconded by Colonel Sir Robert Rayner, Sir Benjamin Stone was re-elected president, and Messrs. Scamell and Graham were re-elected secretary and treasurer.

### THE MARSEILLES CONGRESS OF PHOTOGRAPHIC RECORD.

THE report of the International Congress, held at Marseilles on October 19 and 20, has now been published. The meetings, which were held under the presidency of General Sebert, adopted a number of resolutions and discussed several papers, the full text of which has not yet been made public. A committee, consisting of the following—M.M. Bing, Bourgeois, Buquet, Casier, Clerix, E. Cousin, Davanne, Fonesca, Caumont, Javary, Lafontaine, Losseau, Colonel Laussedat, Legard, Maes, Otlet, de Potter, Puttemans, Reiss, Taillefer, Colonel Venet, and Wallon—had drawn up a memorandum upon which the discussions of the Congress were based. Among the formal resolutions passed by the Congress are: That it pledges itself to advance the work of photographic record, and to encourage such work among public bodies and institutions of scientific, artistic, and educational aims, to whose assistance organisations undertaking record work may be largely indebted; that the features which should characterise any photograph supplied for documentary purposes

depend on the nature of the subject, but that in all cases the date of reproduction and the date of the photograph should be stated; that the recent decisions of the International Congress of Photography, Liege, 1905, as to the reproduction of manuscripts, coins, seals, should be adopted; that the Congress should collaborate with the Institut Internationale de Bibliographie in reference to the work worked out by M. Richard Goldschmidt for creating and reproducing documents by microphotographic and cinematographic methods.

The Congress also adopted certain resolutions as to the size, of photographs to be preserved. It favoured the steps taken for the preservation of photographic documents by the Société Italienne de Photographie. The Congress further adopted resolutions as to the bibliography of photography, a file of photographic patents, in regard to which particularly it was thought well to consider the offer of the Institut International de Photographie at Brussels as a central organising body for photographic record.

### THE DESIRABILITY OF PROMOTING COUNTY PHOTOGRAPHIC SURVEYS.

A paper read before the British Association.

#### I.—Origin of the Photo-Survey Movement.

THE movement which it is the object of this paper still further to promote had its origin in a meeting of the representatives of numerous local photographic, scientific, and literary societies at Birmingham in 1889, when a paper was read entitled "Notes upon a Proposed Photographic Survey of Warwickshire." This paper was an amplification of the ideas which had been urged in a note upon "The Work of a Local Photographic Society," read before the Birmingham Photographic Society in 1885, and published in the "Photographic News" (Vol. XXIX., p. 421).

Although this Birmingham paper of 1889 had a local title, yet it has, and was intended to have, a general application.

In response to an invitation from the (Royal) Photographic Society of Great Britain, a paper bearing the wider title of a "Proposal for a National Photographic Record and Survey" was subsequently read before that body in London in 1892. In this paper the right and duty appertaining to the "parent" photographic society of taking the lead in this most important work was strongly urged.

Finally, an ambitious attempt was made to link together the photographers of the entire civilised world by an extension of the "survey" idea, and at the World's Congress at Chicago in 1893 a paper upon "The Desirability of an International Bureau, Established (1) to Record, and (2) to Exchange Photographic Negatives and Prints," in which these views were explained, was read and discussed. In this paper three principal points were urged:—

(1) In every country it is desirable that a photographic survey should be initiated. By the term "survey" is here meant a pictorial record of the state of things, physical and general, now existing.

(2) In each country there should be (a) local dépôts (free libraries, museums, etc.) containing complete sets of permanent photographic prints of the immediate district; and (b) a central bureau (in England, the British Museum, for example) containing both negatives and prints relating to the entire country.

(3) Facilities for the exchange or purchase of prints, etc., should be provided.\*

\* A few copies of the first paper of 1889 still remain, and, while the supply lasts, a copy will be gladly forwarded to the secretary of any Society which contemplates commencing photo-survey work. Address: W. J. Harrison, 52, Claremont Road, Handsworth, Birmingham.

On the motion of Mr. Snowden Ward an International Committee was appointed to consider how these ideas might best be carried out. This committee did good work in disseminating a knowledge of the survey movement, and its French representative, M. Vidal, inaugurated a very complete system in his own country.

#### II.—Progress of Photo-Survey Work in Britain.

SEVENTEEN years have elapsed since the photographers of Warwickshire began their task of making a local photo-survey. Each year an exhibition of the Warwickshire survey prints has been held in the Municipal Art Galleries of Birmingham. The prints have been presented to the Free Reference Library, where they have been examined and studied at any time. The number of local photographic prints in the Birmingham library is 3,020 prints, bound in folio volumes.

Other localities where work for the photo-survey has been commenced include Barnstaple, Cardiff, Chester, Darlington, Exeter, Exeter, Manchester, Stoke-on-Trent, Wolverhampton, and Yorkshire; but we have not seen any recent reports of progress in any of these centres. The following, however, are known to be more or less actively engaged in survey work (the names given are those of the hon. secretaries):—

Warwickshire (Geo. Whitehouse); Worcestershire (W. H. Harris); Essex (Victor Taylor); Kent (J. H. Allchin); Surrey (F. F. W. Consett); Yorkshire (P. E. Surtees); Edinburgh (G. Burns); National Photographic Record Association (Geo. Scamell).

#### III.—Objects of Photo-Survey Work.

THE three great objects of the Photographic Record and Survey are to benefit (a) the individual photographer; (b) the scientific photographic societies; and (c) the nation generally.

(a) *The Individual Photographer and the Survey.*—The scheme gives the photographer an object, and we maintain that the work of such a survey is a liberal education for any man, impossible to photograph without learning much about the subject photographed; and the survey brings photographers into contact with experts who are able and willing to afford ample information.

The professional photographers of the British Isles now number a small army, their number being recorded by the census of 1901 at 17,945. Many firms must possess stores of negatives illustrating

"survey" subjects; and it is certain that if properly approached the average professional of any standing would be willing to aid a county photographic survey.

Lastly, there is the great body of "unattached" photographers, whose number can hardly be estimated, but, omitting the casual snapshotter, there are, perhaps, a quarter of a million who could do useful work for a photo-survey if someone would only tell them what to do and how to do it.

(b) *Photographic and Scientific Societies and the Survey.*—The total number of British photographic societies in the list published in the "British Journal Almanac" for 1906 is 354. And in the Year Book of the scientific and learned societies of Great Britain and Ireland for 1905 the number of societies other than photographic, but whose work would be more or less aided by photography, is given as 333. In addition, there are many societies connected with the "fine arts" not included in either of the above lists.

It is a mistake to suppose that the task is one which appeals only to practical photographers. The man with the camera may know how to photograph, but it is impossible that he should always know what is worth photographing. For this purpose he needs the advice of an expert, and the guidance of the man with local knowledge.

To the society, as to the individual, the duty of having a useful public task to accomplish is of great value. It binds the members together, it attracts members, and it brings the society before the public.

(c) *The Nation and the Survey.*—The work of a photographic survey and survey is of value alike to the generation by which it is executed and to all succeeding generations.

The physical features of the land slowly alter, even if left solely to the unaided action of the forces of Nature. There are points on our eastern coast where the sea has advanced a mile or more during the last century. But when we include the agency of man we find yet more rapid alterations. Every year the amount of waste land is diminished—the bogs are drained, the pastures creep up the hill-slopes, forests vanish here, while new plantations spring up there. The opening-up of mines and quarries, the cutting of new canals and railways, the rapid expansion of our towns and cities—in all these, and in many other ways, the natural scenery of these islands continually being changed. Then there are the noble buildings and monuments which we have inherited from our forefathers, and which history is written in stone. Architecture is indeed one of the strongholds of photography.

It is also important that we should record the life of the nation—their trades, the dress, the occupations of the people, their habits, and their amusements. We live in an era of unusually rapid change. The improved means of communication, the discoveries of modern science, and the spread of education all combine to abolish the differences of language, of dress, and of manners.

The British Association has rightly joined in hastening on the work of an ethnographical survey of the United Kingdom; for if

such a survey is not done quickly, the amalgamation of the people of the different counties will have gone so far as to render the task useless, if not impossible.

#### IV.—"District" Surveys and "Subject" Surveys.

The work of a photo-survey may proceed along two distinct lines, although these may, of course, be pursued simultaneously:—

(a) *A District Survey*, where, say, the 1 in. map or the 6 in. map is taken as the unit, and all items of interest within that area are photographed. This is the method so far pursued by those who have approached the task from the photographic side.

(b) *A Subject Survey* in which some definite line of research is followed. It is in this direction that the efforts of most of our men of science who are not connected directly with photography and photographic societies have tended. No praise can be too high for the work of the Geological Photographs Committee of the British Association. The committees on anthropological photographs and on botanical photographs are working upon similar "subject" lines, while many of the other committees largely use photography. Indeed, the British Association seems to be specially well fitted to carry on the work of subject surveys.

#### V.—Base of the British Photo-Survey.

Unquestionably the great unit for district surveys should be the county. For the small working unit nothing can be better than the maps of the Ordnance Survey. The 1 in. map is good; but the 6 in. gives such detail that by its aid we can determine the orientation of buildings, etc., so as to be able to select beforehand the precise hour of the day when the light will be best suited for work.

#### VI.—Promotion of the "Survey" Movement.

What can be done by the Corresponding Societies Committee of the British Association to aid the photo-survey? A small sub-committee might be appointed:—

(a) To collect details as to the work done or being done.

(b) To prepare and circulate printed matter on the work of the survey, so as to make its aims and methods generally known.

(c) To co-ordinate the photographic societies with the literary and scientific societies, so that all may unite in the work of the survey.

(d) To obtain lists of "experts" in various departments who would be willing to advise upon such subjects as photographic methods, processes, and appliances; to draw up county lists of objects and places, specifying their exact points of interest, etc.; to write brief descriptions upon the backs of the mounts, the survey prints, etc.; and to draw up lists of literature upon the counties or other areas.

(e) The publication of series of prints either of districts or of subjects would be one of the best methods of popularising the survey.

W. JEROME HARRISON, F.G.S.

#### Suggestions and Memoranda for the Use of Societies, Committees, or Sections as to the Working of a Photographic Survey.

1. In any district a society, committee, or section may be formed to promote the work of a photographic survey. Such a body may be either independent or part of an already existing society.

2. Members may be of two classes—(a) experts in photography; (b) experts in other branches of science, literature, and art.

3. Members in Class (a) who desire to join in the work of a photo-survey must (prior to election) send in not fewer than — prints of their first contribution to the work of the survey; and must thereafter contribute at least — prints annually. Members of Class (b) must subscribe not less than — per annum.

4. All prints should preferably be by some permanent process, such as carbon, platinum, or bromide, but silver prints will be accepted.

Prints may be of any size. ["Half plate," 6½ in. by 4½ in., or "whole-plate," 8½ in. by 6½ in., preferred.]

5. Prints may be sent in either mounted or unmounted. If mounted, they must be upon "standard" mounts.

These standard mounts may be of two sizes—the first size to carry "whole-plate," or two "halves," or four "quarters"; the second larger size to take prints up to 15 in. by 12 in. Prints must be

mounted behind "cut-out mounts," so that the surface of each print may be protected from abrasion, and they must carry printed headings or labels on their backs for particulars to be filled in by the photographer. The "first size" mounts should measure 14 in. by 11 in., with a central space for the prints of 10½ in. by 7½ in.

6. As many details as possible must be given upon the back of the mount about each photograph, including (1) subject, (2) date, (3) time of day, (4) focal length of lens, (5) printing process, (6) general remarks, (7) contributor's name and address.

7. The officers of the survey shall include a curator, whose duties shall consist of the care, classification, cataloguing, mounting, etc., of the prints; and a secretary, to conduct the correspondence, etc.

[A chairman and a special survey committee may also be necessary.]

8. Beyond simple "sooting," it is not advisable that any "retouching," "improving," or "double-printing" should be done to the negatives from which prints are to be taken, or to the prints themselves.

9. The work of a photo-survey established under this scheme is intended to supplement, and not in any way to interfere with the



work which is already being done in this direction by other photographic or scientific societies.

10. Many districts are not covered by the existing photographic societies; many individuals who are not connected with such societies are willing and able to do survey work, and there are many lines of research which are best conducted by specialists working alone. The Survey General or Central Committee will endeavour to cover such districts and to enlist and direct the services of isolated workers and specialists.

11. Information will be sought as to buildings, places, or regions in which restorations, destructions, or great changes are likely to occur.

Lists of such buildings, etc., have already been compiled by Mr. Snowden Ward and published in the "Monthly Photogram."

12. Lists of special areas for photo-survey work and of special lines of inquiry shall be drawn up and circulated. Suggestions are asked for.

Examples (a) of neglected (or unsupplied) areas such as—

(1) Salisbury Plain, Dartmoor, the New Forest, etc.

(2) The Scilly Isles.

(3) The Fens.

(4) Many isolated districts in Wales, Ireland, and Scotland.

(5) The coast-line generally (to show the effects of erosion).

(6) The Roman roads.

(7) North Lincolnshire (before the development of the recently discovered coalfield changes the entire character of this agricultural district).

(8) The South Staffordshire coalfield—an area where the coal seams will probably be worked out ere the close of another quarter-century.

And (b) of special lines of inquiry, as—

(1) Occupations (trades, etc.) of the people.

(2) Dress as influence—(i) by occupation, (ii) by "fashion."

(3) The native flora of Britain—wild plants photographed in their natural habitats.

13. The survey may hold at least one meeting annually for the purpose either of making a more or less complete photo-survey of some (photographically) neglected or specially interesting district; or of co-operating with some existing society or societies in inaugurating or extending such a survey.

14. Sample sets of mounts, maps, illustrative survey-photographs, etc., shall be prepared. Of these sample sets one set shall be kept for reference at the office of the survey, while the other may be borrowed by any society or member, who must, however, defray the cost of carriage both ways and return the set whenever requested to do so by the hon. secretary.

15. Of the photographs collected, the first complete set shall be deposited in some public institution (preferably the British Museum).

Sets of survey-photographs of local interest may also be presented to any local institutions (as free libraries and museums) which may be willing and able to take proper care of them.

16. If not fewer than — members apply, a special sub-section or sections may be formed, among whom a portfolio of survey prints (with accompanying descriptive notebooks) shall circulate. Such

members shall pay a small annual subscription to defray extra expenses.

17. The inauguration and direction of photo-survey work in the British Colonies may be one of the objects of the survey.

18. Photography at sea, including meteorological phenomena, types of vessels, of seamen, waves, icebergs, marine animals and plants, etc., may be one of the special subjects of which records shall be obtained. Photographs taken by British travellers in unexplored, wild, barren, or savage regions of the earth, such as the Polar Regions, Central Africa, etc., may also be included in the survey collections.

19. An annual exhibition of the work of the survey may be held.

20. The gift of negatives, as well as of prints, is solicited.

21. Local photographic, literary, scientific, archaeological, and artistic societies may be affiliated to the survey. Such societies may aid in the preparation of lists of objects and places for the work of the photo-survey; and by the help of their members as local guides and experts.

22. The survey may appoint a professional photographer or photographers to do the work of printing, both for the survey and for individual members.

23. In any lists of the members of the survey which may be published the number of prints contributed by each member shall be shown (in brackets) after his name.

24. *Apparatus.*—The following specification refers to a set of apparatus which has been used for survey work for several years past:—

(1) Half-plate camera fitted with turn-table and behind-lens shutter; (2) three double plate-holders, with pull-out aluminium slides; (3) three-fold wooden tripod; (4) wide-angle lens (anastigmat), 5½ in. focus; (5) lens (anastigmat) for ordinary work, 8½ in. focus; (6) changing-bag and focussing-cloth combined; (7) spirit level; (8) focussing-glass; (9) yellow screen (for orthochromatic plates); (10) notebook and exposure meter; (11) stiff brown canvas carrying-case; (12) ordnance map of the district. The weight of such an outfit (loaded with six glass plates) will be 14lb.

25. The "half-plate" is, perhaps, the smallest size which gives, itself, a useful print; and yet it is not too big for the enlarging apparatus. Enlargements to 23 in. by 17 in. are to be preferred for wall-pictures.

26. To get good enlargements we must use lenses capable of giving fine definition, and the lenses recommended are most satisfactory in this respect.

27. Plates are to be preferred to films, because of their possessing a plane surface, which can be relied on to be in register with the focussing-screen, and for their rigidity, although films possess the advantages of lightness, non-breakability, and ease of storage.

28. Each member shall be furnished with a ticket or book stating that he is a member of the photo-survey, and giving brief particulars of the survey work. Endeavours shall be made to obtain a reduction of railway fares to bearers of such tickets when carrying photographic apparatus, and also to obtain permission to photograph (as in cathedrals and public places generally) on production of such a ticket.

## PHOTOGRAPHY IN THE WORK OF GREENWICH OBSERVATORY.

The Ninth Traill-Taylor Lecture. Delivered by E. Walter Maunder, F.R.A.S.

It was, I venture to think, a happy idea to institute, in memory of the late Mr. Traill-Taylor, an annual lecture which should deal with new developments, either in the optics or the processes of photography, or take account of its practical application in various branches of science. For these are the very subjects which so greatly interested Mr. Traill-Taylor himself during the forty years in which he was so energetic a worker in the photographic field. As Editor of the *BRITISH JOURNAL OF PHOTOGRAPHY* for a quarter of a century, he made it his business to keep himself and his readers thoroughly in touch with every development of the art, and he was always ready to place at the disposal of the inquirer his own ripe stores of knowledge and experience.

In responding to the high honour of an invitation to give the ninth lecture of this series, I feel that I have not the slightest ability to instruct you upon the two first-named subjects, the optical or the practical developments of photography. But I hope, as I have been for a full third of a century a member of the staff of the Royal Observatory, Greenwich, and am therefore able to speak of certain features of its work from inside experience, that you may possibly feel some interest, as I feel sure Mr. Traill-Taylor would have done in such an account as I can give of the uses to which photography has been put in the work of the Observatory. My own experience of photography is quite narrow, limited strictly to what has been absolutely necessary for my work. But the work of the Observatory

its different departments being of a very special character, and directly or indirectly of high national and scientific importance, I hope that a brief review of the part which photography has played in it will not prove unacceptable to you, nor inappropriate to the present occasion.

Astronomy was the first of all the sciences to make use of the photographic art. At the very first invention of the Daguerreotype process, Daguerre himself, at the request of Arago—then the leading astronomer of France—attempted, in the year 1839, to photograph the moon. But although he gave a prolonged exposure, he only obtained a very imperfect result, the image being very weak and details completely lost. In the following March, however, the great American physicist—J. D. Draper—using a Newtonian reflector of 5-inch aperture, and of 9 feet focal length, obtained a series of Daguerreotypes of the moon by an exposure of about twenty minutes, which showed distinctly the principal features of our satellite. There was, therefore, no tardiness on the part of astronomers to avail themselves of the new process. From its very inception they realised that here they would find a most valuable assistant; how valuable it would prove, however, no one at that early date could even dream.

Draper made a new application of photography, in 1843, when he obtained a Daguerreotype of almost the whole of the solar spectrum. In 1845, Messrs. Fizeau and Foucault succeeded in obtaining a Daguerreotype of the sun, which showed, not only the diminution of light near the circumference, but also revealed some groups of sun spots with their penumbrae.

Greenwich Observatory was not long behind these first experiments in pressing photography into its service. The study of the details of the surfaces of either the sun or the moon was then not part of the Greenwich programme, and hence Airy, the Astronomer Royal, did not follow either of the precedents just mentioned. But, as you all know so well, at the very time that M. Daguerre was working at his process, Mr. Henry Fox Talbot brought out his method of "photogenic drawing," in which paper was rendered sensitive to light instead of a thin plate of silver, as in the Daguerreotype. Here was a much cheaper sensitive surface provided, and one which, from the ease with which paper will adjust itself to the form of any object, was available for purposes to which the silver plate of the Daguerreotype was wholly unsuited. From 1847, therefore, photography has entered largely into the daily work of Greenwich Observatory, and the directions in which it is found to be of service tend continually to increase in number.

There are three chief purposes to which photography is applied in the work of the Observatory at the present time. First, both as to the date of its introduction into the Observatory and the extent of its use made of it, is the continuous registration of the changes in certain instruments; next, the pictorial registration of a great multiplicity of details shown by certain objects at a given time; and third, and often in connection with this registration of details, photography has proved of use as giving the means for the measurement of the position of certain objects, thus replacing direct observations at the telescope. Under the first head, the typical work effected is the automatic registration of the movements of the magnetic needle; under the second, the representation, day by day, of the state of the solar surface; under the third, the great photographic star catalogue.

### Registration of Magnetic Movements.

The original domain, of the Royal Observatory, Greenwich, was limited to the octagonal tower, now known as Flamsteed House, and a little lawn in the rear. But, as the successive Astronomers Royal came into authority, they all extended both the buildings and the area of the Observatory; and Airy, the seventh in the succession, died most. Immediately after his appointment, he obtained the sanction of the Board of Visitors for the creation of a new department—namely, that for magnetic and meteorological observation, and a considerable enclosure was made to the south of the original Observatory, in which a plain white wooden building, cruciform in shape, was erected as the "magnet house." Visitors to Greenwich Park will easily recognise this building, as it stands between the plain buildings to the north, erected by Flamsteed, Bradley, and Airy, and the handsome and imposing structure which the present

Astronomer Royal, Sir William Christie, has built at the southern extremity of the Observatory ground.

This magnet house was the first part of the Observatory into which photography was introduced, for here are housed the various magnetic needles. The needles themselves are very unlike what are generally understood by such a term; they are rectangular steel bars, 2 feet long,  $1\frac{1}{2}$  inches broad, and  $\frac{1}{4}$ -inch thick, and each is suspended by a skein of silk 6 feet in length. The chief needles are three in number: one, the declination magnet, is mounted so as to show changes in the direction of the earth's magnetism; two others, the horizontal force and vertical force magnets, to show changes in its intensity.

The declination magnet, as is very well known, does not point to the true geographical north, but some 16 degrees to the west of it. But in addition to this, it changes its position very slightly during the twenty-four hours. There is a slight movement towards the west every day, from about eight or nine o'clock in the morning to about one or two o'clock in the afternoon; and then a very slow return towards the east, there being very little movement at all during the night hours. The average amount of the movement is so slight that the end of the 2-foot bar, under ordinary circumstances, only moves the thirtieth part of an inch, to and fro, in the twenty-four hours. This daily range, therefore, is of no consequence to the mariner, as it only amounts to about a hundredth part of the distance between two of the points on a compass card, or something like the eighth of a degree.

The method of taking direct eye-observations of the position of the needle at regular intervals would, of course, give a very fair impression of any movement so slow, regular, and progressive as this. And further, it would enable the observer to ascertain whether the amount of this daily range—the amplitude of this daily swing—varied from day to day, from month to month, or year to year. And it was long ago ascertained that its amplitude was greatest in summer and least in winter, and that its average amount is nearly double in some years what it was in others.

When the Magnetic Department was first established, the regular registration of the movements of the magnetic needle was sought to be secured by a system of direct observation every two hours. As the meteorological instruments, as well as the magnetic, were thus read twelve times in every twenty-four hours, it will be seen that this involved a very heavy, irksome, and exacting labour, and was no small tax upon the resources of a staff which then numbered only four persons for this department.

There was no great difficulty in devising means by which some of the meteorological instruments could be made self-registering. The instruments devoted to recording the direction or force of the wind could readily be given that character, for the wind itself supplied a considerable motive power, and it was easy to devise a light apparatus by which it could be made to drive a pencil on a recording sheet. So, too, self-recording barometers have been made in which the pencil follows the movement of the mercury in the barometer tube, or of the face of the vacuum box in an aneroid. A similar mechanical movement has also been fitted to the rain gauge, but all these appliances, however ingenious, are entirely out of place when we come to the magnetic needle. It is impossible to attach to an instrument so sensitive, and which must be so delicately mounted, any train of mechanism whatsoever. The lightest and most free in its running imaginable, would so hamper the needle as to render the record worse than useless.

But a beam of light has no weight, and its impact upon the needle or upon a mirror attached to it, does not hamper or interfere with the movements of the needle in the least. Further, by making the reflected ray travel a greater distance than the incident ray, any desired amount of magnifications might be given to these infinitesimal magnetic tremblings. This was easy enough, but until the advent of photography, it served no useful purpose. The spot of light left no record of its movements on the screen, and direct observation was still required.

Talbot's invention met the exact necessity of the case by supplying a screen capable of retaining an impression produced by the spot of light, and Charles Brooke made a number of experiments on his own account as to the possibility of registering the magnetic movements by means of photography. The process he adopted was not precisely that of Fox Talbot, but was one of the many modifications



brought out in succession to his method. Its introduction is mentioned by Airy in his report to the Board of Visitors for 1847:—

Preparations, however, are in progress, under the direction of Charles Brooke, Esq., for making these magnetometers self-registering by a photographic process. From the specimens furnished by Mr. Brooke, and from the facility with which one of the junior assistants—Mr. Humphreys—has acquired the command of the photographic part, I am satisfied of the practicability of this plan."

In the following year Airy writes again:—

"The declination and horizontal force magnetometers are completely and efficiently prepared, either for observation with telescopes in the ordinary way, or for the self-registration by photographic record, which is now adopted in the daily system of the Observatory. The vertical force magnetometer and the barometer have been very lately fitted up in the same way, and we are now engaged with the petty difficulties which invariably present themselves in the use of a new instrument. The whole of the photographic part has been arranged for us by Charles Brooke, Esq."

It may be added that the same system was applied to the thermometer in the same year, 1848; Sir Francis Ronalds independently adapted photography to the Kew instruments at about the same time that Brooke thus dealt with those at Greenwich.

Seeing that this important step was taken very nearly sixty years ago, and in the early days of photography, it may perhaps be of interest to the Royal Photographic Society to have a full and detailed account of the process, as some of the expressions read a little quaintly at the present day, and the following paragraphs have accordingly been extracted from the Greenwich volume for 1847:—

"The paper used for this purpose is manufactured by Messrs. Lepard, Smith, and Co., of James Street, Covent Garden. It is rather strong woven paper of even texture, and is prepared with great attention to the exclusion of all foreign substances which might combine injuriously with the chemical materials used in the subsequent treatment.

A sufficient quantity of paper for the consumption of three or four weeks is treated in the following manner:—To a filtered solution of four grains of isinglass in one fluid ounce of boiling distilled water are added twelve grains of bromide of potassium and eight grains of iodide of potassium. The solution, either when hot or cold, is evenly laid on the paper with a camel's-hair brush, in such quantity as to thoroughly wet its surface, but not to run off; the paper is then dried quickly before the fire. The paper thus treated is preserved by keeping it in a dry place, and in a drawer.

"When a cylinder is to be charged with photographic paper, the room is darkened, and illuminated only by a candle whose flame is surrounded by a cylinder of yellow glass. The paper is laid flat in an earthenware dish, and is washed with an aqueous solution of nitrate of silver (made by dissolving fifty grains of crystallised nitrate of silver in one fluid ounce of distilled water), which is laid on in quantity not sufficient to run. The paper is then in a state fit to be placed upon the cylinder. When the paper is to be taken off the cylinder, the room is illuminated in the same way, the cylinder is detached from its mounting, the external cylinder is drawn off, and the paper is unfolded and laid flat in a dish. In this state it exhibits no trace of the action of the light. It is then washed with a solution of gallic acid, to which a few drops of acetic acid are added, till it is moderately wet all over; the impression begins soon to appear, and in a few minutes acquires its full strength. The paper is then repeatedly washed with water till the water runs off quite clear. Solution of hyposulphite of soda (formed by dissolving one dram of the hyposulphite in five ounces of distilled water) is then poured upon it, and water is added in considerable quantity; after this has remained about five minutes the paper is washed repeatedly with water. The trace is then securely fixed and light may be admitted into the room. The sheets are then usually preserved for gradual drying within the folds of linen towels.

"The whole of this process, mechanical and chemical, has been arranged by Charles Brooke, Esq.

"The quantity of chemical substances applied in these preparations may be judged from the following statement:—

"Three sheets of photographic paper are employed every day, including in the whole about 440 square inches.

"The amount of chemical substances consumed in three months is nearly as follows:

Crystallised nitrate of silver .....	8 ounces.
Gallic acid .....	3 "
Acetic acid .....	2 "
Hyposulphite of soda .....	16 "
Bromide of potassium .....	2 "
Iodide of potassium .....	1 "
Naphtha (used in the spirit lamp employed for boiling the solutions) .....	½ pint.
Distilled water .....	4 gallons.
Isinglass .....	A small quantity.

"Two gallons of camphine are consumed every week in the lamps and this is the principal part of the current expense of the apparatus.

"Mr. Brooke has found that the light of ordinary coal-gas charged with the vapour of coal naphtha produces as strong a photographic effect as the light of camphine; and preparations are now in progress for introducing gas to the Royal Observatory, to be employed in this manner.

"[1849, August. The gas has been introduced, and, with the vapour of coal-naphtha, is now successfully used for the photographic operations.]"

The method in which the paper, rendered sensitive by the above process, was used, was to roll it round a cylinder to which it was tightly clipped, the axis of the cylinder being placed in the direction of the movements of the spot of light reflected from the little mirror carried by the magnet. Clockwork was then applied to the cylinder to turn it at a regular speed, so that it made one revolution in twenty-four hours, or in any other required period of time, at the end of which the sheet could be taken off and developed. Upon development a blackened line showed where the spot of light had fallen, the line being straight if the magnet had remained immovable but wavering to the right or left if the magnet had moved.

This process was used until 1882, when the introduction of gelatin as a basis in which the sensitive silver salt could be formed rendered it possible to produce a dry photogenic surface, both on glass and on paper far more sensitive to the action of light than had been within the reach of photographers before. The paper which Mr. Ellis, the superintendent of the department, then introduced was the argentic-gelatino bromide paper, prepared by Messrs. Morgan and Kidd, of Richmond, Surrey, and the sheets were developed by means of ferrous oxalate. In 1904, amidol was substituted in the development with good results. The greater sensitiveness of the paper has permitted the effective surface of the mirrors attached to the magnets to be much diminished, and has allowed the use of smaller gas flames. The traces now obtained, therefore, are finer, cleaner and sharper than by the old process, and any loss of register on account of photographic failure is practically unknown.

Two additional details are necessary to render the record complete; a reference or base line has to be provided from which the wandering of the trace can be measured, and a time scale, so that the exact moment at which any movement took place can be ascertained. The former is given by means of a small prism, fixed close to the registering cylinder. This throws on the sensitive paper a beam of light from a second lamp, and this, as the cylinder revolves, traces out a continuous line on the paper, from which the ordinate of the magnetic curve can be measured. The time scale is provided by a clock which at two minutes before each hour interposes a small shutter, cutting off the light from the mirror attached to the magnet. This eclipse lasts for four minutes, and the trace is thus broken by a clearly marked gap, the centre of which corresponds to the exact hour. The introduction of this hourly automatic interruption was due to Mr. Ellis, and greatly improved the accuracy with which time determinations could be made. Previously the light was cut off by hand twice a day. This is still done, so that no mistake can occur in the identification of the specific hours.

The foregoing description relates to the declination magnet, but applies with but little alteration to the traces of the horizontal force and vertical force magnets. The former, indeed, is so arranged that the beam of light from its mirror falls upon the opposite side of the cylinder which takes the register of the declination magnet. Two traces, therefore, are produced on the same sheet, the noon of one trace being nearly above the midnight of the other.

A similar principle is made use of to obtain a register of the

changes in the readings of the barometer, of the wet and dry bulb thermometer, of the intensity of the spontaneous galvanic currents which are almost always discoverable in the earth instruments. In the case of the thermometers, the stems of the thermometers are joined close together, each being covered by a vertical metal plate which there is a narrow slit, so that light only passes through at the parts of the bore of the tube as do not contain mercury; three lines, etched upon the thermometer stems and painted, intercept the light sufficiently to produce a clear and sharp indication on the photographic sheet, the line at each tenth degree being thicker than the other, as well as those at 32deg. and each twentieth degree give it.

It would be tedious to go at length into the details of the records which photography has given us of all the various self-registering instruments used at the Royal Observatory. It would be sufficient to take two of the magnetic instruments, the magnets devoted to declination and to horizontal force.

#### Magnetic Disturbances and their Characteristics.

Direct eye observation was quite competent to show the daily swing of the declination needle, and the variations in the extent that swing with the progress of the year and from one year to another. But from time to time the magnets show movements quite unlike this orderly daily swing. Such "disturbances" may last for hours or even days, and instead of a stately vibration of eight to ten minutes of arc, performed in the course of twenty-four hours, oscillations may be set up each of which it takes only a few minutes to complete, and which may be several times greater in extent than ordinary daily swing.

It is clear that readings of the position of the magnet taken once every two hours are quite incompetent to give any sufficient idea of the real character of these exceptional activities; a great disturbance lasting several hours might be taking place, and yet none of the extreme deflections either to east or west might occur at the time when the observer was at his post. Indeed, magneticians, before the introduction of photographic registration, seem to have had but little idea of the real character of these disturbances, and very naturally relied upon the abnormal readings which they obtained at such times more or less as isolated events.

The first advantage, then, which accrued from the continuous record which photography gave was the manifestation of the actual behaviour of the needle during the progress of a magnetic storm. Here a remarkable feature was at once brought to light. In the first disturbances, and especially in the more considerable ones, the action began with a very sudden and characteristic movement, generally only moderate in amount, but distinguished by its suddenness. This usually appeared simultaneously in the registers of declination, horizontal force, vertical force, and earth currents, the remarkable feature of the movement being its instantaneousness. Before this movement took place the magnets were usually at rest, or so speak more correctly, were manifesting only the usual deliberate oscillation. Then without warning the declination needle would make a sudden movement in one direction, followed by a very quick return. In the more pronounced cases the movement is first very small to the east, then a much more considerable movement to the west, and an immediate return. But in some cases the preliminary westward movement is either too small to be apparent or is omitted.

It would have been impossible for this exceedingly characteristic movement to have been discovered without photographic registration. It would have been yet more impossible to have established—as Mr. Ellis succeeded in doing—the remarkable fact that this movement takes place over the whole world at the same instant of time, within a limit of accuracy to which it is possible to read the registers. The effect is just as if—to use Mr. Ellis's own expression—the earth's orbit had suddenly tripped over an obstacle, and the jar had shaken all magnets the world over.

It is though nearly all the more considerable disturbances begin in this way, yet when we take disturbances of every rank into consideration, those beginning suddenly are by no means in the majority; most of the minor ones begin more gradually, so that it is a question of some difficulty to decide what is exactly the time of commencement. The majority of these, so far from beginning at the same instant all over the world, are evidently dependent in some degree on the presentation of the station towards the sun, or, in other

words, upon the local time. These, therefore, constitute a second order of magnetic disturbances, cosmical in their origin, for they are recorded at widely separated stations, but subject to local influences, as they do not always begin or end at the same moment of absolute time.

Yet a third class of irregularities in the magnetic movements are those which are restricted to small areas of the earth's surface, and tend to recur at the same local hour on two or more succeeding days.

The old method of direct eye-observation could indeed have shown that there were disturbances from time to time; but, being necessarily discontinuous in character, they could never have revealed to us these three different orders, nor the special features which characterise each. These important facts could only be brought out by such a perfectly continuous registration as only photography could supply.

It is much to the honour of Greenwich Observatory that as the result of a convention entered into with the Paris Magnetic Observatory at Parc Saint Maur, it was the first to publish regularly reproductions of the traces of all the more important disturbances year by year. This work, the full value of which we are yet far from seeing, was set on foot by the present Astronomer Royal, Sir W. H. M. Christie, K.C.B., in the very first year of his office, at the suggestion of Mr. Ellis, the Superintendent of the Magnetic Department.

These published registers bring to light a most significant fact. If the times at which the different disturbances commence be collated together, it is seen at once that there is a marked tendency for them to follow one another at an interval not greatly differing from twenty-seven days. Thus, in the year 1886, there were four disturbances in the autumn, and only four, occurring respectively on September 9, October 6, November 2, and November 30. In the following autumn a similar series was noted a little earlier in the year, the dates being August 1, August 28, September 25, and October 22. Yet again, in 1892, there was a very violent magnetic storm on February 13, followed on March 11 by another of very nearly equal intensity; and many other similar instances might be given.

#### Photographs of the Sun's Surface.

There is no necessity for me to illustrate the value of photography in continuous registration by further examples drawn from the work carried on at Greenwich. Let me proceed now to the second division of my subject, the pictorial registration of numerous details. Here the typical work has been that of my own department, the daily photographing of the sun's surface. It will be seen that this is an attempt—so far as the conditions of the case permit—to secure a continuous record of the features presented by the sun. Many of these are undergoing constant change, but if we have a photograph taken on every day we have a record sufficiently complete of all the chief markings on the surface.

Solar photography was not begun very early at Greenwich, as it seemed at first to lie outside the original purpose of the Observatory, and it was considered that the delineation of sun spots and facule should more properly be left to amateurs. But when Schwabe in 1851 demonstrated that there is a regular periodicity in the numbers and areas of spots, and various magnetic observers, such as Gautier, Sabine, and Wolf, showed that this periodicity corresponded to that displayed by the magnetic diurnal range, sun spot observation became a necessary corollary of magnetic work.

Much most valuable work was done by direct observation by Carrington and others, but Rutherford in America, and somewhat later De La Rue in England, realised that this was especially a field in which photography could be of service. In 1857 the well-known Kew photo-heliograph was constructed after designs furnished by De La Rue, and solar photography was carried on with this instrument for several years at Kew. It was then transferred to Greenwich, and in 1873 was placed under my charge. It was a simple and efficient but by no means ornate instrument; the diameter of the object-glass, which was specially corrected, not for the visual, but for the photographic rays, was only  $3\frac{1}{2}$  inches, the focal length being 50 inches. A positive enlarging eye-piece, giving a magnification of about eight diameters, was placed behind the primary focus, and the resulting image was nearly 4 inches in diameter. It was replaced in 1875 by a somewhat larger instrument, constructed by Dallmeyer for use in the Transit of Venus of 1874. This was fitted with a new



enlarging lens in 1884, by which an image nearly 8 inches in diameter was secured. More recently still, in 1890, the late Sir Henry Thompson presented to the Observatory a photographic refractor 9 inches in aperture. This has been fitted with an enlarging lens to give an image on very nearly the same scale as the Dallmeyer photo-heliograph, and is now the instrument in ordinary use, although the Dallmeyer photo-heliograph is still kept in reserve in case, for any reason, the Thompson instrument should not be available. But three other observatories collaborate with Greenwich in order that a record may be secured on days when the sun cannot be observed there, and these each still use instruments of the Dallmeyer model. These three observatories are situated at Dhra Dun, in Northern India, at Kodaikanal, in Southern India, and in Mauritius, and photographs taken at one or other of these three stations are sent to Greenwich to fill up the gaps in the series there.

In 1873 the gelatine film had not yet come to its own, and collodion ruled. The process we employed was one worked out by De la Rue. A collodion iodised by cadmium was sensitised in a neutral bath of silver and developed by pyrogallie acid, one grain to the ounce of water in conjunction with half a dram of acetic acid. The method had some great advantages. The secret of success in every branch of photography is to obtain control over your plate. Usually this means that you must have it in your power to over-expose and over-develop. The difficulty in solar photography is the exact reverse of this. We generally have too much light, and the first object with the solar photographer is to get the power into his hands of under-exposing. The small aperture of the telescope, the very considerable magnification given to the image, and the rapidity of the exposing shutter are all means that it is necessary to employ. But, in addition, it was necessary to use a plate of little sensitiveness, and to treat it with a slow developer. These the process employed supplied, and the grain of the image was remark-

ably fine. The drawback, however, was that in our climate the moments of clear sky and of good definition were by no means a to synchronise with the completion of the preparation of the plate, and many a plate was spoiled before there had been any opportunity for exposing it.

This difficulty led to the adoption, in 1884, of the gelatine plate, which, however, proved too rapid for use under the then conditions. Part of the difficulty was got over by using double magnification, an image of 8 in. diameter being substituted for one of 4 in.; part by the use of very slow lantern plates. The result has been that fair and easily measurable photographs are obtained almost every day when the sun shows itself for a few minutes, and that upon days of really fine definition, details of a remarkable delicacy are brought out. A man at the distance of four miles subtends about a minute of arc, which was about the diameter of the sunspot now thrown upon the screen. I think you will agree with me that, to show this amount of detail in an object no broader than the apparent height of a man four miles distant in a photograph taken with a camera of only 4 in. aperture is a tribute to the definition which we occasionally are favoured with even yet at Greenwich. If in future we can do as much it will be by kind permission of the London County Council.

The first but not the only use made of these photographs is to count up the area of the sun's surface, covered on any particular day by the chief dark and light markings shown on the sun. The dark markings, the spots, are divided into two chief portions, the larger and better defined spots having a very dark central region, surrounded by a fainter or penumbral region. On the average the area of the umbra is about one-fifth that of the entire spot. The faculae, as the bright markings are called, are more extended, and cover on the average about twice as great an area as the spots.

(To be concluded next week.)

## THE MANAGEMENT OF REMBRANDT LIGHTING.

THE term "Rembrandt" lighting was applied by someone at some time who had a very incomplete idea of the special character of many of the portraits produced by one of the greatest of the world's painters. A picture may have a preponderance of shadow, the high lights being few and forcible, or it may have a preponderance of lighter tones with darker notes of emphasis. The greater number of Rembrandt's pictures are characterised by strong shadows, and small areas of brightly lit portions of the subject.\* The photographer when he speaks of a "Rembrandt" lighting, too often thinks of a head turned sideface, with a strong light thrown on the profile, and the rest of the face and figure almost detail-less, a dark solid mass. This is precisely what a "Rembrandt" portrait should not be. Dividing the lightings of a "Rembrandt" character into three sub-headings we may consider full or nearly full-face portraits with a strong illumination from the side, side or nearly side-face portraits, with the face looking more or less towards the source of illumination, and quite side-face portraits in which the whole of the face is in shadow, the profile being outlined only, this style of lighting being sometimes called "line lighting."

There are certain defects common to all these styles which unfortunately exist with only too great frequency. The tendency is to employ much too strong a light, with, as a natural consequence, too great a contrast in the subject. The high lights of the negative are thus fully exposed, and are very dense on development without the shadows being sufficiently exposed. Or, per contra, if the shadows are exposed the high lights are solarised and all proper modelling is lost. Frequently, even if the lighting is sufficiently soft in character, the negative is very much over-developed, and has harsh printing contrasts. Again, the face is usually turned towards a strong light, with the result that the reflexes in the eyes are too large, and need scraping down in the negative, a very critical piece of work, and one calculated to destroy proper expression. Further than this, the strength of the light causes the pupils to contract, and the actual expression is not so good as when the pupils are larger or more dilated.

\* An article on the characteristics of Rembrandt's paintings, by Mr. F. C. Tinney, appeared in the JOURNAL of November 9, p. 885.

### Normal "Rembrandt" Lighting.

Let us see then how these defects may be avoided and how the desired effects may be obtained with the greatest economy of time. Taking the full-face, or the nearly full face portrait first, we place the sitter in the normal position in the studio, and light the head so as to secure a nicely-rounded lighting with soft transparent shadows, keeping the reflexes equal in both eyes. Now place over the head a screen towards the shadow side an opaque head screen, watching carefully the result, which should be that of increasing the area of the shadows, and so conveying the effect of more forcible illumination of the head as a whole. If the original lighting has any tendency to flatness, that is, if there was too much light admitted from the top and side towards the front of the sitter, the blinds here may be closed. If the lighting is the normal 45 degrees from top and front, however, the opaque head screen should do all that is necessary in the way of increasing the area of shadow. Of course, a somewhat dark background will be used, and it may be pointed out that if the background is graduated, the dark portion coming again the light side of the head, and vice versa, the result is to accentuate the effect of contrast, to make the lights more forcible and the darks more rich, while at the same time the actual contrast is not increased, but is kept within the compass of the plate, and the shadow detail will be recorded before the high lights are over-exposed. The moment's consideration will show the worker that this is the principle on which to work, for in the normal full face lighting we have the high lights strong enough, and the shadows dark enough. That is needed for the production of the Rembrandt effect is to get a smaller area of light and a larger area of shadow, and this is more easily effected in the way suggested. It will be noticed that the method pre-supposes the ability to light a head well in what may be called the normal way, and, of course, also assumes that the lighting in the studio is properly under control, and that the studio is not flooded with light from every direction.

Two alternative methods may be given for obtaining this same effect, in each case starting with the normal full-face lighting as a basis. The one method is to turn the head a little further from the light, that is, more towards the three-quarter face position, a

then move the camera further to the side, so as to obtain again a full-face view of the head. The second method consists in bringing the sitter nearer to the camera until the proper effect is secured, and then, of course, drawing the camera back also so as to get the image on the ground glass of the proper size. An objection to both of these alternative methods is that the character of the lighting is more distinctly side-lighting, and this does not give so good a modelling, in some instances conveying a swollen appearance to the cheek or neck.

### Side-face "Rembrandt" Portraits.

We may now proceed to the second type, the head photographed side-face looking towards the light. Again, the simplest method of procedure is to light a full-face portrait in the normal way, taking care that the reflex shows equally in both eyes, but only just in the eye on the shadow side of the head. Now, without moving the sitter, wheel the camera round so that a side or nearly side-face view of the head is obtained, and it will be found that the effect of light and shade is almost if not quite satisfactory. It may be that the shadow will prove a trifle lacking in transparency, and should this be the case a reflector of gray calico may be placed as near the camera

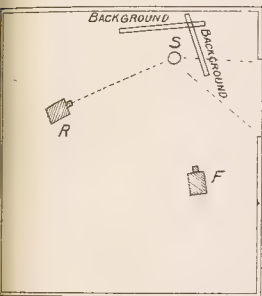


Fig. 1.

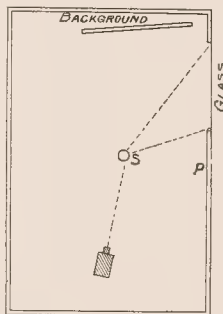


Fig. 2.

as possible so as to avoid any danger of cross lighting. If this reflector be a frame covered with canvas, papered white, the device originally adopted by Mr. Henry Van der Weyde may be used, a hole being cut in the reflector on a level with the camera, and the lens then pointed through this aperture. This method gives a soft illumination of the shadows with the risk of cross lighting reduced to the minimum. Of course, this method of obtaining side-face Rembrandts necessitates a studio of considerable width, and as this is by no means a general condition of things, it cannot be so often employed as might be desired. The following method then will be that most generally useful. Open about four feet of side light at the extreme end of the studio, the end occupied by the sitter, and about as much of the top light, taking care that the general angle of illumination is 45 degrees. Avoid too low a side light, which is apt to glare into the sitter's eyes, producing the excessive reflexes referred to, and avoid also too direct a top light, which causes the air to be much too white. If the blinds cannot be arranged without excess of top light a translucent head screen must be used to soften the lighting. Now place the sitter somewhat nearer to the

camera-end of the studio than the open glass, so that the lighting is from the side, but rather behind the sitter. On turning the head towards the glazed side of the studio it will be found that the eyes are not looking to the open glass, but at the curtained portion of the window, and if the photographer places himself in front of the sitter, at P, Fig. 2, getting a full-face view, he will find the lighting is practically a normal full-face lighting. Now, with the camera getting a side-face view of the sitter, and the reflector arranged so that the lens looks through it or just past its edge, a good Rembrandt lighting will be obtained. In order to make this more clear, two diagrams showing the floor of the studio, and giving the positions of sitter, camera, and window, have been prepared. Fig. 1 shows the normal full-face lighting when the camera is at F, and by placing the camera at R, the studio being a wide one, the Rembrandt picture is secured. Fig. 2 gives the positions in the narrower type of studio. The relative positions of glass, sitter and camera in the two methods will be found very similar. It must not be supposed that all that is necessary is to chalk one or other of these diagrams on the studio floor, and then after placing the sitter to make the exposure. Some little modification either in the strength or direction of the light is almost sure to be needed, and, of course, much depends on the character of the face under consideration.

### Line Lighting

We are now left to consider the line lighting, which is, perhaps, the least used of the three types. Only the most perfect and refined profiles will bear this treatment. The effect to be aimed at is a shadow filled with soft delicate detail, while more or less all round the head is a line only of light. On the hair the light will be rather pronounced. To produce this effect the light must be almost exactly behind the sitter, and as the background, if too large or too near, would cut off all the direct light, it becomes necessary to keep it well back from the head, and to use a back light in which top light predominates. Care will be needed to prevent light striking into the lens, and here, again, the reflector, through which the lens looks, will prove a valuable adjunct, for in addition to softly illuminating the shadows, if properly arranged it will prevent any light other than that from the subject reaching the lens. One of the causes of frequent failure when employing this method of lighting is the placing of the model too near to the light. A large dark background at a good distance and the sitter well in front of the light will give the most pleasant effects.

It may not be inappropriate to add a word or two on the development of plates exposed under the conditions considered. A perfect piece of lighting may be spoiled in its rendering if the plate is badly developed. The usual mistake is over-development. These Rembrandt lightings are almost invariably taken with dark backgrounds, and a negative so produced needs less development than one of a normal vignette head, against a light grey background. Either the normal developer may be used and the time of the development shortened by about 25 per cent., or the developer may be diluted by the addition of, say, half its bulk of water, and development carried on for about the normal time. In any case, prints should be carefully examined, and if there is any lack of gradation in the highest lights by the time the shadows are deep enough, it may be taken as an indication to soften the lighting, or if that be sufficiently soft, to keep the negatives less strong in contrast by one or other of the methods indicated.

**CINEMATOGRAPH FRAUDS.**—Another matter which is disturbing the French Service authorities (says the "Globe") is the way in which sailors, naval and military are being brought into ridicule by photographers and by cinematograph operators, the latter being the more serious offenders. Their mode of procedure is to take a motley crowd clothed in uniform into close proximity to a barracks, and there to photograph them in ludicrous pictures of what are styled "military life," to which the barrack walls and the armed sentinels add colour. For the future proceedings of this kind are to be visited with arrest and prosecution.

**THE SOUTH ESSEX CAMERA CLUB'S FIFTH ANNUAL EXHIBITION** will be held on January 24, 25, 26, 1907. There will be four open classes, gold, silver and bronze plaques will be placed at the disposal of the judges in each. Entry forms can be obtained from the Secretary, Mr. J. H. Mitchell, 180, Browning Road, Manor Park, E.

**BARNET Seaside Competition.**—The list of prize winners is as follows:—1st prize, £2 2s., J. D. Ross, Brechin—"Toil." 2nd prize, £1 1s., E. J. Jarvis, Plymouth—"Sailing Barge." 10s. 6d., W. L. G. Bennett, Whyteleaf—"A Derelict." 10s. 6d., J. Bradwell, Ryhope Colliery—"An Autumn Sunrise." 10s. 6d., Miss F. C. Davies, Weston-super-Mare—"A Gambol on the Sands." 10s. 6d., Victor Hey, Scarborough—"Fishing Smack at Anchor." 10s. 6d., W. E. Houghton, Highbury—"What is it Willie?" 10s. 6d., Clarence Ponting, Scarborough—"A Pale Moon through the Mist Arose." Messrs. Elliott and Sons, Ltd., offer their best thanks to all those who entered the competition.

VISITORS are specially welcome at the London and Provincial Photographic Association on November 29, when Mr. D. W. Hart will demonstrate and lecture upon an improved process of development.



## THE FREE PORTRAIT CANVASSERS.

## FIGHTING THE SWINDLE.

IN connection with the canvassing frauds at Perth, the exposure of which in the "Perth Constitutional" we referred to last week, we see that our contemporary has organised a spirited crusade against the canvassers, and in its issue of November 12 has cast a vivid light upon the shady, blackmailing methods employed by the gang. As too much publicity cannot be given to these methods, we make several extracts from our Perth contemporary's inquiry:—

The western side of the city was the first district visited by our representative, and while the canvasser seems to have got a few orders here, in one tenement he visited there were at least three tenants who, having been once bitten, were twice shy. Their experience happened about a year ago, when what they described as "a sweet young lady" called, and under precisely the same inducements, obtained as many as three photographs from one household. A fortnight later the rough proofs were produced, and the price then demanded was 15s. All the blame was thrown on the young lady, who, it was said, had made a "perfect mess of things." Two of the tenants who refused to pay for the enlargement have never received back their photographs. The canvasser on the present occasion made bold efforts to secure an order, keeping the door of one of the houses open by placing his foot in the doorway and insisting on being heard. The company which he represented, he pointed out, had nothing to do with the other firm, and his case was genuine. His firm was to start business in Perth, and they were giving away 200 free enlargements for nothing as advertisements.

In one case the canvasser opened the door and walked right into the house. The party in question had a number of photographs displayed, and the canvasser remarked: "We are just going to give you a present of a photograph." The lady, however, declined, whereupon the plausible canvasser informed her that she did not require to be frightened, as it was just the same as handing in a packet of Van Houten's cocoa. Questioned as to the frame, he assured the lady there was no frame and nothing whatever to pay, the only condition being that she showed it to her friends. A photograph—one much valued—was secured, and the other day canvasser No. 2 made his appearance with the proof and specimen frames. When told that the enlargement was to be free and that the agreement was that the framing could be done by anyone, he ridiculed the idea, and pointed out that it was nonsense to expect that they could work for nothing. The price demanded in this case was 18s., but it was not paid. Almost next door, under the same circumstances, the price demanded was 15s. The mistress of the house said that her husband would never allow her to give a figure like that for a thing that was to be free. "Ah," replied the canvasser, "your husband must be a bit of a Jessie." "You'd better come back and see," remarked the lady. He did go back, and we believe he has since changed his opinion about the husband.

In another instance the lady of the house informed the canvasser that she had nothing worth enlarging. He, however, persisted, and assured her that anything would do. The housewife replied that the only two photographs she had were of the children, and as she did not care much for the cards she would never dream of having them enlarged. Getting hold of a photograph of her little boy, however, the canvasser assured her that it would do splendidly, and that he would send it on to her in ten days. The woman is emphatic that no mention was ever made of framing. The other day the second canvasser appeared with the rough proof and specimen frames. The woman refused to have anything to do with the matter whereupon it is alleged that the canvasser became obstreperous, threatening her with legal proceedings, refusing to leave the house, and ultimately putting the poor woman into such a state of terror that she drew upon her hard-earned savings to meet her rent, and gave him 15s. 6d. In return she received a receipt for 12s. 6d., and on demanding to know why he had charged 12s. 6d. was informed that the other shilling was for his commission. The woman was thereafter informed that the enlargement and original would be sent on, her money being simply a deposit. The attention of the neighbours was attracted to the scene, and although the canvasser had rather a rough time of it, all efforts failed to obtain from him a return of the money. Determined,

however, not to be beaten, the woman followed the man until she met a policeman, but the constable did not consider it was a case coming within his jurisdiction. The canvasser, it is alleged, gave an address which was false, investigation showing that the address was that of a shop.

In the same vicinity a lady was informed she was bound in no way, and, although she made it a point to question the canvasser particularly as to the question of payment or framing, the reply was of such an assuring nature as to call forth the remark from the lady: "Oh, you're a good sort." She gave a photograph of herself and husband, and was very much amused at the surprise she was going to spring upon her husband. Two men called upon her and showed her frames valued at 16s. and 23s. or thereabout. She said she did not want the frame, but was told she must buy a frame or pay 7s. 6d. for the photograph. On remarking that she was informed that the enlargement was to be free, she was practically told she was telling an untruth, and that if she did not pay up she would find herself in the Sheriff Court next week. The canvasser refused to leave the house until paid, and the woman, becoming alarmed at the man's manner, ultimately gave the 7s. 6d. for the photograph.

In one instance the photograph was secured by exhibiting the photograph of a friend of the lady's. The lady was warned by the account in the newspaper, however, and when the second canvasser called he found that, although the lady he had to deal with was young, she was not lacking in courage. "May I come in and show you the picture?" said the canvasser. "No," replied the lady, "you will stay at the door." "Oh, but we never do business with our customers at the door," remarked the canvasser. "All the business to be done between you and me will be at the door," was the reply. "Then," remarked the canvasser, "I won't show the picture." "I don't want to see it," was the answer, "but I want the original photograph back, and I will have it." Baffled by the grit shown by the young lady, the conversation was continued for some time, the canvasser brandishing his stick in a threatening manner in front of the lady's face. As a parting shot, the young lady asked if he had read the "Constitutional," and the canvasser admitted rather ungraciously that he had, and shouted, as he was going down the stair, that the original would be sent back.

The "Perth Constitutional" has learned that the postmen were busy in Craigie district, after the above proceedings, delivering returned photographs. Not only were the photographs very roughly and carelessly enclosed in a small piece of brown paper, and tied with a coarse piece of twine, no precautions being taken to protect the picture from injury, but each person receiving their photograph in this way had to pay the postage.

At Romsey, Hants, itinerant photographers have received a warm reception. Two separate gangs paid a visit to the Hampshire town within the past two weeks. The first came touting for orders for photographs at nominal prices. They had not long commenced operations when (as reported in the "Romsey Advertiser") they were observed and closely pursued by the energetic manager of a local firm, whose work was, of course, not to be compared with that of the visitors. The local man was ably supported by several shopkeepers, whose premises the itinerants commenced to photograph. Their assistants all lined up in front of the shop, and permitted the Romsey man to take a photograph, but when the other camera men proceeded to follow suit the assistants with much merriment disappeared inside their premises, thus frustrating any effort on the part of the strangers to do business. The latter subsequently made with all haste to the railway station, showering severe reproaches on Romsey, and especially its photographer.

The next party to attack the Romsey photographic community numbered eight—four men and four women this time. These were of the "make haste" order, offering to do cheap enlargements of people's "departed friends and others." They divided themselves into two batches, presumably with the idea of "riddling" the whole town and securing as many "victims" as they possibly could. They, however, did not stay long, for, as happened on the previous occasion, they were haunted all around by some of the local photographers with cameras over their shoulders. The local men succeeded eminently in preventing the invaders from fooling the people. The occasion provided considerable amusement to the large crowds in various districts of the town, who watched the proceedings with

interest, and who gave the visitors little, if any, encouragement. The "Romsey Advertiser," which reports these proceedings, explains the fraudulent nature of the canvassing business, and deserves the thanks of both photographers and the public for its exposure of the "free enlargement" swindle.

### THE QUEKETT CLUB DEMONSTRATIONS.

The first of the demonstrations on the practical use of the microscope organised by this well-known club was held on Friday last, and drew a very large audience. The subject was "Illumination," and with the aid of photometers it was shown that, while the broad side of the lamp flame gives more light than the edge, the latter gives more light than a corresponding area of the side of the flame. The microscope was arranged to show the diffraction effects that play such an important part in the theory of the instrument as expounded by Abbe. Others were set up to show the various degrees and effects of illumination, with and without substage and bull's-eye condensers, and with plane and concave mirrors. Also several instruments were arranged to illustrate the fact that the best illumination is obtained when the back lens of the objective is filled with light, while the importance of well corrected condensers was also demonstrated. Photographers are frequently compelled to make use of the microscope, and matters such as those dealt with in these demonstrations are of great importance, but just the very ones that the casual user of the microscope is unfamiliar with. It is no easy matter to obtain good results or even to make accurate observations with a microscope unless one is fairly well acquainted with the proper manner of using it, and faulty illumination may alter the aspect of the subject to such an extent as to give an entirely wrong impression. These demonstrations will practically cover the whole ground, and those who attend them all should be able to use the microscope and all its various accessories to the best advantage, even though their practice is only very occasional. We cannot too strongly advise those who sometimes use the microscope to take the opportunity of profiting by these demonstrations. The remaining five take place on the third Friday in December, January, March, April, and May, and are well worth the half-guinea subscription necessary to become a member of the club. Full particulars can be obtained from the hon. secretary, Mr. Arthur Earland, Reading Villa, 31, Denmark Street, Watford.

## Exhibitions.

### SOUTHSEA PHOTOGRAPHIC SOCIETY.

This society is fortunate in possessing a suite of rooms in which their annual exhibition can be held, and whilst the walls and screens are somewhat crowded, the whole effect is to give one the impression of a very satisfactory show as regards numbers, for, exclusive of lantern slides, there were no fewer than 636 pictures, over 400 of these being in the open classes. When one adds on to these the collection of Herr Dührkoop's pictures, as first shown in the offices of the BRITISH JOURNAL OF PHOTOGRAPHY, there is no question that the visitors will find ample to repay them.

Taking the exhibition on the whole, the average merit, particularly in the large open class, is distinctly high, and it includes many pictures which were shown at Hackney and at the R.P.S. and the London. Obviously the judges were struck, too, with the quality, for they awarded no less than ten plaques and eleven honourable mentions. In the members' classes, the quality of the work was generally very satisfactory, though a few of the members seem to imagine that burying the whole of the print in murkiness and fog—this is particularly noticeable in the portraits—or the use of the coarsest possible grain obtainable by gum bichromate, is the highest form of art. Possibly the judges' awards will disabuse them of these mistakes, however.

The society is to be congratulated on their courage in trying to alter the technical side of photography by offering no less than four bronze plaques for technical prints and lantern slides, and as four honourable mentions were also given it ought to encourage other societies and exhibitors in this direction.

The judges were Messrs. F. J. Mortimer and J. L. S. Mummery for the pictorial, and E. J. Wall for the technical classes, and their awards were in the open classes as follows:—

A.—Pictorial: Plaques to Rudolph Dührkoop, "Study"; J. C. Richards, "Portrait"; L. J. Steele, "Garden of Allah"; J. C. Batkin, "A Rift in the Fog"; A. Marshall, "His Daily Bread" and "A Venetian Pearl"; S. G. Kimber, "A Relic of the Past"; H. Colebrook, "Old Shoreham"; Brenda Johnson, "Summertime"; Dr. E. G. Boon, "The Injured Butterfly." Hon. Mention: R. Burnie, "Gooseberries"; A. G. Thistleton, "A Confidential Chat"; S. L. Neame, "The Suppliant"; W. A. J. Hensler, "Sunbeams"; E. T. Holding, "The Nation's Pictures"; W. A. Clark, "Triforium, Gloucester"; E. O. Hoppe, "Adagio"; J. D. Johnston, "In Normandy"; S. G. Kimber, "A Sunlit Cloister"; W. M. Post, "The Beaver Dam"; Miss Marillier, "Japanese Peonies."

B.—Technical: Plaque to W. Farren, "The Home of the Missel Thrush." Hon. Mention: Mrs. Veley, "Male, Meerkat"; J. Vandel, "Gooseberries."

C.—Pictorial: Plaques to E. R. Bull, "A Haven of Peace"; A. G. Thistleton, "A Confidential Chat." Hon. Mention: W. A. I. Hensler, "A Bye-way"; Ellis Kelsey, "The Rescue."

D.—Technical: F. Ward, "The Roach"; W. Farren, "Sunshine on Glebe Plumage"; S. A. Pitcher, "A Flower Study." Hon. Mention: D. H. Hutchinson, "Development of the Hair"; G. A. Booth, "The Emperor Moth."

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents were made between November 5 to November 10.

PRINTING APPARATUS.—No. 24,851. Improvements in photographic printing apparatus. Benjamin James Hall, 41, Castlenau, Barnes.

PRINTING FRAMES.—No. 24,884. Improved photographic printing frame. James Walker, 100, Wellington Street, Glasgow.

REFLEX CAMERAS.—No. 24,889. Improvements in reflex cameras and the shutters therefor. Robert Ballintine, Arthur Ballintine, Hew Ballintine, and John Linstrum, 37, West Nile Street, Glasgow.

COLOUR PHOTOGRAPHY.—No. 24,893. Improvements in the taking of negatives for colour photography. John Douglas Ritchie, 154, St. Vincent Street, Glasgow.

CINEMATOPHONES.—No. 24,952. Improvements in bases or supports for cinematographic apparatus. Leo Kamm, 27, Powell Street, Goswell Road, London.

CINEMATOPHONES.—No. 24,993. Improvements in safety shutters for cinematographs. Leo Kamm, 27, Powell Street, Goswell Road, London.

PLATE WASHERS.—No. 24,974. Improvements in washers for plates, prints, etc. Albert James Van Hoorn, 32, Connaught Mansions, Brixton, London.

PLATE CARRIERS.—No. 25,084. Method and apparatus for exposing sensitive layer-carriers. Optische Anstalt C.P. Goerz Actien Gesellschaft, 31, Bedford Street, Strand, London.

FILMS.—No. 25,188. Improvements in photographic films. George Goodchild Stevens and Thomas James Stevens, 33, Cannon Street, London.

SHUTTERS.—No. 25,335. Improved photographic shutter. Walter William Fiddes, 40, Chancery Lane, London.

DEVELOPMENT VESSELS.—No. 25,375. Improvements in vessels for development and other photographic operations. Alfred Blackie, 52, Chancery Lane, London.

PLATE HOLDERS.—No. 25,394. Improved means for carrying photographic plates or films before, during and after exposure, in the camera. Iford, Ltd., and Bertram Vincent Storr, 8, Quality Court, Chancery Lane, London.

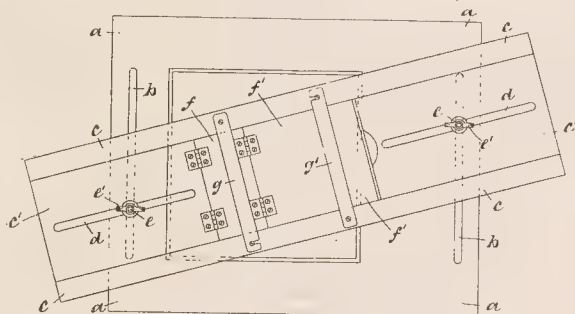
COLOUR PHOTOGRAPHY.—No. 25,399. Improvements in cameras for taking polychromal photography. Otto Bauer, 61, Chancery Lane, London.



## COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

**PRINTING FRAMES.**—No. 22,366. 1905. The invention is for a frame permitting of the negative being placed in different positions in relation to the paper. As stated in the claims, the back is adjustable in relation to the front or main frame, wherein it is adapted to be moved or adjusted longitudinally and vertically, and in opposite directions at the opposite ends on the front frame, the back having an opening or space adapted to receive and hold the paper or surface to be printed upon. There is a main frame *a* having slots *b* at one or two ends or sides, and a movable back *c*, with an opening or recess adapted to receive and hold the paper or material to be printed on, and having at its two ends *c'*, slots which are adapted to lie transversely to the slots *b*, and the front



and back parts being adapted to be clamped or fastened together. Bars as *a*, *a'*, are adapted to slide one upon the other, the frame bars *a* being fastened together at their opposite ends by an end piece *a'*, and having a longitudinally adjustable or sliding back *c*. William Lawrence Parkinson, 3A, Imperial Chambers, 62, Dale Street, Liverpool.

**COLOUR PHOTOGRAPHY.**—No. 12,235. 1906. The invention relates to light filters for one exposure direct colour photography with ruled screens, and is intended to permit of such "damping" screens being adjusted to the variations in panchromatic emulsions. The screen comprises two parallel glasses, each being tinted from transparency to a very deep colour shade, the transparent portion of one glass being opposite the deep shade of the other. The glasses are adapted to be displaced parallel to each other, and

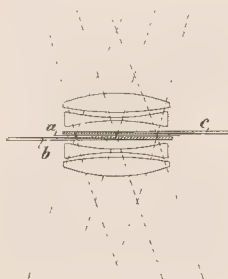


Fig. 1.

they are both arranged close up to the diaphragm for the purpose of absorbing an equal number of rays from each bundle of rays.

The screen is made up preferably of two plane-parallel glasses, *b*, *c*, one placed on each side of, and in close proximity to, the diaphragm *a* (Fig. 1), the reason for placing them here being that by this means all the rays forming the image pass through the same absorption field, which would not be the case if it were placed in front of or behind the lens.

The glasses are considerably larger than the diameter of the largest diaphragm of the lens. The one *b* has a portion of its surface white or uncoloured, and the rest is coloured pink, which gradually increases in intensity (Fig. 4). The other *c* has a

portion of its surface white or uncoloured, and the rest coloured yellow, which gradually increases in intensity.

A rack and pinion, *e*, *f*, enables one to move within the lens opening any desired part of the screen, an index *g* indicating its exact position. By using this system any desired amount of colour can be absorbed from the green image and from the blue image, so as to reduce their exposures to the same unit of time as the red image, which is usually the slowest.

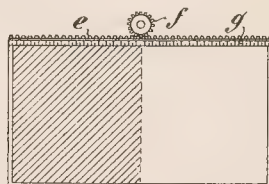


Fig. 2.

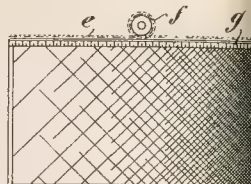


Fig. 3.

By having only the uncoloured parts of the glass in the lens opening, the lens can be used as in ordinary photography. By moving more or less of the yellow screen in the lens opening, any desired amount of the absorption can be had, as in orthochromatic photography.

Instead of using a screen on which the colour is graduated in intensity, one can make use of a screen, one half of which is uncoloured, the other half coloured with a uniform colour as in Fig. 2.

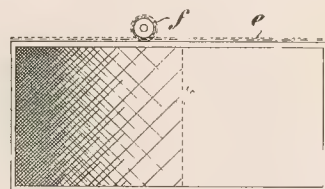


Fig. 4.

This is a very convenient form, as it is possible to regulate exactly the proportions of the coloured and of the uncoloured portions of the screen within the lens opening. This is very useful when diaphragming.

Fig. 3 shows a screen having colours on its entire surface, but gradually increasing in intensity. Charles Louis Adrien Brasseur, No. 10, East 15th Street, New York, U.S.A.

**SHUTTERS.**—No. 6,512. 1906. According to the invention, the two blinds of a focal plane shutter are each connected at one end to a spring roller, the tension of the spring in which can be varied according to the rate of exposure desired. At the other end the blinds are connected to independent rollers or pulleys mounted upon a common axis, these rollers having arranged in connection with them gearing for winding the blinds and holding them in the desired position, the said gearing having in connection with it a clutch so arranged that when one blind has been pulled up to the required extent the roller carrying the same will be thrown out of action by means of the clutch, whilst the movement of the top blind can be continued until the desired aperture between the blinds is required.

For releasing the shutter for time exposures a revolving stop is provided, having in connection with it a detent lever to oppose the revolution of the stop, and a cushion spring for minimising the shock when the motion of the stop is checked by the detent lever. Alfred Woods, 5, Richmond Park Road, Kingston-on-Thames.

**SUICIDE of a Secretary.**—Last week Mr. Harry Montague Chadwick, secretary of the Equatone Photographic Syndicate, Ltd., was found dead at the office, 34, Knight's Hill, Norwood. At the coroner's inquest the doctor stated that the death was due to taking cyanide of potassium, and the jury returned a verdict of "Suicide while mentally deranged."

## New Books.

"Nature's Carol Singers." By Richard Kearton. London: Cassell and Co. 6s.

Children and all lovers of birds will welcome another "nature" book, owing its existence to the pen of Mr. Richard Kearton and the camera of his brother Cherry. Photographers, too, ought to feel the satisfaction from the fact that the publication of "Nature's Carol Singers" reduces by one the problems of Christmas presents, since it provides a gift book which a boy or girl will value, not only for its pretty photographs of birds, but for the story of their manners and customs which the author pleasantly narrates. The volume is handsomely produced in a green and gold cover, is printed in two colours, and contains a photographic frontispiece.

"The Transactions of the Optical Society for the Session 1904-5" have been published (10s.), and are purchasable, we suppose, by members at the society's offices, 20, Hanover Square, London, W. The volume (of 94 demy octavo pages) contains papers on "Direct Stereoscopic Projection," by Theodore Brown; "Measurement of Absorption of Tinted Glasses," by L. W. Phillips; "Early Literature of Optics," by the President (Professor Sylvanus P. Thompson); and on "The Nature of Vision," by A. J. Bull.

The official catalogue of the Photographic Exhibition held at Berlin during the summer has been issued from the publishing house of Herr Gustav Schmidt, Berlin, W. 10, and may be of service to exhibition secretaries anxious to discover new workers. The usefulness of the volume, however, is curtailed by the omission of any addresses of the exhibitors, beyond the name of their town. The catalogue contains a number of half-tone reproductions of photographs shown in the pictorial section.

## New Materials.

Gaslight Papers—"Portrait Matt" and "Portrait Carbon Surface." Made by Ilford, Ltd., Ilford, London, E.

In respect of two new brands of gaslight paper, newly issued from the Ilford factory, we have to report most favourably. In sending them to us for review the makers gave us no further information than that they were designated "Portrait Matt" and "Portrait Carbon Surface." We soon discovered, however, on proceeding to make prints, that a notable characteristic of the papers is the fine black line obtainable, as intense and as pure a black as we ever remember seeing in a gaslight or bromide paper. Our prints were developed with no formula specially recommended by the maker. We were, in fact, using some "White-Band" metol hydroquinone cartridges which we had at hand, and the negatives were as different as it is possible to imagine, one a view of an open street with a stretch of light foreground, and chiefly consisting of light tones; and the other a portrait against a perfectly black background. The latter is a severe test of a paper, yet the range of gradation in the heavy shadows, as well as in the high lights, speaks eloquently for the capabilities of the paper. The papers are fixed in a plain hypo bath, which, in our experience, is all that is needed to secure stainless prints. The surfaces of the two papers, the semi-gloss of the "carbon," and the not too rough of the "portrait matt," are eminently suitable for average professional work, and we anticipate the entrance of the papers into the high favour of printers, not merely on the ground of their convenience and rapidity, but for the admirable results obtainable.

Pluto "Tintona" Papers. Made by the Leto Photo-Materials Company (1905), Ltd., Rangoon Street, London, E.C.

Three new variations of the cream crayon Pluto collodion paper, which we recently noticed in these columns, have been issued by the Leto Company at the same prices as that material. The papers are "Steel Grey," "Blue," and "Green," these names serving fairly well to describe the colours of the support, the texture of which in each case is rather coarse, and recommended therefore for medium and large size work. The colour of the steel grey paper we like particularly, but we imagine that effective use will be made of the two other colours, which are considerably stronger than the

grey, and hence tend to results of greater softness. All three brands are issued as postcards, and the series is also put up in shilling packets of any given size, containing an assortment of the grades. The paper is toned and otherwise treated exactly like the Pluto C.C. paper.

BARNET Christmas Postcards.—Messrs. Elliott and Sons, Ltd., Barnet, have introduced a fresh series of motto postcards. The decorative portion (on the address side) is by Mr. Charles E. Dawson and embodies such seasonable sentiments as "With 1907 Good Wishes for the New Year." The cards are issued as P.O.P., self-toning, gas-light, and bromide.

CHRISTMAS Card Mounts.—Since our mention of their new catalogue of these mounts a week or two ago, Messrs. Houghtons, Ltd., have sent us a selection of the mounts themselves, from which we see the choice variety offered for all classes of photographers. The striking effects obtainable by aerograph decoration are conspicuous in a number of them, and should induce those who are familiar with this class of work to apply to Messrs. Houghtons for terms. The list gives a very fair idea of the designs, though it cannot do justice to the brilliant colouring and fine textures of a number of the mounts.

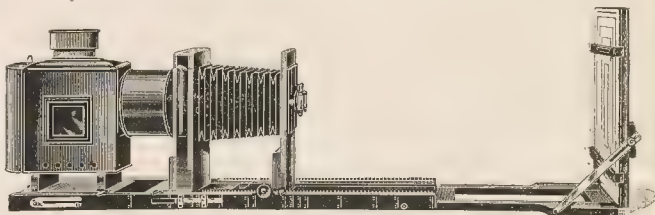
## New Apparatus, &c.

The Flashmeter Sold by Houghtons, Ltd., 88-89, High Holborn, London, W.C.

Messrs. Houghton are issuing, under the above title, a flat circular case taking a quarter-ounce coil of magnesium ribbon, and providing for its convenient withdrawal in short lengths. The case has a 2-in. mark on it for the measurement of the ribbon, and a clip in which the detached piece of ribbon is held to be burnt. The "Flashmeter," loaded with a quarter of an ounce of ribbon, is sold for sixpence, the price of the ribbon only, so that, as Messrs. Houghton point out, the measuring case is obtained for nothing. We can testify to the extreme usefulness of the little piece of apparatus, for we have had an identical device, issued a year or two ago by a plate-making firm, in almost daily use.

The "Record" Combination Enlarger and Easel. Sold by W. Butcher and Sons, Camera House, Farringdon Avenue, London, E.C.

In this apparatus Messrs. Butcher have provided an apparatus which should appeal very strongly to the amateur worker for the reasons that, first, the apparatus folds up compactly when not in use, and, secondly, that the adjustments for enlargements to various sizes are marked on the baseboard in a way which leaves the user nothing to do except to set three pointers to three points on the scale when the enlargement will be in practically sharp focus. He has then only to give a turn either way to the focussing pinion to satisfy himself that the definition is as he desires it. The com-



plete apparatus includes lantern (for incandescent gas, limelight, or oil), negative stage with removable panel to take the negative, scaled baseboard with rack and pinion movement for the front, and marked easel with sliding clamps to hold the bromide paper flatly for exposure. The condenser frame, also, is detachable, so that this part of the optical system is instantly removable for cleaning. The whole apparatus is automatically squared up on erecting it in the ordinary way, and should ensure correct enlargement from the negative. In quarter-plate size without objective, and with easel taking paper up to 15 by 12, the price is £5 or £6 7s. 6d., with objective and scaled baseboard as above described. In half-plate (to enlarge up to 23 by 17) these prices are £8 10s. and £10 12s. The purchaser's own lens may be scaled at a cost of 7s. 6d.



## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

No.	Name of Society.	Subject.
23	Slough Photo Society	"Latest Kodak Productions."
23	St Albans Photo. Society	"Telephotography." C. P. Goerz.
23	Loughton Photo Society	M-mbers' Slides.
23	Cardiff Photo. Society	"Rome and Pompeii." Dr. P. Rhys Griffiths.
23	West London Photo. Society	"Home Sensitised Papers." J. Brown.
23	Photo. Society of Ireland	"Ozobrome." Y. K. Smyth.
26	Halifax Camera Club	"Theory and Practice of Self-Toning Papers."
26	Stone and District Photo. Soc.	"Leading Features of Velox Manipulation."
26	Bedford Camera Club	"Rotograph and Rotox Papers"
24	Caterham Camera Club	"Tabloid Brand Photographic Chemicals"
26	Wallasey Amat. Photo. Society	"What Can be Done with a Hand Camera." C. P. Goerz.
26	Leek Photo. Society	<i>Amateur Photographer</i> Prize Slides.
26	Derby Photo. Society	"Negative Development." C. B. Keene.
26	Oxford Camera Club	"Theory and Practice of Self-Toning Papers." John J. Griffin & Sons, Ltd.
26	Luton Camera Club	"Toning P.O.P." Demonstrated.
26	South London Photo. Society	"Intensification and Reduction"
26	Southampton Camera Club	"A Trip up the Rhine." Illustrated F. G. Ryder.
26	Lancaster Photo. Society	Exhibition in Friends' Hall.
24	Preston Camera Club	Collection of Members' Lantern Slides for Club Box to Union.
27	Royal Photographic Society	"Ozobrome." T. Manly
27	Burton-on-Trent Nat. Hist. A.S.	"Cairlie and Neighbourhood" W. Howa th.
27	Keighley and Ds Ph. Assn.	"Pompeii." T. E. Green.
27	Bottle Photo. Society	"Enlarging Simplified"
27	Hackney Photo. Society	"Ozobrome." J. H. K. Todd.
27	Leeds Photo. Society	"The Camera at the Zoo." Riley
27	Manchester Amat. Ph. Soc.	Korture.
27	Darlington Camera Club	"Ozobromes." Rev Henry W. Dick
27	Birmingham Photo. Society	"Practical Photography." The Results of Experiments by Members.
27	Glasgow Southern Ph. Assn.	"Enlarging on 'Rotograph' Negative Paper." The Rotary Photographic Co., Ltd.
23	Sefton Park Photo. Society	Members' Lantern Slide Competition.
23	Edinburgh Photo. Society	"Through Old Rouen with a Camera." A. J. Reid.
23	Croydon Camera Club	"Home Portrait Work for Winter Evenings." J. B. Johnston.
23	Borough Polytechnic Ph. Soc.	"Vine & Tentative Development." H. W. Bennett.
28	Brierley Hill Photo Soc.	"Bromide Enlarging." E. W. Taylor.
28	Birmingham Photo. Society	"Contact Printing on 'Rotograph Slow Bromide Paper.'"
28	Acton Photo. Society	"Preparation of the Negative for Printing." Frederic Lewis.
28	Everton Camera Club	"Latest Kodak Productions."
28	Crydon Nat. Hist. & Scien. Soc.	"Pictures with the Goerz Lens."
28	Deal & Walmer Camera Club	"Telephotography." C. P. Goerz.
29	Richmond Camera Club	"Stereoscopic Photography." C. P. Goerz.
29	North London Photo. Society	"The Norfolk Broads." H. Dale.
21	Blenheim Club	"Velox and its New Applications." J. J. Griffin & Sons, Ltd.
29	Hull Photographic Society	"Elementary Photomicrography." G. H. Rodman, M.D.
29	Rugby Photo. Society	"Orthochromatic Work." J. T. Dyson.
29	Liverpool Amateur Photo. A. sn.	<i>Amateur Photographer</i> 1906 Prize Slides.
29	L.C.C. School of Photo-Eng.	"Derbyshire Days" Wanderings Among the Dales and Tors of the High Peak." Dr. John W. Ellis.
29	Leek Photo. Society	"Accounting and Economics of Photo-Engraving." Arthur Coles.
29	Handsworth Photo Society	"What Can be Done with a Hand Camera."
29		"Enlarged Negatives on 'Rotograph' Negative Paper."

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held November 20, Mr. J. C. S. Mummery, vice president, in the chair. Mr. Alfred Cheese delivered a lecture on "Italy, Past and Present," in the course of which he described Rome, Florence, Milan, the Italian Lakes, and other scenes from ancient and modern Italy.

### SOCIETY OF COLOUR PHOTOGRAPHERS.

A MEETING of this society was held on the 14th inst. at the offices of the BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Mr. E. J. Wall in the chair. The rules as published on p. 849 were adopted without alteration, and considerable discussion then ensued, particularly as regards the circulation of specimens. It was finally decided that portfolios of

prints should be circulated, and also boxes of transparencies, and that the latter should only be sent regularly to those who applied for them, thus practically splitting up the members into two classes of workers, for it was pointed out that possibly the print-maker would not be interested in transparencies, and vice versa. Messrs. G. E. Brown, F. T. Hollyer, A. J. Newton, and E. J. Wall, with the secretary, H. J. Comley, Surrey House, Stroud, Glos., were appointed as the committee of management for the first twelve months.

PLYMOUTH PHOTOGRAPHIC SOCIETY.—Lecturettes formed the programme at the last meeting, and the result quite justified the experiment, for the subjects handled proved interesting and instructive even to some of the members whose experience was by no means short, and the discussions and questions put helped the juniors very much. Mr. E. G. Turney dealt with "Lenses." Mr. W. Annin showed the toning of Velox prints to a brown and sepia tint by the sulphide method. In the discussion several complained of blistering in the washing, and a member said he had avoided this by diluting the strength of the sulphide solution, and after a rinse by passing the print through an alum bath for a short time before washing. He had not further trouble from blisters after adopting this method. Mr. S. H. Tremayne dealt with "Single Lenses (Anastigmatic)," and showed some very excellent lantern slides, which included exterior and interior architectural views of great merit. The work had been done with an ordinary guinea camera. Mr. F. Johnson, in illustrating the subject of "Exposure" with some very fine slides of varied and difficult subjects, contended for the use of an exposure meter, and in this he was supported by the views of other members.

CROYDON CAMERA CLUB.—Mr. Manly, on "Ozobrome," drew a crowded attendance on the 14th inst. Inasmuch as full details have already been given in these pages, there is no necessity to recapitulate them here. It would, however, be unjust to Mr. Manly if we were not recorded that all present formed a most favourable impression of the almost magical, non-reversed, carbon process, both on account of its simplicity in working and the beauty and undoubted permanency of its results. The interest aroused was evinced by the thorough, yet kindly, cross-examination on all points Mr. Manly was subject to, and in which he more than held his own, although he fell a victim to a mild practical joker, who handed up a platinum type print (masquerading as a "bromide") to be operated upon which stubbornly refused to ally itself to the new-comer. "Can I," said one member with perfect gravity, "execute handwork on bromide print, and obtain an Ozobrome therefrom?" "You can," replied Mr. Manly with equal gravity, "not only one, but several," and the first Ozobrome will probably clear your print nicely for you removing the handwork at the same time." Irrespective of the question asked, if a first print by any chance did not reach expectations, a second would most likely fulfil them, owing to the preliminary removal of dirt. A hearty vote of thanks was accorded Mr. Manly.

SOUTH LONDON PHOTOGRAPHIC SOCIETY.—"Figure Studies" was the subject of a lecture by Mr. E. H. P. Hillsworth on the 19th inst. As to the best place for obtaining suitable models, the lecturer recommended a fair-sized village, at least fifteen or sixteen miles from London, preferably where there is a bad train service, or no railway at all in the vicinity. There the picturesque rustic may be met "pure and undefiled." They will, as a rule, be most accessible in the proximity of the village tap. Prospective "studies" should always be approached in a friendly and tactful manner, so that their interest and sympathy may be gained. Without this successful work is impossible. In posing, the high light should always be on the head or shoulders of the model, and all the other lines in the picture should lead up to this. Avoid scattered high-lights, such as made by paper, boxes, baskets, curtains, etc., as you would poison, and when these must be included they must be toned down if the best effect is to be obtained. Mr. Hillsworth deprecated the use of a hand camera, and recommended a half-plate camera on a tripod, as by far the most satisfactory instrument for this work. He himself invariably employed an ordinary plate of medium rapidity, well backed. A dilute developer should be used to ensure a soft result full of gradation and half-tones.

SOUTHAMPTON CAMERA CLUB.—Mr. Arthur Marshall, of Nottingham, lectured on Monday evening last, his subject being "Some Dutch Pictures." There was a crowded attendance to meet one who has attained such success at the Southampton exhibitions, and a delightful

last evening, was spent. Mr. Marshall began with a very excellent series of slides, portraying the evolution of a smile in a charming little Dutch maiden, whose change of feature up to the final result was excellently rendered. Then came a long series of the typical Dutch fishermen, whose enormous stature, approximating in quite normal cases to seven feet, came as a complete revelation to the majority of those who regard the Dutch as normally a puny race. The habit of demanding payment for posing led up to the remark that the country was quickly being spoiled as an artist's paradise by the visitors, and stories were told of the hostility on the part of Elberfeld, are delivering the spun thread to the Cerafirm Gesellschaft, and are also themselves partners in the undertaking, whereby a guarantee is secured that no material will find its way into the hands of competitors. It seems certain, however, that the incandescent gas light industry has scored a new triumph, since the only drawback of this brilliant and cheap system of lighting, the great fragility of the incandescent mantle, has now been finally overcome.

THE PHOTO-SECESSION.—An exhibition of photographs by members of the Photo-Secession is to be held at the "Little Galleries," 291, Fifth Avenue, New York, until December 30. The collection, numbering 83 prints, includes contributions by Mrs. Kasebier, Eduard J. Steichen, Clarence H. White, J. T. Keiley, and A. L. Coburn, with one or two—apparently new work—by Alfred Stieglitz. We hope these prints are a sign that Mr. Stieglitz is finding leisure from his labours of organisation to take up his photographic work.

PRIZES for Photographs at the Dublin Zoo.—At a council of the Royal Zoological Society of Ireland last week, regret was expressed at the absence of response to the Society's offer, each year, of a silver and bronze medal for pictures taken in the Society's garden during the year. The competition is advertised every spring in the daily press, but apparently, amateur photographers are not thereby made aware of the existence of the medals. All particulars can be had from the Hon. Secretary (Dr. R. F. Scharff), to whom letters may be addressed at the Zoological Gardens, or at the Museum, Dublin.

BOLT COURT LECTURES.—The programme of lectures to be given at the London County Council School of Photo-Engraving and Lithography, 6, Bolt Court, Fleet Street, E.C., is now obtainable. The first lecture was to have been given last evening in the shape of an address by the Principal, Mr. A. J. Newton, on "Commercial Considerations in Photo-Engraving." Other lectures of special photographic interest are:—"Ferric and Heliographic Processes," by Mr. B. J. Hall; "Photographic Printing in Natural Colours," by Oliver S. Dawson; and "Powder Processes in Photography," by E. W. Foxlee. Admission to the lectures is obtainable free on application by letter to Mr. Newton.

M. ANTOINE LUMIERE.—Our readers will join us in congratulations to the well-known house of A. Lumière and Sons, of Lyons (whose English representative is the Lumière North American Company), on the notable honour which has been conferred on it by the promotion of its founder and head, M. Antoine Lumière, to the grade of Officer of the Legion of Honour. He was appointed Chevalier of the Order some 12 years since, but it is rare for civilians to receive the higher honour of Officer. It is conferred in the case of Monsieur Antoine Lumière in acknowledgment of the great advance made in photography (chiefly in the natural colour branch) by the firm of which he is chief.

PHOTOGRAPHY as a Crime Detector.—That necessity which impels invention has led in Germany to an application, as ingenious as it is novel, of photography to the purposes of crime detection. A merchant of Adorf had been the victim of a series of burglarious entries to his offices, a considerable sum having been on each occasion stolen from his safe. As all ordinary methods of detection yielded no results, he at last improvised a device of his own. It was a combination of electricity with photography. Installing a photographic apparatus in a position that should be favourable without attracting too much notice, he placed it in electric communication with the safe, in such a way that the opening of the door would remove the screen from the camera, and an instantaneous photograph of the person causing the disturbance would be pretty certain to result. The event answered all expectations. One morning the merchant entered his office to find his safe rifled, and a very nice photograph of one of his junior employees in the camera. Confronted with this damning proof of his guilt, the young fellow, after attempting some confused exculpation, broke down and made a clean breast of it. He has just been sentenced to a term of imprisonment by the court at Plauen.

THE Isle of Wight Photographic Society will hold its fourth annual

## CATALOGUES AND TRADE NOTICES.

Mattos, Ltd., 50, Abchurch Lane, London, E.C., has issued a new list of its manufactures which is worth procuring, if only to see an example of beautiful printing. The catalogue is a good example of the sort of thing which a professional photographer might choose to sell his wares. That it lists the well-known varieties of Mattos paper, silk, and wood should be an additional inducement to acquire it.

The Vanguard Manufacturing Company, Maidenhead, true to its title, has already issued its 1907 list, containing the full description of its various chemical products for amateur and professional use.

A revised price list of trade work reaches us from Messrs. Hutchinson and Avery, George Street, Hove. It specifies the various lines undertaken by the firm, in addition to their specialties, of sepia bromides, platinum and carbon, and dry mounting.

MESSRS. ELLIOTT AND SONS, LIMITED, Barnet, send us a very striking show-card, 9in. by 20in., advertising their bromide paper. The subject is a profile portrait study by Mr. Cruwys Richards, and the effect is picturesque. Messrs. Elliott will be pleased to send their autumn set of showcards to any dealer to whom they may have inadvertently omitted to have forwarded one previously.

## News and Notes.

PHOTOGRAPHIC Society for Chelmsford.—We are informed that a committee, pro tem., has been formed with the object of starting a Photographic Society for Chelmsford and the neighbourhood. The arrangements are in the hands of Mr. H. J. Hagon, of Broomfield.

NEW Incandescent Mantles.—The "Times" in its "Engineering Supplement" of November 14, gives a number of particulars of a new mantle for incandescent gas of greatly enhanced strength, and therefore of much longer life. The mantles, which are made under Plaisant's Germant Patent (No. 141,244), consist of a base of artificial fibre, which, as in the mantles hitherto employed, is impregnated with thorium and other salts. The new process consists in spinning artificial threads made from the manufactured cupric oxide and cellulose, and knitting the fabric for the mantles in the ordinary way. These mantles are subsequently impregnated as usual with the thorium salts, and after drying are placed in a bath of ammonia, or better in one of hydrogen peroxide. This last bath is the essential point of the invention, as it converts the previously soluble salts into insoluble compounds—i.e., hydroxides. Since hydrogen peroxide only transforms the salts of thorium into an insoluble state, it is necessary to make use of a cerium bath, after the hydrogen peroxide treatment, in order to give the mantles the necessary 1 per cent. of ceria. It is well known that the mantle owes its great illuminating power to the small proportion of ceria, which lies between the limits of 0.9 and 1.1 per cent.; anything above or below this quantity is detrimental—even an excess of 0.1 per cent. adversely affects the lighting power, and injures the colour of the light. Like most inventions of great general importance, the new process has also been anticipated, since it was known that artificial threads could, like those of vegetable origin, be impregnated with the mineral salts (the nitrates of certain rare earths, thorium, cerium, etc.), and it was likewise known that cupric oxide cellulose threads were adapted for



exhibition at Newport on January 31—Feb. 1. There will be three open classes for pictures, and one each for postcards and slides. A gold medal will be given for the best picture in the open classes, also silver and bronze medals, and an additional silver medal to the exhibitor showing the best average exhibit (not less than three pictures), which may be in the same or different classes. The secretary is Mr. H. G. Morgan Hobbs, "Sunnyside," Watergate Road, Newport, I.W.

## Commercial & Legal Intelligence.

**PHOTOGRAPHS of "The Bondman."**—The suit of the Dover Street Studio Company v. Hall Caine, the Associated Newspapers, Ltd., and the Ballantyne Press, Ltd., which was due for hearing in the Chancery Court to-day, has been withdrawn, a settlement having been arrived at to the mutual satisfaction of all parties concerned.

**TELE-PHOTOGRAPHY.**—J. W. Lynn, an entertainer, of Bedford Park, a son of the late Dr. Lynn, the famous conjuror and entertainer, came up for his public examination at Brentford Bankruptcy Court yesterday. He said he had spent £400 in making models for an invention, which he had not perfected, and that model he had left with the Bishop of Bloemfontein in consideration of a loan of £10. The invention was one he brought out about the time of the Marconi invention, and its object was to transmit a photograph a distance of, say, a thousand miles. The examination was concluded.

At the Basingstoke County Court last week Mr. Wills Chandler appeared for the plaintiff in the case of J. E. Turner v. Alfred F. Rowe, which was a judgment summons for the recovery of 15s. for photographic requisites supplied. The defendant is a photographer living in a private house in Basingstoke, and Mr. Chandler stated "he goes round to all the large houses, takes photographs, and gets the money in advance." He gets orders both locally and in Berkshire, and the goods were supplied to him in the way of his trade." His Honour made a committal order for seven days, to be suspended on payment of 5s. a month.

**ALLEGED Libel by Cinematograph.**—An interesting case, involving a point as to an alleged libel by means of cinematograph pictures, was heard before Mr. Justice Warrington in the Chancery Division on Friday last. On October 29 John Palmer, the well-known Newcastle pugilist, met Gunner James Moir at the National Sporting Club in a twenty-round contest with 6-oz. gloves for the heavy-weight championship of England. Palmer was beaten, and he now asked for an injunction restraining the Club from exhibiting cinematograph pictures of the fight. Mr. Rowden, K.C., for Palmer, said that the proposition of law involved was as to how far an unauthorised photograph tending to bring the subject of the photograph into discredit should be reproduced, and his contention was that upon that proposition he was entitled to ask his lordship for the injunction. In his affidavit Palmer said that before the fight he protested against the preparations which were being made to take pictures, and subsequently wrote to the defendants to the effect that the threatened reproduction would be calculated to do him much damage and cause him much personal annoyance and indignity. The defendants' case was that Palmer never protested, and that he knew very well that the pictures were being taken, as the working of the apparatus was accompanied by the usual "clicking." Counsel said he had never been in his client's position—(laughter)—but if he had been, he was sure that all his attention would have been concentrated on his opponent, and that he would never have noticed the clicking. (Laughter.) His argument was not based on copyright; his contention was that there was no right in this country to reproduce an unauthorised photograph which tended to bring the subject of it into disrepute. Without calling upon the other side his Lordship said that to obtain relief Palmer must base his case on the ground of libel, which in fact he did. He was not satisfied, however, on the evidence before him that these cinematograph pictures constituted a libel at all. All that was said with regard to them was that they represented Palmer as beaten in a contest, but for anything he knew to the contrary Palmer might have made such a gallant fight that, so far from bringing him into disrepute, the pictures might have quite the contrary result. He must refuse the injunction.

## Correspondence.

- \*.\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- \*.\* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE TEST OF "PURE PHOTOGRAPHY."

To the Editors.

Gentlemen,—Unfortunately, I was not at the meeting of the R.P.S. when Mr. Bennett spoke about his impressions, as exemplified in his photographs; but I gather that there was some antagonism of ideas in reference to (1) a definition of impressionism, and (2) the possibility of control in the production of a genuine photograph.

"Impressionism" is a term very much bandied about in photographic conversation; but I submit, with much humbleness, that it is rather out of the way of the camera altogether. Judging by a protracted correspondence in another journal, it would seem to be accepted as a synonym for "fuzziness," which is the most ridiculous instance on record of the plagiarising by photographers of terms belonging to art. I can make good this assertion if I am asked to.

Regarding the other question, I am not on my own ground; therefore I come, cap in hand, to ask whether it is really a fact that photographs are considered by some to stand or fall by the test of their being capable of multiplication without variation. My dictionary gives no such definition of a photograph. From the collector's point of view, it must be a disadvantage for a picture to pass such a test, for it would rob it of as much individuality as belongs to a penny roll. Not that stereotyped repetition is beyond the power of the gum workers either. There is no end to human patience and skill. But why should a photograph be robbed of the added charm of being unique? There would be a distinction in an exhibited photograph which bore a label with this inscription: "No replicas—negative destroyed."

F. C. TILNEY.

### CHRISTMAS CARD TRADE.

To the Editors.

Gentlemen,—Many are the suggestions made to professional photographers, through the medium of your valuable journal, to increase their turnover, especially by the means of "side lines," and I am glad to record my own experience in this direction.

Some time ago you made the suggestion that use might be made of negatives by printing copies from them and present to our clients, tastefully mounted, in an appropriate Christmas card, intimating the superior merits of those over ordinary Christmas cards, and that copies could be obtained at a given price. I have adopted this means of keeping my name before my clients, finding my employees something to do in slack time, and, I hope, also bringing a little grist to the mill.

No doubt many photographers have adopted the idea to their advantage, but to those who have not I would say do so at once; it is not too late to secure a good percentage of orders before the purchases of private Christmas cards are made. My experience this season so far, has been that these complimentary cards have met with appreciation and secured a good percentage of orders. Beginning the first week in October, we have been steadily printing and sending out these cards, and in no case has this been allowed to interfere with ordinary business. Carefully selecting negatives, cabinet heads printed on C.D.V. pieces of paper, C.D.V. printed out of cabinet group, and so on, no subjects being reduced by copying, as this increases the expense.

In all about 150 cards were sent out, which I estimate to cost, including postage, 3d. per card. Up to the time of writing I have received orders to the value of £10 17s. 6d. Even as I write an order reaches me by post for a dozen cards at 7s. 6d. In addition to this, I have received many letters of thanks and appreciation, although containing no orders. I claim these cards have more than returned me their cost in the advertisement I get.

I thank you heartily for the suggestion I am pleased I adopted, and trust my experience will lead to others doing the same.—I am, dear Sirs, yours truly,

A COUNTRY PROFESSIONAL.

## ARC LIGHT IN THE STUDIO.

To the Editors.

Gentlemen,—Referring to my last letter, the lens used by me is No. 3 A Dallmeyer Portrait Lens, diaphragm No. 5, and Marion's S. plates, 250, H. and D.

The exposures vary from instantaneous to two seconds, in accordance with the light and shadow of my subject, but I consider that the rapidity of exposure is only secondary to the efficiency of the light for giving a range of effects.

As I only use retouching for removing freckles or little inequalities, it did not occur to me to send you unretouched prints. I now do so with the negatives, having had the varnish and retouching removed.

I think the time has now come when a non-competitive exhibition work done with artificial lighting would be most valuable and instructive.

There are a large number of photographers known to me throughout the country who, through the want of knowing the possibilities of artificial lighting, hesitate to embark, and there are many others who are prohibited from doing so, owing to the cost of the under-lying, and, I may add, many more who are unable to decide, through the confusion of the claims that are made for the various installations on the market.

I am confident if your paper would organise a small exhibition, limiting the number and size of prints from each exhibitor, all to be unretouched work, it could not fail to be interesting and instructive to a number of your subscribers.—Yours truly,

93, Linthorpe Road, Middlesbrough. R. E. FAIRCLOUGH.

November 17, 1906.

[Comparing the prints with those previously sent by Mr. Fairclough and with the negatives, we see that the retouching is very light, and in no way responsible for the lighting effect. Our correspondent's suggestion of an exhibition of artificial light portraiture one which we hope to act upon.—Eds. B.J.P.]

## MR. BENNETT'S PHOTOGRAPHS.

To the Editors.

Gentlemen,—It seems to me rather hard that a workman of Mr. Bennett's high standing should be described in your pages as being "known" "owing to his voluminous correspondence and lectures." I think that the Royal Photographic Society have placed on their walls a series of technical photographs that cannot fail to meet with their full share of appreciation by true lovers of photography. Doubtless the professional photographer, who relies on technical sound photography for his livelihood, as most do, will not fail to enjoy the treat; and I feel sure that if workers entered more seriously into the study of technical photography we should then have skilled workers worthy of their name, and the outcry against low wages could be a thing of the past.—Yours truly,

33, High Street, Bognor. L. R. GOODYER.

Of Mr. Bennett's technical photography we have the highest opinion. Our criticism of the photographs was put forward in reference to their claims to pictorial quality. We believe the notice the exhibition made this point perfectly clear.—Eds. B.J.P.]

**PHOTOGRAPHIC Sport.**—In all parts of the world, says "Country Life," the camera is largely supplanting the collector's gun, and of the two weapons the camera needs no less skill and patience, and often more courage in its use. Not a week passes in which this paper does not publish photographs which would have been incredible even a few years ago. The camera is revealing to us all the most secret corners of the wild things; and what it reveals it registers permanently, so that not the single student only, but anyone who will, is put in possession of the facts.

The South Essex Camera Club will have ready shortly a set of slides the work of members in Belgium, and a lecture by the President, Mr. Walter D. Welford, F.R.P.S. These will be loaned to other societies for a merely nominal booking fee, and as the dates will be arranged according to districts, the carriage one way will be much. Applications should be made to Mr. T. Michell, Hon. Sec., 180, Browning Road, Manor Park, E.

A POSTCARD dealer in Poplar, who was summoned for selling and retaining in his possession a number of improper cards, was fined £5 on consideration of the fact that he had informed the police from whom the cards were supplied wholesale.

## Answers to Correspondents.

\*\*\* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.

\*\*\* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.

\*\*\* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.

\*\*\* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

## PHOTOGRAPHS REGISTERED:—

D. Greco S. Smith's Place, Leith, N.B. Three Photographs of unveiling of the Leith Lurns Statue.

G. W. Davies, 49, Victoria Road, Ebbw Vale, Mon. Photograph of the Ebbw Vale 1st Rugby Team.

W. F. Austin, Burrowmoor Road, March, Cambs. Photograph of the Children, Staff, Education Committee and Local Managers attending opening of the new South District Schools, March.

J. Stuart, Thistlebank, Helensburgh. Photograph of G. MacLachlan, Helensburgh Town Clerk.

V. R. Windemer, Ewell House, Surbiton Hill, S.W. Photograph of the interior of St. Mark's Church, Surbiton.

**EMULSION FORMULA.**—Can you give a good formula for self-toning gelatino-chloride emulsion, also for gaslight emulsion suitable for postcards, and oblige.—X. L., Kent.

Such working formulae are trade secrets, and we know of none which we could recommend to you. The only information available is in patent specifications, particulars of which you will doubtless have seen in past issues of the JOURNAL and the "Almanac."

**COPYRIGHT INFRINGEMENT.**—Working recently as a process operator and outdoor photographer for a firm whose principal work was making half-tone blocks for postcards for a lithographic firm closely allied to us, I submitted about ten private photographs to the litho firm for their approval, the understanding being they would buy them if they were suitable, but no definite sum was stated. Some time after one was sent, among a number of their ordinary work, for reproduction, no previous notice having been given that they were using it. It was a half-plate print; the half-tone block made from it was 11 in. by 7. I wrote some time after inquiring about the others, and charging them for the one used half a guinea, but have received no reply. The photographs were not copyrighted. I should esteem it a great favour if you will give a little advice on this matter.—H. H. G.

As the photograph was not registered you cannot take action in respect of the infringement, but you can register now and stop further sales either by the firm or dealers in postcards.

**SILVER WEIGHTS.**—Could you inform me where I should be able to procure a set of apothecary's weights made in silver?—ALPHA.

We rather question if such weights are stocked by anyone. The most likely place to get them, we think, would be Oertling's, Turnmill Street, E.C. If they do not stock them they will make them to your order, no doubt.

**ENGRAVINGS.**—We wish to add to our business the sale of really good engravings. Can you tell us where to get these at wholesale prices? We refer to the fine engravings, artists' proofs, etc., sold by Messrs. Agnew and other firms of similar standing. We shall be much obliged if you can give us the information.—ENGRAVING.

The only source we can suggest is to obtain them from the publishers. Only a limited number of proofs are issued from



any plate, and these are often secured by subscribers and dealers before the prints are published. The fine impressions of old plates are usually purchased by the print-sellers at auction sales, such as those held by Sotheby's, Christie, Manson and Co., and others, or by private treaty with those who happen to have them for disposal. The firms of Goupil and Co., Franz Hanfstaengl, and the Berlin Photographic Company are publishers of high-class photogravures.

**TITTLING CARDS, ETC.**—1. Will you please tell me how to print the names on the bottom of postcards in gilt to look like gold letters? 2. Also, I have been trying to coat baryta paper with chloride emulsion; you will see by the enclosed it looks wavy. What is the cause of it? I draw the paper over the front of the emulsion in one-yard lengths very gently.—T. HARRIS.

1. The titles are printed on with one of the aluminium or Dutch metal printing inks—with rubber type most likely. 2. The wavy lines are due to the chilling of the surface of the emulsion by the cold paper. It is impossible, we believe, to prevent these unless the temperature of the emulsion is kept about 95deg. F. and only a very small portion of the paper is allowed to come into contact with the paper at once; which may be effected by drawing it underneath a roller so as just to touch the surface and carrying the paper straight up. For experimental work very satisfactory results can be obtained by floating the paper on the warm emulsion, but it would not be advisable to do this for larger sizes than about 12 by 10 or so.

S. E.—1. Probably to ripen a hypo-alum toning bath. 2. Dilution of the mountant will in no way affect the permanence of the photographs.

**PYRO SODA.**—Reading your comments on A. and C. formula, page 863, I observe you say C. formula (Bennett's) contains less carbonate and more sulphite than A. Is not this an error? As I read it, C. has  $1\frac{1}{2}$  grains more carbonate per ounce, and only  $\frac{3}{4}$  grains more sulphite. I think I can understand why B. is more active than A., but I will not forestall your solution.—W. P.

If "W. P." will again refer to page 863 he will find that B. is Mr. Bennett's formula, and that, as we stated, it contains less carbonate and more sulphite than A. We should be glad if Mr. Powney would give his explanation of the greater activity of B. over A. We do not in the least mind our solution being forestalled. On the contrary, we shall be glad of any hint likely to lessen the work of the investigation, which will probably take several months, and may lead to very little. This particular feature is only one of the minor problems, and there are several very probable solutions. If "W. P." can suggest another we shall be only too glad to test it.

H. H.—1 and 2. "The Photographer," 21 and 26, East 21st Street, New York. 3. In Africa. "The South African Photographer," Harp Alley, Farrington Street, E.C. Australia: "Australian Phot. Review" (Baker and Rouse, George Street, Sydney), and "Australian Phot. Journal" (Harrington and Co., George Street, Sydney). In India, St. Veronica, Merlin Park, Old Bally-Gunga, Calcutta.

J. J.—If you can tell us which firms have failed to give you satisfaction we may be able to advise you. In the absence of this information we obviously cannot.

W. DABY.—See answer to "Safelight," p. 900 of the B.J.P., for November 9.

**ALBUMINISED PAPER.**—I have received a packet of albuminised paper for the purpose of making photographs from my own negatives, to use for crystoleum work. I am just trying my hand at it. The maker's name is not on it, and there is no formula for toning and fixing, and photographers are not in the habit of using it, so they cannot help me much. If you can help me, I shall be much obliged for any hints. Is this paper permanent?—NOVICE.

The use of albuminised paper has declined of late years. Printing must be carried rather deeper than is required in the finished print, and the print then well washed till free from all soluble silver salts, which is known by the absence of milkiness in the water, and either of the following baths used:—

Sodium acetate .....	30 grs.
Chloride of gold .....	1 gr.
Boiling water .....	8 ozs.

Instead of acetate an equal weight of borax may be used. The baths may be used when cold and toning continued till the

desired depth is reached, which is to be judged by looking through the print. Fix in clean hypo bath 3oz. to the pint rendered alkaline with ammonia or soda, then well wash. The permanency of the prints depends upon so many factors that it is impossible to definitely say one way or the other; prints, however, are probably as permanent as any other silver printing-paper.

P. CARD.—The Rotary Photographic Co., Ltd., New Union Street, Moorfields, produce postcards of the kind you send on the largest scale.

PERPLEXED.—1. Nothing satisfactory except copying and printing from the new negative. 2. Houghtons, Limited. 3. ... covering power they are.

H. R. HILL.—Order "Trick Photography," ready in a day or two from Marshall Brooks and Chalkey, Harp Alley, London, E.C.

J. HOWE.—The stain is from the silver in the film of the postcard. You will find one formula for its removal on p. 956 of the "1960 Almanac," or page 965 of the 1907 "Almanac," read December 1.

H. P. AND CO.—We think you will not be able to copyright the matter. In any case, it is a form of words very generally used, and your proposed type-setting has not much to recommend it. We hope that in the event of your issuing the circular you will expunge the vulgarity, "photos."

**THIOCARBAMIDE TONING.**—You strongly recommended some time since the thiocarbamide toning bath in preference to the usual sulphocyanide. I have perseveringly tried it for over two months, sometimes satisfactorily, other times not, yet I always mix the bath the same, which is according to the formula given in the BRITISH JOURNAL Yearbook. It may be the water of the neighbourhood has something to do with it. Anyhow, I think I could better understand the matter if you would kindly give me the reason of adding the different ingredients, what acts the salt in the bath has, and the reason of the addition of acid. If I knew this perhaps I could modify the formula to suit my work. The last few weeks the bath has been terribly slow. Is this because the stock is two months old? (Unused stock, course.) Then the amount of salt you recommend the print to be put in before washing, viz., 2 oz. in 20 oz. water. Is this not excessive? and would it rob some papers of the power to tone afterwards?—H. BRADSHAW.

The purpose of the thiocarbamide is to form a colourless salt (CSN<sub>2</sub>H<sub>4</sub>)<sub>2</sub> Au Cl which is soluble in excess of the thiocarbamide, and in which the gold is replaced during toning by silver. The acid prevents the chance of decomposition of silver thiocarbamide compound by an alkali, and it is quite possible that very hard water would suffice to cause this decomposition. The salt is to slow down the action of the toning bath, and also to convert any soluble silver salt into chloride. The preliminary salt bath, if removed by washing, would rob the solution of its toning power. The slow toning is due to the stock solution being old, for although when mixed bath keeps well, there must always be some change going on and this tends to the formation of a more stable salt of gold. Our experience is that the bath acts too quickly, but then we always keep stock solutions of the chemicals and mix as wanted.

**\*\* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## SUMMARY.

The "British Journal Almanac" is this day published simultaneously in all parts of the United Kingdom. A synopsis of the contents is given on page 952.

A correspondent gives some practical advice on how to resist the attacks of the "free-enlargement" canvassers. (P. 958.)

Colour Photography.—A new three-colour printing process has been worked out by Dr. Traube, in which the dyes are precipitated (silver iodide). (P. 944.)

A new work on the Lippmann process of colour photography is reviewed by Mr. E. J. Wall on page 946.

M. Estanave, a colleague of Professor Lippmann, has described a variation of the parallax method for stereoscopic projection. (P. 945.)

Messrs. Elliott and Sons, Ltd., have obtained from the Postmaster-General the statement that postcards of less than the present statutory size will be allowed to pass through the post until April, 1907. (P. 958.)

Mr. Douglas Carnegie contributes an article on the chemistry of the sulphide toning process in which he raises several points of importance to those using the process in ordinary work. (P. 947.)

Impressionism in art and its relation to photography is a topic which has arisen from the recent address by Mr. H. W. Bennett. Photography, impressionism must be largely a matter of "fake." (P. 944.)

Mr. George Bernard Shaw last week expressed his views on the deplorable condition of the artistic professions under "ideal" social conditions. (P. 953.)

The conclusion of the Traill-Taylor lecture by E. Walter Maunder "Photography in the Work of Greenwich Observatory" is given on page 949.

## EX CATHEDRA.

### The 1907 Almanac.

To-day the issue of the "British Journal Almanac for 1907" is obtainable throughout the United Kingdom, and many of our readers, we doubt not, will hasten to possess themselves of the latest, and, we may add, the largest "Almanac" issued since the establishment of this publication in the year 1859. Congratulations are due to our publishers on issuing 25,000 copies, each of 1,624 pages, one day in advance of the advertised time. That they have done so is in part a result of the thoughtful co-operation of advertisers, who have realised the herculean labours which the publication of such a volume entails, and have been early in giving their orders or supplying the insets that are a feature of the "Almanac." Our publishers desire us to express their grateful acknowledgments of this consideration, and, at the same time, their regrets that announcements intended for the "Almanac," have had to be omitted owing to the impossibility of dealing with orders received after the scheduled date.

\* \* \*

### Processes in the "Almanac."

The text pages of the "Almanac" are as varied as ever, and in one or two minor respects it has been found possible to improve on the arrangement of the contents introduced last year. In another column we give a brief conspectus of the information compiled and classified from all sources. The section "Epitome of Progress," which was made a feature of the 1906 volume is very materially strengthened, but not in the direction of purely chemical and photo-chemical researches, for the results of which we can quote no better referendum than Dr. Eder's invaluable "Jahrbuch." The more practical aspects of photography have been our immediate care in supervising the abstracts which are collected each in its proper place in the "Epitome" section, and we would flatter ourselves that the photographer does not exist to whom the pages of this section of the "Almanac" alone cannot prove informative.

\* \* \*

### The Misuse of Affiliation Sections.

A correspondent in a contemporary attributes a falling-off in the attendance at his society, and a growing apathy on the part of the members, to the too free adoption of lectures supplied by what he calls a "society of societies," which we may assume to be an organisation on the lines of an affiliation. He complains that their season's programme is now almost entirely made up of borrowed "affiliation" lectures, and of trade demonstrations, and seems inclined to place the majority, if not all, the blame for this state of affairs on the existence of such things as affiliations. It seems to us, however, that he is putting



the blame on the wrong shoulders. Affiliation lectures are not forced on the societies, who need not use them at all. If any society suffers from a surfeit of them it is entirely its own fault, and the proper remedy is the changing of the officials responsible for the programme. If a secretary cannot find among the members of his society more than one or two members capable of giving a lecture, he ought to be able to find several who can demonstrate a process, and a few more capable of arguing with the demonstrators. If he cannot do this, it appears to us that only two conclusions are possible: either he is a bad secretary, or his society is an altogether superfluous one, with no excuse for existence. In every society that has reason for its existence there are means of keeping the members interested, and of drawing out those capable of interesting others, quite apart from outside help and strange demonstrators. A good secretary will find ways and means of keeping his society alive, but he will not attempt to do it by filling the programme with affiliation lectures and trade demonstrators. In most societies there are far too few informal meetings of the members, devoted to chatty and quite casual discussions, with comparisons of apparatus, etc. If such meetings are interspersed between the "ordinary" meetings, a sociable secretary will soon find that many members, who as a rule have nothing to say in the ordinary meetings, can bring out many interesting subjects over a pipe. A little persuasion and encouragement will induce many of them to elaborate their special subjects and pave the way for more formal demonstrations. Without such informal meetings it is difficult, if not impossible, for the secretary to become as well acquainted with the members and their capabilities as he should be, and until he is well acquainted with the majority of them it is impossible for him to determine what latent talent there is in the society.

\* \* \*

#### A New Three-Colour Process.

Elsewhere will be found the first notice of a new method of three-colour printing, which has been worked out by Dr. Traube, of Berlin, who was for some time associated with Dr. Miethe in his colour work. Brief as are the details yet to hand, it is obvious that the process is an extremely ingenious one, and it may be summed up by stating that positives are made from the three constituent negatives, the silver images converted into silver iodide by the solutions containing the respective dyes; the silver halide is then dissolved out, the dyes fixed and the pictures superimposed. The principles involved naturally strike one as precisely similar to those employed in ordinary dyeing or the preparation of pigments from aniline colours. It is a well known fact, for instance, that many insoluble salts which when added to a solution of a dye are quite inert will, in *statu nascendi*, carry the whole of the dye down as a precipitate leaving the supernatant fluid quite colourless. If we assume, then, that the silver iodide at the moment of formation retains some dye, it is easy to understand how subsequent treatment with tannin, or a metallic salt, may form a lake or actually dye the gelatine *in situ*. This view is borne out by the fact that for basic dyes tannin is used, and it has been proved by Juste Koechlin that tannin will form soluble or insoluble lakes according to the proportion of the tannin and colouring matter used. The supposition, too, that the gelatine is actually dyed is warranted by the fact that many dyes will not take on certain fibres, unless the latter are "animalised" or treated with gelatine or albumen. In the case of some dyes, too, treatment with tannin is essential to confer on them fastness to light. The acid dyes, on the other hand, like all

acids, contain hydrogen atoms which are readily replaceable by metals and form insoluble compounds, particularly with metallic hydrates.

\* \* \*

#### Some Possibilities.

The principle of Dr. Traube's process, of course, may, in other ways, be applied in other ways, because silver iodide is not the only salt which has the power of tenaciously holding dyes; as is known from old researches in orthochromatising in which the chloride and bromide of silver are used. Nor does it seem actually necessary for the halide to be in the nascent state, a lantern-slide converted into bromide can be soaked subsequently in a dye solution, be deeply stained, and the bromide removed, leaving the dye distributed throughout the gelatine yet showing an image. By subsequent treatment the dye may be discharged from the gelatine, distinct from the image and a transparency appears composed solely of dye left behind. This particular method was adopted with crystal violet. An ordinary lantern-slide was treated with bromine water, thoroughly washed, soaked in crystal violet solution, then treated with hyposulphite and well washed. The appearance then was a violet plate in which, however, the image was distinctly seen. In order to ensure complete absence of silver, a strong mixture of hyposulphite and ferricyanide was applied to the plate well washed. To discharge the dye a bath of weak hydrochloric acid was used, which, changing the colour to green, freely dissolved it, and subsequent washing with ordinary and very hard tap water at once produced clear whites and a violet image, which apparently consisted only of dye. As many double ferricyanides also possess a very strong affinity for basic aniline dyes there is no reason why silver ferricyanide should not act in precisely the same way. The obvious difficulty, however, lies in preventing the gelatine where there is no image from becoming coloured, or in knowing how to discharge the colour from it.

\* \* \*

#### Condensed Moisture and Ruined Negatives.

The excessive humid atmosphere we have had during the past few weeks has been a prolific source of stained and ruined negatives. Few amateurs, and even some professionals, take the trouble to varnish their negatives, the result that they frequently become badly stained with silver during the printing. These stains, more often than not, are attributed to damp paper, whereas they are really due to damp negatives. Gelatine is a great absorber of moisture, and if unvarnished negatives are left long exposed to such a damp atmosphere as we have had lately the film will absorb a good deal of it, with the result that when quite dry paper that contains free nitrate of silver is printed on them the negatives become stained. The stains may not make their appearance at once, but they may do so at a future time, perhaps weeks or months afterwards. During the winter months printing is usually carried on out of doors. There the negatives and frames often become exceedingly cold, when they are taken into a warm room to change the paper moisture at once condenses on them. This can be plainly seen on the glass side of the negative, but is not noticeable on the film side, though it is there all the same, the gelatine, if unvarnished, absorbs much of it. Consequently, when many prints are made, with these conditions prevailing, the negatives become stained with silver. Usually when a negative becomes silver stained it is put down to contact with damp paper, while in fact the time the cause is dampness in the film. P.C. as sent out from the makers is always perfect.

dry, and it must be very carelessly handled by the user if it becomes sufficiently damp to cause trouble. The remedy for, or rather the preventative of, silver-stained negatives is to varnish them. The cost of the varnish is a mere trifle, and the trouble of its application is next to *nil*.

\* \* \*

#### Groups by Flashlight.

A class of photograph which is now becoming very common—a decade or two ago it would have been looked upon as impossible—is that of theatrical scenes, groups in rooms, dinner parties, and the like, taken by artificial light. Some of these photographs are very satisfactory, while others are just the reverse. Those which are taken by photographers who make a specialty of this class of work, as a rule, are good, or at least as good as circumstances will permit; while those produced by others, whose experience is limited to perhaps their first attempt in this direction are very far from being satisfactory. A very frequent question that is put to us is something to this effect:—“I have been asked to photograph a dinner party, with the guests seated at the tables. What lens should I use, what flashlight should I employ, where should the light be placed, and how much powder should be used, etc.?” Now, these queries are really impossible to answer in anything like a satisfactory way without seeing the building or knowing anything of the conditions under which the photograph has to be taken. With regard to the lens, one of the rapid rectilinear type, or an anastigmat, is generally the most useful, by reason of its rapidity, but it goes without saying that its focus should be such as will include all the subject desired on the plate, otherwise a wider angle one must be employed, which usually means a smaller aperture. As regards the light, magnesium powder, used in one or other of the flash-lamps, is decidedly the safest in inexperienced hands to employ, but the flashlight, being more sudden, there is less chance of movement during the brief exposure. Whether more than one light should be employed, of course, must depend upon circumstances—the size of the room, or the area to be illuminated—but where more than one light is used all must be fired simultaneously, and in all cases the subsidiary lights should be less brilliant than the primary one—they should only be used to soften the shadows. As the Christmas season is now approaching, and possibly some photographers who are not *au fait* with this kind of work may be called upon to record the events, a few practical hints may be useful to them just now. One is that the camera and lenses be taken to the place the day before, or earlier in the day, the picture is to be taken, and the lenses tested to see which best covers the plate and includes all the subject desired. A test should then be made to find which stop is required to get all portions, near and distant, in tolerably good focus. This cannot well be done when the party is assembled. Next a couple or three trial exposures should be made in the empty room with different quantities of magnesium or flash powder differently placed. If these preliminary trials are made there should be no chance of failure in obtaining a satisfactory result. This may seem a troublesome procedure, but it is advisable, seeing that the photographer's credit may, to an extent, be at stake, and that the event is not likely ever to be repeated in its entirety. It should be kept in mind that in the case of a dinner party the white cloths on the table reflect light, and thus tend to soften or even destroy the shadows, and this should be taken into account when more than one source of light is employed. It goes without saying that rapid plates should be used, and that they should be backed so as to avoid halation, which would otherwise infallibly mar the work.

#### Foreign Letters and Metric Weights.

Everyone knows that the postage on letters for abroad is 2½d. per ½ oz., and it will be remembered that some months back it was given out that a letter to France or Germany bearing a 2½d. stamp would be delivered without surcharge, even though it weighed more than ½ oz., provided its weight did not exceed 15 grammes. We were reminded of this a few days ago by seeing in a stationer's shop window in the City a set of letter weights—15, 30, and 60 grammes. The price of them was 1s. 6d. Now, the difference between ½ oz. is but, roughly, 13 grains, still, little as it is, it may on occasion mean all the difference between 2½d. and 5d. on a letter to either France or Germany.

\* \* \*

#### Storing Cameras for the Winter.

Now that winter is obtaining a firm footing, many workers will not require to use their cameras again for some months; not that there is no outdoor work to be done in winter, but simply that they do not care to do it, or for other reasons. At any rate, there are hundreds of cameras that will lie idle during the months of winter. In too many instances they are simply put away, just as they were last used, in the lumber room, frequently an attic none too dry—we have even known them to be kept on a shelf in the darkroom—with the result that when next required to be used they are found to be in anything but good working order, and a considerable amount of time and trouble has to be expended on them. All this might have been avoided had a few minutes been bestowed upon them before they were put away. If the apparatus should have been much used out of doors during the recent damp and humid weather, the woodwork and the lining of the bellows will have absorbed a considerable amount of moisture, and, unless this be got rid of there will be the risk of the former swelling and the latter becoming mildewed, during the long storage. Therefore the slides, with the shutters drawn, and the camera with the bellows extended, should be left exposed in a warm and dry room for a day or so, for the absorbed moisture to escape. The slides and the camera, in all its parts, should be carefully dusted, and if the bellows of the latter has been noticed, during the summer months, to stick together in the gussets they should be liberally rubbed over with French chalk, which will prevent their sticking when packed away. After these precautions have been taken the camera and slides may be put into the case, and the latter parcelled in one or two thicknesses of brown paper and stored away in a dry place. The lenses, after dusting, should be wrapped in tissue paper and kept in a drawer. If these few precautions are taken, the apparatus will be found ready for immediate use, without further trouble, whenever required. If they are neglected, it may happen that much time and trouble has to be spent to get it again in good working order. This may sometimes mean that it cannot be used at all if it were required in a case of emergency.

PHOTOGRAPHIC Goods for Italy.—According to a consular report, in the import of cameras, lenses, photographic plates, films, etc., there is keen competition with America and Germany, but principally with the latter, on account of their cheaper prices and the facilities they give as to credit, which is an inducement to the dealers to recommend German-made articles. British-made articles are, however, in great demand on the part of tourists, and a good trade is carried on. British camera-manufacturers should endeavour to meet the wishes of local importers, as far as may be possible, and send out travellers with cheap patterns; each apparatus should be accompanied by instructions in Italian.



## IMPRESSIONISM IN ART AND PHOTOGRAPHY.

MR. H. W. BENNETT's address at the R.P.S., and the discussion that followed (reported on page 916 of our issue of November 16), showed the confused ideas that seem to exist among photographers with regard to the meaning of the word "impressionism." The fundamental mistake seems to be in assuming that it can properly be applied to more than one description of art. It is not our intention to review the phases of art into which impressionism has entered, though such an exercise would show us the fallacy of the general view that impressionism is a clever disguise for slovenly technique. Really, the great impressionists like Manet, Degas, Corot, and Monet, are masters of their art, not to be classed with tricksters who manage to cover their want of skill by affectations.

The term "impressionism" has really a narrow meaning, in spite of its wide application. It should only apply to pictures which record the impression of light and air that a scene makes upon an artist who wishes to see, in that scene, *nothing else so forcibly*. Such impressions are naturally the very opposite of topographical records, and are also incompatible with the landscape compositions aiming at familiar pictorial beauties. They are really "studies" rather than "pictures." Perfect realisation of light and air may exist in the ordinary picture, nevertheless, as it does, for instance, in the works of Claude, Turner, and others; but the preparatory studies for such effects must, of necessity, be pure trials done at a white heat, in the shortest space of time. In them drawing and detail can find but short shrift. The French painters following Manet, who practised this method of seizing certain essentials to obtain truth of effect in their studies, were content to leave their work at that stage rather than incorporate its results in large and ambitious works such as Turner produced. These studies were then called, by those who were not educated to them, "impressionistic pictures."

The question now arises how can impressionism be represented in photography? If the photographer wishes to show a subjective impression he must fake. He must depend on brush or pencil, and if he can fake with these perfectly he is obviously very foolish to handicap himself with a camera at all. Fugitive aspects of Nature are very difficult to photograph, and the emphasis that the painter can give them is impossible to the photographer without faking.

Disturbing details must be suppressed, otherwise the fugitive effect aimed at is probably not to be distinguished on the negative. The photographer may be helped by natural mist, as pointed out by Mr. Bennett, but he will not once in a lifetime find the mist to be just where he wants it, and in the right quantity. He probably will not know this, for he lacks the twenty years or so continuous observation and study of Nature that is necessary to make the mature painter. For the same reason he cannot fake his result with sufficient ability to produce a passable result. At his very best his ignorance is displayed where he least expects it, and if he only knew enough to avoid this betrayal he would know too much to attempt impressionism with a camera.

The photographer has a field of his own where the painter cannot touch him, much as he would like to. But true impressionism is the special preserve of the painter and the writer. The camera has no chance there, and its owner acquires the necessary knowledge and skill to qualify himself for impressionistic work the camera is the very last tool that he will dream of using.

In the R.P.S. discussion Mr. Lambert touched on one essential truth when he dwelt on the need of knowledge, and Mr. Thomas rounded off this argument by suggesting that a sheet of paper and a piece of charcoal gave better opportunities than the camera. Given the training and knowledge, this would be undoubtedly the case with impressionistic work, and the idea of a thoroughly trained man attempting such a work with a camera is beyond our comprehension.

It has very truly been said that we are naturally nearly blind to colour, and quite blind to form. These defects are overcome by training alone, and it is far more difficult to overcome them than it is to master the simple manipulation of brush or pencil. It is even more difficult to master what we may call the scientific principles of picture-making as the great impressionists mastered them, and even a moderate degree of ability is only attained as the result of many years' continual study. We may well ask where this close study is represented in the training of the photographer. How can he hope to do without it, and how can he attain it with nothing but the camera as a training master? It must surely be obvious that the highest branches of pictorial art, such as true impressionism, are closed absolutely to the photographer, and that his proper and only safe course is to devote his energies to such branches of graphic work as the camera is especially adapted for.

## A NEW THREE - COLOUR PRINTING PROCESS.

DR. TRAUBE, of Berlin, recently exhibited at a meeting of the Photographisches Verein in Berlin, examples of a new process, not only for obtaining transparencies in colours, but for making three-colour prints.

The process is based on the fact that silver iodide can be very deeply stained with aniline dyes, and that it retains these dyes very tenaciously. It has been known for a long time, of course, that the chloride and bromide of silver could be stained and rendered colour-sensitive, but Schaum stated that it was not possible to stain iodide because of its crystalline character. Lüppe-Cramer on the other hand, proved that it could be stained, but that even then, although in an amorphous condition, it was not colour-sensitized.

Dr. Traube has discovered that so far as his experiments have gone, there is no basic dye which is not taken up by silver

iodide, and that many of them adhere so tenaciously to it that they can neither be removed by washing nor by the action of oxidising or reducing agents. Of the acid dyes, those belonging to the eosine class are the only ones which stain the iodide deeply, and this may of course be due to the introduction of the halide molecule as in all cases this produces greater insolubility. The application of a solvent of silver iodide to the stained film naturally dissolves it out, and leaves the dye diffused throughout the gelatine in such a condition that it can be washed out.

These facts are the basis of the new process. Some lantern slides were shown, which, judging from the report of the meeting, left nothing to be desired as regards modelling and they contained the dyed iodide as an image. The action of light on silver iodide is so little and so slow that it is stated that

may be considered as practically permanent; should, however, a colour be bleached somewhat, it can be again stained up by immersion in the corresponding dye bath.

The paper prints exhibited by Dr. Traube had all the appearance of carbon prints, and were prepared by the superposition of three stripped films, which were made in the following manner. Ordinary transparencies were made on celluloid films exposing through the support, thus doing away with the necessity of double transfer. These transparencies were then converted into dyed images by immersion in solutions which converted the silver into iodide and simultaneously dyed them respectively red, yellow, and blue. The iodide was then

dissolved by fixation with special solutions which in the case of the basic dyes contained tannin, and in the case of acid dyes certain metallic salts, the dyes thus being converted into colour lakes. Nothing was now demanded but to strip and superimpose the images, which is done without the use of any supplementary solution. The results are described as extremely satisfactory, showing the finest details and the most delicate half tones.

Doubtless we shall have somewhat fuller descriptions to hand within a short time, and as it is stated that the necessary materials are to be placed on the German market, the dyeing solutions being called "Diachrome solutions."

## STEREOSCOPIC PROJECTION BY MEANS OF RULED SCREENS.

(A Paper read before the Paris Academy of Sciences.)

There are two essentials for the production of relief are:

- (1) To observe binocularly two prints representing two perspective drawings of the same object;
- (2) To observe these prints in such a way that the image intended for the right eye is seen by that eye alone, and that for the left eye by the left alone.

If these conditions are observed, the effect of relief is obtained. In these lines I have devised a projection screen onto which a pair of stereoscopic images are projected, at such convergence that homologous points in the distance of the view, e.g., the horizon line, coincide. The images of nearer points do not fall on each other, but are separated by a horizontal distance, the "stereoscopic parallax," so called by Helmholtz. The separation is greater, the nearer the objects to the observer and the camera.

When these partly superimposed images are seen, by transmitted light, on the screen, each eye perceives one, to the exclusion of the other, and the sensation of relief is experienced. The action of the screen makes it possible to dispense with any instrument for the eye of the observer, and the stereoscopic effect is very readily seen.

The theory of the process is as follows:—

Let M (Fig. 1) be any point in an object, O and O<sup>1</sup> two sources of light, and EE<sup>1</sup> a screen, in front of which is a ruled grating, RR<sup>1</sup>. The light O casts a shadow m of this point on the screen, and, and the light O<sup>1</sup> a shadow m<sup>1</sup>. If it were possible to mark on the screen the shadows m and m<sup>1</sup>, and to place the two eyes in the positions, O and O<sup>1</sup> (the object M being supposed eliminated), each shadow would be seen by each eye, to the exclusion of the other. For a suitable position of the grating the eye at O<sup>1</sup> will see a shadow m<sup>1</sup>, but not m, as the visual ray from m<sup>1</sup> to O is intercepted by an opaque bar of the grating. Similarly, m<sup>1</sup> is seen from O, but not from O<sup>1</sup>. Thus, if the observer receives these two separate impressions, he will obtain the sensation of stereoscopic relief as if he directly regarded the object having cast the shadows.

The screen thus serves to cut off from each eye the shadow which it should not see.

But all the points of the object will not give two images such as m and m<sup>1</sup>. For example, the point M would give only the image m<sup>1</sup> by the light O<sup>1</sup>. That from O would be cut out by a bar of the grating. The images formed by each source of light on the screen will thus be incomplete, and will be as if formed by cross hatching. But, as we have seen, that will have no influence on the observation of the images, owing to our tendency to combine, in the impression formed by the brain, any discontinuity in the images, so long as the latter falls within certain limits. This tendency

explains the sensation of continuity which we get from the cross-ruled half-tone engravings, in which we fail to recognise the square-formation.

The distances of the lights O and O<sup>1</sup> should be equal to the inter-ocular separation, since in an observation the eyes take the place of these lights. The distance varies with different observers from about 5.5 cm. to 6.4 cm. The ruled grating should be placed at such a distance from the screen that the rays of light from O meet the screen in the portions where the light O<sup>1</sup> projects the shadows of the opaque bars of the grating, and *vice versa*. These conditions are realised if the luminous rays from O and O<sup>1</sup>, and the tangents to two consecutive edges of the two bars of the grating meet on the screen. Then by similar triangles, OIO<sup>1</sup> and αIα<sup>1</sup> (Fig. 2),

$$\frac{z}{D} = \frac{l}{2a}$$

z denoting the distance of the grating from the screen, D that of the lights from the screen, l the separation of the two opaque bars of the grating, and 2a the separation of the sources of light.

On the lines of this formula I project, on to the same part of the screen, the two stereoscopic images of an object in super-imposition. In the experiments made in the laboratory of M. Lippmann, at the Sorbonne, I attained this result by placing two prismatic objectives in front of the stereoscopic pair. By means of a lateral displacement of these two lenses the two images were brought into stereoscopic, i.e., partial, coincidence, the effect on a ground-glass screen being total confusion. On receiving the double image on a screen carrying a ruled grating, of ruling, etc., to satisfy the conditions stated above, the observer, on fixing his gaze in the determined direction, sees the subject projected in relief. The special screen is formed of two ruled parallel line gratings,

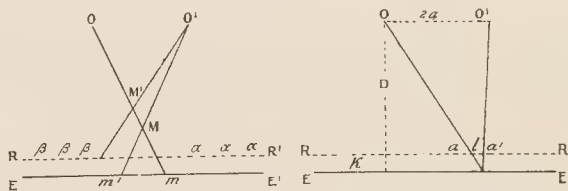


Fig. 1.

Fig. 2.

separated by a transparent screen, such as a ground glass. The distance of the gratings from the glass is adjusted to the fineness of their ruling. One of these gratings plays the part of the grating RR<sup>1</sup> (Fig. 1) in order to coalesce the two



projected stereoscopic images; the other serves to separate the two images thus combined.

There is a fair amount of licence as to the observance of the enlarged images, and several persons conveniently placed can see them at one time, the number increasing with the size of the projection. Up to the present I have worked with screens of various sizes up to 20 by 25 cm.

If, in place of the special screen (but all the other observations remaining the same), we place a photographic plate, with the ruled grating in front of it, at a suitable distance, a negative stereoscopic transparency is obtained, a positive from which, when observed through a ruled grating of the same character, exhibits a distinct relief. This is a process of obtain-

ing relief effects from stereoscopic negatives which has certain advantage. Enlarged stereograms can be made in this way.

Lastly, one direct result of the employment of the special screen is the projection of small objects in relief. For this purpose, in place of stereoscopic images, as described above, the two images of the strongly lighted object are projected on to the screen, say by means of one large lens provided with two diaphragms at the inter-ocular separation. We thus obtain two stereoscopic images of the object which, when observed through the screen, reproduce the object in relief.

In the conditions which I have described in this paper, real images are observed as distinguished from the virtual images usually obtained in stereoscopes.

E. ESTANAVE.

## A TREATISE ON LIPPMANN COLOUR PHOTOGRAPHY.

A NEW work on Lippmann's process, particularly if, as foreshadowed in the technical press, it contains distinctly novel and improved methods of working, is always worth attention. Dr. Hans Lehmann, of Jena, is the author of a new work that has just been published, and which has already been mentioned in these pages.<sup>1</sup>

Naturally, it opens with an historical sketch, and it is regrettable that this is not a little more accurate. Valenta, for instance, is accredited with being the first to use a gelatine emulsion, and this is all the more curious in that, although Dr. Lehmann gives references to Valenta's work, the latter himself gives<sup>2</sup> priority in this respect to MM. Lumière, who, by the bye, might be non-existent or have done nothing, for they are not mentioned at all by Dr. Lehmann.

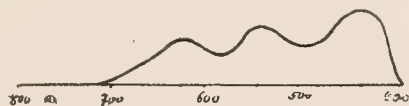


Fig. 1.

The further statement, that no one except Lippmann has made successful results of compound colours, is not correct.

Turning, however, to the author's actual work and improved methods, we find him first dealing with mixed spectral colours, and for this he uses a total reflecting prism in front of the camera lens, which receives half the beam of light, and, by revolving this, is able to bring any pair of wave lengths into coincidence. This is distinctly new, so far as I can find, and useful, because it avoids any displacement of the rest of the apparatus, and the exposures can be simultaneous.

The chief novelty in Dr. Lehmann's work, however, appears to be improvements in sensitising, and the use of a special

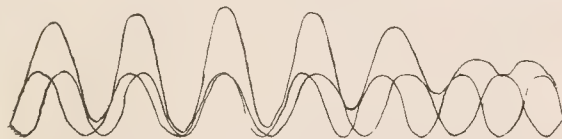


Fig. 3.

filter. He states that hitherto the method such as used by Valenta and Neuhauss consists of an accurate adjustment of the quantities of dyes, so that the plate without a filter will give pure whites. This method the author abandons, and adds

(1) Beiträge zur Theorie und Praxis der direkten Farben Photographie mittelst stehender Wellen nach Lippmanns Verfahren. Published by C. Troemners, Freiburg. "B. J." Oct. 26, p. 346.

(2) Die Photographie in natürlichen Farben. By E. Valenta, Knapp, Halle, 1894, p. 47.

enough dyes to give distinct maxima of action, whilst correct adjustment is obtained by the use of the filter.<sup>3</sup>

The former method Lehmann calls the "photo-chemical adjustment," and the latter "physical adjustment."

Turning to the practical section of the work in the hopes of finding new sensitising formulæ, we are met with the statement that the plates prepared from the author's formulæ are to be obtained commercially from Kranseder and Co., of Munich, as is also the filter, the use of which, by the bye, is patented in Germany.

Apparently Dr. Lehmann has overlooked the later work<sup>4</sup> of

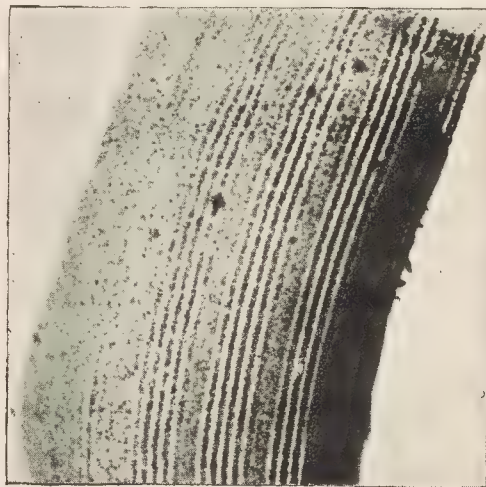


Fig. 2.

Neuhauss, as his footnote as to the sensitising merely refers to Neuhauss's book published in 1898; the latter has tested Dr. Lehmann's plates, and states<sup>5</sup> that they possess no better red sensitiveness than any others. Considering that plates prepared according to Neuhauss's last formula give a closed band in the spectrograph from C to N in the ultra-violet, one would hardly want more.

The suggested filter, a mixture of cyanine, erythrosine, and æsculine, must cut down the orange and green besides the ultra-violet; the exclusion of this last is not new, of course. The action of this filter in the reproduction of white is

(3) The composition of this filter is given in the "Journal" for Oct. 26, p. 346.

(4) Eder's Jahrbuch, 1901, pp. 115-126.

(5) Photographische Rundschau, 1906, p. 154.

graphically shown by the author in Fig. 1. The shape of this curve will at once recall to every colour worker's mind the familiar figure of the absorption curves in three-colour work. Unfortunately, from the practical point of view, this filter is only for daylight work, and a fresh filter has to be "physically adjusted" for each illuminant, and as it is possible, as proved by Neuhauss's work, to use his plates with no filter at all, or only a pale yellow to reduce the preponderance of blue, this new proposition does not strike one as a great advance. There are many other little points on which one might question the author's conclusions, particularly with regard to the use of a sheet of ground glass, instead of the familiar prism, to destroy the surface reflection. Slow as the Lippmann emulsion is, too, one must doubt the wisdom of omitting altogether any fixing bath, nor can one accept without demur that the grain in the emulsion, which can be seen, without exposure and development, with an eyepiece, is due to structure in the gelatine. That gelatine is not a homogeneous substance has been proved by Zsigmondy and Neuhauss<sup>6</sup>, but they used the ultramicroscopic method, not a simple magnifier.

A statement which is open to question is the effect of crossed spectra, for, according to the author, increased reflection is caused by light of similar wave length, whereas Pfaundler and Neuhauss<sup>7</sup> say that black stripes are formed by interference.

The author is to be warmly congratulated on the photomicrographs of some of his spectra films, the sections being cut by Dr. Böhm, of Munich, and photographed by Dr. Köhler, of Jena. But even here there is a fly in the ointment, because the sections were swollen in a mixture of albumen and glycerine to four or five times their original thickness, and therefore the distance between the laminae was increased to this extent, rendering the photographing of the same much easier than was the case when Neuhauss photographed his albumen section.

One of these sections is reproduced in Fig. 2, and represents well the laminar deposition of the silver, which was caused by the synchronous compound colour formed by the admixture of  $\lambda$  563 and  $\lambda$  482, the former being a yellowish green about D<sub>2</sub>E and the latter very close on the violet side of F. The distance between the laminae being enlarged 10,300 times.

The extremely dense left-hand side of this preparation was that next the mercury mirror, and by careful examination it will be seen that there are seven recurrent laminae or maxima,

five being very distinct and two much weaker. This periodic maximum and minimum recurrence is explained by Dr. Lehmann by the following diagram, Fig. 3, which represents two rays of above wave-length proceeding along the same path, and it is obvious that the more the crests of the waves coincide, as at the left-hand of the figure, the greater must be their action, whereas on the right, where the crests do not coincide, there is less action, which may be represented by the top of the curve. The occurrence of these maxima in a vibration period may be calculated from the formula  $\lambda_2 \div (\lambda_2 - \lambda_1)$ , in which  $\lambda_1$  is the smaller and  $\lambda_2$  the greater wave length, the result being a number in which the fraction may be disregarded, or read as the nearest whole number, according as the fraction is greater or less than 0.5. Taking the above two wave-lengths, the actual number is, of course, 6.95, etc., which is read as 7.

The only point in this explanation which strikes one is that the upper curve, which is obviously intended to be the sum of the two lower ones, is not correct—that is, provided one accepts the explanation given by almost every other authority on interferential photography—nor is it correct even from this diagram itself. The usual accepted explanation is that where the rays cross, there being a pull on the ether particles in contrary directions, there is no light, and this is shown even in Dr. Lehmann's diagram in the upper curve at the end of the maxima, yet we have immediately following this, on the extreme right of the diagram, three wave crests with two crossing points, yet the upper curve shows maxima at these points, where theoretically there can be no light.

The book is extremely interesting, and the methods of examining the colours reflected by a Lippmann photograph with a spectroscope by isolation with a movable slit distinctly good. But whether everyone will accept the author's dictum that three-colour work is troublesome and costly is an open question, and many other debatable points are raised in the four pages which he devotes to the advantages of the process, probably one of the most debatable being that Lippmann's process is a means of artistic expression, an "ars pingendi." I cannot personally imagine a heliochrome being accepted, for instance, by the Linked Ring; but the proof of the pudding is in the eating, and the author's footnote to the above statement, that his results may be obtained commercially from Kriess, of Hamburg, will enable anyone, if the like, to test or taste the pudding.

E. J. WALL.

## THE CHEMISTRY OF THE SULPHIDE TONING PROCESS.

So far as I can ascertain, the chemistry and *modus* of the now popular process of sulphide toning of bromide prints has received but scant attention.

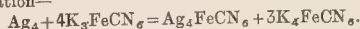
During the past summer I have been working on this process, and as it will be some time before I can command the leisure to continue my work, I thought it would be well to put on record the progress so far made.

### The Bleaching of the Print.

As a bleaching agent I have used in my experiments a solution made by dissolving 9 grammes each of ammonium bromide and potassium ferricyanide in 250 ccs. of water. This is practically the recipe given in the "B.J. Almanac." To save words, I shall henceforth refer to this solution as "the bleach."

A bromide print immersed in this solution is bleached almost instantaneously. As is well known, a print will bleach in a solution of potassium ferricyanide alone, but the bleaching takes place so slowly that an immersion for several hours is necessary for its

completion, and, it may be added, the tones obtained by sulphur-etting prints thus bleached are, so far as my own tastes in matter of tone are concerned, quite impossible. As Eder showed some years ago, the reaction which takes place when metallic silver is brought into contact with potassium ferricyanide solution may be expressed by the equation—



How is the extreme slowness with which a print bleaches in pure ferricyanide solution to be accounted for? May not the following observation furnish the clue to the answer? When potassium ferrocyanide solution is added to an excess of silver nitrate solution the precipitated silver ferrocyanide is flocculent, settles rapidly, and is easily washed in a filter or by decantation. But if the silver salt is not in excess the silver ferrocyanide is precipitated in a sticky, slimy form, which, on account of its coherence and impenetrability, it is next to impossible to wash in a filter even when using an efficient filter pump. Now in the bleaching of bromide prints we have silver ferrocyanide formed in the absence of any soluble silver at all, and presumably under these conditions the silver ferrocyanide takes the form of the slimy impenetrable modification just described. The formation on the surface of the silver image of a

(\*) Eder's Jahrbuch, 1906, p. 13.  
(\*) "B.J.," Oct. 12, 1906, p. 806.



thin coating of this almost impervious variety of silver ferrocyanide would clearly prevent the rapid conversion of the underlying body of the silver image.

### Why is Bromide an Accelerator?

The question now presents itself why the addition of ammonium bromide to the ferricyanide solution so greatly accelerates the process of bleaching. The answer, I take it, is as follows. The ammonium bromide interacts instantly with the slimy deposit of silver ferrocyanide initially formed, giving as the result of the interaction a product which is readily permeable to the bleaching solution. Another lower layer of silver is rapidly converted into silver ferrocyanide, which is instantly acted on by the bromide, permitting of the ready access of the bleach to still lower strata of the silver image. And thus the bleaching is rapidly completed by an alternation of two separate and independent reactions.

If this view of the matter is correct it necessarily follows that rapid bleaching should result from the alternate immersion of the print in pure solutions of potassium ferricyanide and ammonium bromide respectively. This I find to be the case. A print was dipped for an instant into potassium ferricyanide solution (of the same concentration as the bleach) thoroughly washed, and then submitted to a bath of ammonium bromide. Again, the print was washed, returned to the ferricyanide bath, washed, returned to the bromide bath, and so on. Deducting the times required for the intermediate washings, a print thus treated was found to bleach in practically the same time as would be required by the bleach made by mixing the two solutions of ferricyanide and bromide. The final tone of a print bleached by the intermittent method is the same as that of a print treated with the usual bleach.

### The Composition of the Bleached Image.

The next point to be cleared up is this: What is the nature and composition of the product of the interaction of silver ferrocyanide and the ammonium bromide solution? In other words, what is the composition of the final product in the bleached image? It seems to be generally assumed that the final result of the bleaching is the conversion of the silver image into ordinary silver bromide  $\text{AgBr}$ . I think I have proved that this view can no longer be retained.

However long a print remains in the bleach, it is never, literally speaking, bleached. The "bleached" image is always clearly discernible, and has a pronounced brownish hue even when the bleaching operation has been conducted in non-actinic light. But ordinary silver bromide is not brown. If a bromide print is bleached in bromine water (when undoubtedly ordinary silver bromide must be formed) the print is literally "bleached"; it is quite impossible to discriminate between the white image in silver bromide and the white paper which supports it.

Again, a print bleached with the bleach in darkness is readily redevelopable by any of the ordinary developers. But a print bleached with bromine water in darkness must first be exposed to light before it can be redeveloped.

From these two considerations alone it is clear that the bleached bromide print cannot consist of ordinary silver bromide. Of what, then, does it consist? I believe of a hitherto unrecognised sub-bromide of silver, which for the present I propose to distinguish by the non-committal title—the puce-coloured bromide of silver.

Pure, finely-divided silver was prepared by adding ferrous sulphate solution to silver nitrate solution, and then treating the precipitate with dilute acid, and finally washing it. A known weight of this silver was shaken up with the bleach in a stoppered tube. The ferrocyanogen content of the bleach was determined before and after the treatment with silver.\* It proved to be practically the same after treatment as before. Hence I was forced to the conclusion (quite contrary to the expectations and bias I entertained before actually starting my experiments) that no ferrocyanogen

is present in the deposit constituting the bleached image. The deposit must therefore necessarily consist of silver and bromine only.

The puce-coloured body into which the silver is transformed by the bleach was thoroughly washed, dried at 100 deg. C., and weighed. It was then treated repeatedly with warm dilute nitric acid to remove any unconverted silver that happened to be admixed with it, and again washed, dried, and weighed. Thus it was enabled to determine the percentage of silver in the body, and this I found to be some 61 per cent. Since ordinary silver bromide contains only 57.4 per cent., it follows that this puce-coloured body must, in conformity with the usages of chemical nomenclature be regarded as a form of sub-bromide. The puce-coloured bromide prepared as above described has a very high density, sinking in water as rapidly as the silver from which it was formed. It is, like silver bromide, easily soluble both in potassium cyanide solution and in hot solution of mercuric nitrate.

So far, I have made only two preparations and two analyses of this bleach product, and in both analyses only the percentage of silver was determined directly—the percentage of bromine being estimated by difference. I purpose, when the occasion offers, to repeat the analysis with greater care, varying the methods of procedure and making direct determinations of both the silver and the bromine.

To sum up; I conclude that the bleached image consists of a dark puce-coloured sub-bromide of silver, and that hence results the visibility of the "bleached" image.

The puce-coloured bromide would seem to be more readily dissolved by alkaline bromides (potass. and ammonium bromides) than is the ordinary bromide of silver. For if two slips of the same bromide print A and B are bleached, A in potass. ferricyanide containing a fair excess of ammonium bromide, B in bromine water containing the same concentration of ammonium bromide, and the slips are then sulphuretted, it is found that the image of slip A is ever so much more reduced in intensity than is that of slip B. Indeed, an over-developed bromide print may very successfully be reduced and toned at the same time by increasing the amount of bromide in the bleaching bath prior to sulphuretting. In general it may be stated that the greater the concentration of the bromide in the bleach, the colder and more purple is the resulting tone, and the fainter is the picture.

In this connection the point arises whether there is not an unnecessary excess of bromide present in the empiric recipe for the bleaching solution given in the "Almanac." The molecular weight of ammonium bromide is 98, that of potass. ferricyanide is 329. Even if ordinary silver bromide (and not the puce-coloured sub-bromide) were the final product of the bleach, its indirect formation via ferricyanide would demand the presence of only one gramme-molecular weight of  $\text{NH}_4\text{Br}$  to each gramme-molecular weight of potass. ferricyanide. Whereas the bleach made up according to the recipe contains about 3.6 gramme-molecular weights of ammonium bromide per one gramme-molecular weight of potass. ferricyanide. This apparently unnecessary excess of ammonium bromide may (in view of the susceptibility of the puce sub-bromide to the action of alkaline bromides) have a deleterious reducing effect on the faint details of such prints as, prior to toning, are not over dense, but exhibit a satisfactory depth and range of gradation.

It will be noted that I do not yet venture to give the equation showing the *modus* of the formation of the puce sub-bromide from the interaction of the ammonium bromide and the silver ferrocyanide. Much quantitative analytic work must still precede the writing down of such an equation. But it may be of interest to note in passing that I find that alkaline bromides do not produce this insoluble puce-coloured body when, in the absence of any metallic silver, they interact with the bluish ferrocyanide of silver prepared in the ordinary way by double decomposition between a soluble silver salt and a soluble ferrocyanide. The interaction between soluble bromides and ferrocyanide of silver thus prepared is an exceedingly complex one, but is of purely chemical rather than of photographic interest. Suffice it here to say that so far from an insoluble silver bromide being the end result, complex cyanogen compounds of silver, both soluble and insoluble, are formed.

It should be noted that the chemistry of the bleaching process here described is of interest and importance, not only from the standpoint of the toning of bromide prints, but also from the standpoint

\* It may be well to give the outline of the analytic method adopted in this connection. Equal volumes of fresh bleach and of bleach in which metallic silver had been digested were treated with excess of  $\text{NaOH}$ , boiled, and while boiling reduced from the ferricyanide to the ferrocyanide condition by the addition of ferrous sulphate. The reduced solutions were made up to equal bulk and aliquot portions filtered off and titrated with a standard solution of copper sulphate, using filter paper slips dipped in ferric chloride as indicators of the end of the titration. Equal volumes of the  $\text{CuSO}_4$  solution were required both in the case of the fresh and used bleach, showing that the insoluble silver compound formed has no ferrocyanogen content.

the production of carbon prints from bromide prints by Mr. Luby's new and elegant ozobrome process.

### The Sulphuretting of the Bleached Image.

It is generally taken for granted, I believe, that the sulphuretting of the bleached image converts it into ordinary sulphide of silver. It has always seemed to me, however, that the correctness of this assumption is *a priori* improbable. For ordinary sulphide of silver is, to use a colloquialism, "as black as one's hat," whereas the finished toned image varies in hue from brown to sepia. Of course, there is the possibility of the dichroism of silver sulphide as a substance which in bulk is black—might in thin layers be brown or sepia coloured. But I believe I have sufficient proof of the correctness of my *a priori* conclusion that the toned image does not consist of ordinary silver sulphide.

As a sulphuretting agent, I originally made use of the solution of silver sulphide, of the concentration recommended in the "B.J. Manual." But I soon abandoned this solution on account of its poor keeping qualities. The sulphuretting solution which I chiefly use, and which I would recommend to the notice of sulphide toners, is a solution of the sulphhydrate (and not the sulphide) of sodium. This solution I prepared in the following way. Six grammes of caustic soda were dissolved in 250 ccs. of water, and the solution was divided into equal portions. One portion was saturated with well washed hydrogen sulphide, and then added to the untreated portion. A solution so prepared can be used over and over again, and keeps its virtue perfectly for at least six months. Sodium sulphide solution of the strength usually recommended is completely decomposed and worthless for toning purposes in three or four days. In addition to its stability, the sulphhydrate solution also possesses the great recommendation that it has a barely perceptible smell of hydrogen sulphide, so that it may be used in the laboratory or studio without annoyance. When, however, the toned prints are submitted to the action of the wash-water, there is a considerable evolution of hydrogen sulphide from them, and therefore it is advisable to conduct the washing out of doors, or at any rate in a room where fumes of hydrogen sulphide can do no damage to man or material. The tones given by this sulphhydrate solution have a pleasing purplish tinge, and it seemed to me (though I would not venture to dogmatise on the point) that this solution does not choke up the heavy shadows in the picture to the same extent that ordinary sulphide solution is well known to do.

What, then, is the nature of the brown or sepia coloured body formed in the sulphuretting bath? I believe it to be a gelatino-sulphide of silver, probably approximating in its character to the metalbates and lysalates investigated by Paul and Voss. (Abstracts, Chemical Society's Journal, 1902.)

I find that when silver bromide emulsified in gelatine is made

slightly alkaline and then treated with hydrogen sulphide, black silver sulphide is not precipitated, but a dark room opalescent liquid results, which passes through the blue ribbon brand of Schleicher and Schüll's filter paper. (The blue ribbon brand of filter is guaranteed to strain off the finest and most refractory precipitates met with in analytic work.) Or, again, if plates which have been exposed, developed to the utmost, fixed, and then submitted to sulphide toning in the usual way are treated with boiling water, the same brown opalescent solution, from which no solid can be filtered off, is obtained. This brown "solution" of gelatino sulphide of silver is not affected by large dilution, nor is it in any way coagulated or precipitated by the addition of either alcohol or neutral salts. (On long standing, however, it deposits small quantities of a dark brown solid.) Hence, I infer that it is not an ordinary colloidal solution, but that it is in all probability an exceedingly fine emulsion of extremely small solid particles—that it is, in fact, a quasi-solution of the type studied by Picton and Linder. (Chemical Society's Journal LXL.) If this is the correct conclusion, the very finely divided suspended solid would probably be separable by filtration under pressure through a biscuit-ware porous cell, and the "solution" itself should be capable of polarising light. These possibilities will be made the subject of further investigation.

The brown "solution" of gelatino sulphide of silver is decomposed when boiled with nitric acid, a light khaki-coloured precipitate being thus thrown down. This precipitate contains both sulphur and silver, since when treated with a mixture of hydrochloric acid and potassium chlorate, silver chloride is formed, and the filtrate gives the  $\text{SO}_4$  reaction with a solution of barium salt; it is, therefore, some new form or new modification of silver sulphide.

I have seen it stated somewhere that bromide prints which have been thoroughly dried are not amenable to the sulphide toning process. My own experience renders it difficult for me to conceive how such an idea could ever have arisen. For most of my experiments have been made with prints of several months' age, and I have never met with a single case of refusal to tone.

In the course of my experiments I have tried various suggestions that I have seen made with a view to increasing the transparency and detail—rendering in the heavy shadows of toned prints by means of water-lac varnishes. My experience is that very little, if any, virtue lies in these suggestions. A diluted spirit varnish undoubtedly does clear up and brighten the picture, but it is difficult to apply this varnish so as to show no streakiness. If bright, transparent, toned prints are desired, it seems to me best to use papers of the enamel type. In conclusion, I may state that all my work has been carried out with only one make of bromide paper—the Wellington.

DOUGLAS CARNEGIE.

## PHOTOGRAPHY IN THE WORK OF GREENWICH OBSERVATORY.

The Ninth Traill-Taylor Lecture.—Concluded from page 930.

### Connection between Solar Activity and Terrestrial Magnetism.

There is a very marked periodicity in the average extent both of the sunspots and of the whole spots in a period of about eleven years. There was a well-marked maximum about the end of 1883, and another about the end of 1893, while 1878, 1889, and 1901 were years of very small sunspot activity indeed.

Not only is the period of variation the same for the solar and the magnetic phenomena, but the times of minimum for the one curve are the times of minimum for the other; and so for the times of maximum. Here, therefore, we have evidence of a real connection between solar action and terrestrial magnetism.

The photographs have further shown us what are the characteristic forms most usually assumed by solar spots. The type of group which most frequently attracts attention begins its life as a single small dot on the surface, which is usually very quickly joined by a second close to it. These two small spots then pass, through a short period of rapid growth, and as they grow they move away from

each other, the line of motion being generally nearly, but not quite, parallel to the solar equator, and the rate of motion apart being about 8,000 miles a day. The two spots are at this stage very unlike each other in appearance, the preceding spot being usually nearly circular, with a strongly marked and regular outline, and a very dark and circular umbra in its centre. The second spot is much less regular in form; its umbra is often neither central in position, nor so dark, nor so symmetrical as that of the first spot. The symmetry of the second spot is largely impaired because, between the two spots there is a specially bright region from which bright streamers extend to invade or even cross the following spot. At this period in the history of the group this intermediate bright region is stippled with a number of small irregular spots, suggesting by their position and appearance that they are portions of a great structure, glimpsed by chance through random interruptions in a bright cloud formation above them.

The next stage in the spot's history is the disappearance of the small irregular spots in this middle region until the group is reduced



to two large and widely separated members, the original first and second spots. Of this pair the following member soon disappears, and the original leader remains alone, sometimes even for weeks. This leader sometimes breaks up into fragments, but more frequently slowly fills up from the circumference inwards.

All groups do not conform to this type. The very largest are generally of quite a different form and behave in a different manner. We may, however, leave their characteristic development on one side in the present connection, and draw attention rather to the frequency with which these abnormally large spots have synchronised with the occurrence on the earth of remarkable magnetic storms. Thus, in the year 1882, three great sunspot outbursts—two in April and one in November—each synchronised with a great magnetic storm. Ten years later the largest spot observed during a quarter of a century appeared, and again we experienced a great magnetic storm. This great spot was carried by the sun's rotation out of sight at the west limb, and then by the same means was brought into view a second time at the east limb. It was now rapidly decaying, and was greatly shorn of its former proportions. But—and this is the remarkable circumstance—directly the group had a second time reached the apparent position on the sun's disc that it had held at the time of the beginning of the first magnetic storm, a second storm broke out almost as intense. From this and from similar events we have reason to conclude that there is not only a general connection between sunspot activity and the variations in terrestrial magnetism, but also often a specific connection between special spot groups and special storms.

#### Photography in Solar Eclipses.

There is another form of research, which, though not carried on within the Observatory, has been carried on from it, in which photography has been of the very highest service. This is the observation of the corona. We are, of course, unable to see this beautiful and mysterious halo, except when a total eclipse of the sun is in progress. At such times there is an immense deal of work to be done in but a few seconds of time. The eye and hand, however carefully trained in artistic expression, fail to record in the very short space of time available anything except the most prominent features, and it is not possible to rely even upon these with entire confidence even in the very best drawings. As to the immense wealth of detail shown by the corona from time to time, this must go entirely unrepresented by this method.

Here, then, we have a necessity which is exactly one that photography can meet: the photographs can give us what the eye cannot, the multiplicity of forms in their relative positions and with their relative intensities. And we can rely on the photograph; we can compare the corona as seen in one eclipse with that seen in another; and in any given eclipse we can compare the corona as observed from two different stations.

Greenwich Observatory did not take any lead in this application of the photographic method, because eclipse work was at one time considered as outside its programme, so though De La Rue had Greenwich programme. From that time onward there has been regularly employed in 1870 and the subsequent eclipses, it was not until 1886 that Greenwich Observatory sent out an expedition equipped for photography, nor was it until 1896 that eclipse observation can be said to have been thoroughly included within the Greenwich programme. From that time onward there had been an effort to take advantage of every suitable opportunity to secure photographs both of the corona itself and of its spectrums with instruments of two or three well-defined standard designs, so as to secure records as far as possible comparable with each other.

There are, as you know, great difficulties attending coronal photography. The corona presents us with a structure varying extraordinarily in the brightness of its different parts, and much of it filmy, indefinite, and diaphanous. So far as my experience goes, the corona is absolutely the most difficult object for satisfactory representation in a photographic illustration. As I pointed out when I had the honour of addressing you some seven years ago on "Exposures in Coronal Photography," "the problem before us is to secure a record of a most complex object of which the brightest portions can scarcely be less than ten thousand times the brightness of the faintest." Many attempts have been made to get over this difficulty by one or other of several indirect means, such as the use of mechanical devices for screening the inner and brighter portion

of the corona from acting on the sensitive plate during a considerable portion of the time that the latter is exposed to the outer faint regions. In the expeditions sent out from Greenwich, however, the method has been generally adopted of giving a great variety of exposures to different plates, and frankly facing the certainty that no one plate will show the corona satisfactorily throughout its entire extent.

After the expedition has returned, the photographs secured have been handed over to Mr. W. H. Wesley, an astronomical artist, whose skill and experience in this department are unrivalled; and he, in the most careful scrutiny of all the negatives prepares a composite picture, in which the details shown on each of the negatives are represented.

The Greenwich Photographic Eclipse Expeditions have been sent out in number, 1886, 1887, 1896, 1898, 1900, 1901, and 1905. Completely frustrated the efforts of the observers in 1887 and 1896, of one of the parties sent out in 1905. The remaining expeditions were thoroughly successful.

In 1886 the existence of "white prominences" was detected; previous to that year only the rose-coloured prominences were known. In 1898 the method in which the great synclinal structures of the corona is built up was clearly demonstrated, and the emission of the sun of long straight rod-like rays ascertained. The 1900 expedition afforded a striking example of a regular quiescent corona, the type of the form assumed by the corona at the sun spot minimum, whilst 1905, on the other hand, supplied an example of a corona of extreme disturbance, the very type of the corona at the sun spot maximum. 1901 gave a result more interesting still, for Greenwich sent out two expeditions in this year, the one to Mauritius and other to Sumatra; and the observations at the two stations were separated by nearly an hour and a half of absolute time. The comparison of the photographs gave for the first time clear, definite, and unmistakable evidence of changes having taken place in the corona during the progress of a single eclipse; a result which, it is needless to say, could never have been obtained except by means of photography.

#### Photographs of Nebulæ and Comets

There are other departments of astronomy in which the power of the sensitive plate to depict at one time an infinite number of details has proved of enormous value. But for the most part these do not fall within the Greenwich programme. The magnificent survey of the surface of the moon carried on at the Observatory of Paris is an example of one such work; the studies of nebulae by the late Isaac Roberts another; and the wonderful explorations into the regions of the Milky Way, by Professor E. E. Barnard, a third. A few photographs of each order have indeed been taken at Greenwich, but rather as a training and test of the observer's skill than in pursuit of any definite research.

The case is a little different when we come to comets. With regard to the structure of these mysterious wanderers, photography may truly be said to have opened for us a hitherto sealed volume. In the case of objects of this character, faint and extended, the increase in the size and power of the telescope was not always an advantage for eye observation. It enabled, indeed, a higher magnification to be used, but higher magnification was not what was required; was greater intensity of light. With photography, however, greater intensity could be obtained in two ways—either by increasing the aperture relatively to the focal length, or by prolonging the exposure. Both these expedients are employed at Greenwich; a reflecting telescope of 30 inches aperture and 11½ feet focal length being usually employed upon comets and nebulae, whilst exposures of an hour and upwards are made when necessary. And as the result, we see that comets, which to the eye at the telescope would have shown hardly any perceptible structure, in the photograph present us with a well-marked series of distinct tails, and in some cases with distinctances of the tails of a most remarkable and significant character.

#### Photographs for Measurement.

The subject of comets leads me naturally to the third division of my subject, the use of photography for the determination of positions. For the study of cometary forms is not one of the regular items of the work at Greenwich, but the determination of the places is. It is, of course, a very natural step to take, that when we have the telescope, the observer, and the sensitive plate all ready

to take a short exposure photograph of a comet in order to determine its position, we should also expose a second plate for a longer time in order to get an information as to the physical structure of the comet which direct scrutiny could not give us.

It is in this third division of my subject that we come to the services which photography has rendered in work lying within the original programme of Greenwich Observatory. That programme was "the rectifying the tables of the motions of the heavens and the places of the fixed stars." The formation of exact catalogues of the places of the stars, and the observation of sun, moon and planets in their apparent movements amongst them, lay within the express terms of the warrant appointing the first Astronomer Royal. And though the original purpose of its foundation was a purely utilitarian one, namely, to develop practical navigation, the progress of the science of astronomy has carried it far beyond the limits of the necessities of that purpose, yet the words of the original warrant still define the chief duties of the Observatory.

Thus it was that when the scheme was set on foot of a great international project for photographing the entire sky on a scale which would give us a catalogue of the places of over three million stars, and a map showing perhaps twelve or fifteen times as many, Greenwich Observatory could not but take its part in the scheme. This is much the largest photographic undertaking in which Greenwich Observatory has a share, and both from the magnitude and importance of the undertaking itself and from the many important problems which it has raised, it might justly claim first consideration in my present paper. But the subject has already been dealt with before you, so fully and by so competent an authority, in the fifth Traill-Taylor memorial lecture delivered before you in December, 1902, by Professor H. H. Turner, of Oxford, that it would be superfluous for me to take up the subject again. In Professor Turner's words "a great work is being carried out from which we may expect great results, a work scarcely dreamt of thirty years ago—to-day not only possible but comparatively easy of accomplishment."

Leaving, therefore, the great photographic star map on one side, not because it is not of first importance, but because it has already been so thoroughly dealt with here before, I may point out that an important by-product of the scheme at Greenwich was that we became aware that in photography we had a method of saving not a little time and labour in many determinations of place. Thus, for example, many hundreds of minute bodies revolving round the sun between the orbits of Mars and Jupiter are now known. Most of these are extremely faint, and are in no way distinguishable from stars by their appearance. If it is desired to make a direct observation of one of these, both its position and those of the stars amongst which it may happen to be at the moment must be known with the greatest precision before it can be identified, and then it must be watched for a considerable time before the identification can be confirmed by seeing that it moves with respect to the neighbouring stars. In the case of the photographic plate there is no such trouble. The standard plate of the International Chart covers an area twenty times as great as the disc of the full moon. It is therefore quite easy to secure that the desired "minor planet" should be on the plate and, indeed, near its centre. And we discriminate it from the stars most readily. Let us make four exposures on a single plate, moving the telescope between each so that the four images of any one star occupy the four angles of a neat little square. Then if we examine the photograph after development we shall find one of our squares distorted, and we know that the four images there shown must be those of our minor planet, the distortion being caused by its movement relative to the stars.

There is, therefore, an immense saving in time and trouble by the substitution of the sensitive plate to the observer's eye. Much of the work which previously had to be done at night at the telescope, subject to all the interruptions arising from cloud, bad definition and the like, can now be done at leisure in daytime in the computing room, and with the unforeseen result that a single measure made on the photograph is found to be fully as accurate as a single measure made at the telescope. There is, of course, the further great advantage that measures thus made are not only less liable to accidental errors of reading and the like, but if any doubt arises they can be repeated with the greatest ease.

Most of the minor planets have but very little interest for us. They are searched for and followed in the hope that one in a hundred,

or one in five hundred, may have an orbit which will render it of special service to us. The one in five hundred which we have found is the planet Eros, which comes at times much nearer to us than any other celestial body except the moon. Venus at its nearest approach is more than twenty-three millions of miles away from us; Eros at its nearest approach is only seven millions of miles away. Venus from many reasons is a specially difficult object to observe; its brightness, the size of its disc, its nearness to the sun, all constitute hindrances to exact observation. Eros, at its brightest, may conceivably be just visible to the naked eye, and is a mere point of light. In many ways, therefore, its distance can be much more readily measured than that of any other of the planets, but when the distance of one planet of the solar system is known, those of all the others can be deduced from it, so that Eros offers us one of the best means of ascertaining the exact mean distance of the sun—the exact scale upon which the solar system is built.

#### Measures of the Places of Faint Satellites.

The same method has been employed for studying the orbits in which the satellites of some of the planets of the solar system revolve round their primaries. In particular there may be mentioned the case of the satellite of Neptune, a difficult object for direct observation on account of the faintness of the satellite and the comparative brilliancy of its primary. But the photographs, taken during three oppositions at Greenwich, proved sufficient to give distinctly improved elements of its orbit. The difficulty of the great relative brightness of Neptune was overcome by the use of a small occulting shutter, which concealed the planet during the greater part of the time that its satellite was exposed.

The instrument used for photographs of this character is a fine refractor 26 inches in aperture specially corrected for photography, constructed by Sir Howard Grubb, and presented to the Observatory by the late Sir Henry Thompson. It is carried by the same mounting as the Thompson photo-heliograph and the 30-inch reflector.

Yet more interesting has been the case of the new satellites of Jupiter and of Saturn. The sixth and seventh satellites of Jupiter were discovered by means of the Crossley reflector of the Lick Observatory of California. They are both very small objects, their probable diameter in miles being only about 100 and 35 miles respectively and their stellar magnitudes 14 and 16. They are so faint and at such a great distance from Jupiter that they could never have been discovered by direct observation; they show themselves on the photographic plate by appearing as nearly circular dots when the camera is made to follow Jupiter, whereas stars show as short trails. The Lick astronomers concluded that they were too faint ever to be observed by means of any of the Greenwich instruments, but experiments have shown that an exposure of seventeen minutes is sufficient to record the fainter of the two, and the Greenwich photographs are sufficient for the orbits of both to be determined from them. These orbits have some very striking peculiarities; the two satellites are nearly at the same distance from Jupiter, and they move in the same direction as the five inner satellites, but their orbits are very strongly inclined to each other and to both the orbit and equator of their primary.

#### Measures of Positions of Sunspots.

There is yet one other department in which photography has served for the determination of positions. The photographs taken of the sun are used not only for ascertaining the numbers and areas of sunspots, and for watching their growth and decay, but also measuring their positions on the sun's disc, their solar longitudes and latitudes. From these measures are derived, not only the mean rotation period of the sun for those latitudes in which sunspots appear, but they also bring into prominence several remarkable features. First of all the proper motions of spots vary remarkably—that is to say, groups move to and fro on the solar surface with a quite astonishing rapidity, the movements in extreme cases amounting to 12,000 miles per day. Next, the mean rotation period, as derived from the sunspots, increases as we recede from the equator. And thirdly, the spots affect different zones of the sun's surface at different times of the sunspot cycle. Just after the minimum, when they are first beginning to increase in number, they are confined to high latitudes, and from this time onward, through the period of increase, through the time of maximum activity and through the subsequent decline, there is a general



decrease in the latitude of the spot-active zones, until just before minimum the spots are nearly wholly restricted to the equatorial region, but before the actual minimum is reached, before the spots of the old cycle have entirely disappeared, a few spots begin to appear in high latitudes, harbingers of the new cycle just commencing.

With these results derived from the measures of the Greenwich sun-pictures, I should wish to conclude this very hasty summary of the third division of my subject—the use of photography in measures of position. But some of these results have a very direct bearing upon that circumstance which I noticed in the earlier part of my lecture, namely, that the photographic registers of magnetic disturbances show that such disturbances have a strong tendency to recur at intervals of about 27½ days. For this interval is none other than the mean synodic rotation period of the sun as derived from the observation of sunspots. The actual rotation of the sun on its axis is 25.2 days in length, but as the earth in its orbit travels in the same direction as the sun rotates, it is 27½ days before the same part of the sun's surface comes a second time to the centre of the sun's disc as seen from the earth. So striking is the connection between this synodic period and what may be called the recurrence period of the disturbances, that in one instance no fewer than eight storms followed each other in a succession as the same solar longitude made its successive returns to the centre of the disc.

#### The Sun's Far-reaching Tentacles.

Such a synchronism is unmistakable evidence that the provoking cause of the disturbance depended for its coming into operation upon the successive presentations of one and the same region of the sun under the same aspect towards the earth. This shows that in these disturbances we are not dealing with the result of any general radiation from the whole of the sun's surface, because such action would be continuous. Nor is the action of the nature of a radiation equally in all directions as is the case with the sun's light and heat, for if it were the effect would begin to be felt at half a rotation period from the expiration of the previous disturbance, since any region of the sun is only in the invisible hemisphere for about a fortnight at a time. The solar action, therefore, giving rise to the disturbance, takes place, not from the sun as a whole, but from restricted areas of it, and is not a radiation in all directions, but an emission in a particular direction. The recurrence, therefore, of magnetic disturbances at intervals of one or more synodic rotation periods of the sun, shows us that the earth has encountered time after time a definite stream, whatever

be its character or composition, a stream which continually supplied from one and the same area of the world's surface, appears to us at our distance to be rotating at the same speed as the area from which it rises.

Therefore, we now know that not only is the sun continually throwing off in all directions enormous energy in the form of light and heat, it also stretches out enormous tentacles in specific directions through space, in the form of these stream lines which reach us right across the immense gulf of ninety-three millions of miles. These stream lines overtake the earth in its orbit, and therefore, if they encounter it, and do not pass above or below it, they strike it first upon the sunset arc—that is to say, upon that half-circle of the earth's surface where the sun is seen as just setting.

This is a new conception in solar physics, and without doubt ere long it will carry us to an unexpected solution of many problems now obscure.

But it is not my wish on the present occasion to indulge in prophecy; I will only ask you to note how the three purposes for which photography has been employed at Greenwich here unite to give us a complete picture. The continuous registration of the movements of the magnets gave us the all-significant interval relation between the disturbances. The measures of position on the solar photographs gave the rotation period of the sun which explained that interval relation, and demonstrated the existence of these great stream lines. The pictorial photographs taken of the corona have shown the origin in the immediate neighbourhood of the sun of actual stream lines analogous to, if not in some cases the very same as those which, striking the earth, disturb its magnetic equilibrium.

#### Conclusion.

I have now attempted to give you some outline of several of the chief services for which our work at Greenwich Observatory is indebted to photography, and I trust I have so far succeeded in my task that you will agree with me that great indeed is our obligation to those who invented and improved the various photographic methods. It is, indeed, in order to give some slight expression to the gratitude which we ought to feel and do feel towards photographers that I am here this evening. On the other hand, as a member of the Greenwich staff, I feel that the record of the use which we have made of photography is not one for which we need to blush. A powerful weapon has indeed been put into our hands, but I trust that what I have been able to say this evening will show that we have neither suffered it to blunt nor to rust, nor have used it unworthily.

E. WALTER MAUNDER.

## THE BRITISH JOURNAL ALMANAC, 1907.

TO-DAY (Friday) the forty-sixth volume of the "British Journal Photographic Almanac" is obtainable throughout the United Kingdom. The character of the "Almanac" and the ways in which it has been brought in line with recent progress in photography have been kept before our readers prominently within the last month or so, but it may nevertheless be permitted us to offer a brief glance over the volume which to-day is on sale.

In addition to its directories of photographic societies and other photographic associations, national and otherwise, the "Almanac" brings together a collection of facts and formulæ which are to be found in no other volume, and it must be remembered, too, that the commercial announcements which appear in the "Almanac" amount to the possession on the part of an almanac-purchaser of the catalogue of almost every photographic firm of standing. The money which would be expended in obtaining the price-lists of these firms would amount to several times the price of the "Almanac"—in other words, the "Almanac" affords the unique experience of seeing at a glance the manufactures of the whole photographic trade, and thus constitutes itself a market-place of the world for photographic goods wherein every conceivable article may be found and purchased.

No less encyclopædic in its character is the text portion of the "Almanac." The editorial article this year deals with photographic processes for the making of three-colour prints on paper, a branch

of work which is, perhaps, attracting as much attention at the present time as any department of photography. This article deals with the carbon, pinatype, gum, imbibition, and bleach-out processes, and others from the point of the practitioner.

Among the contributed articles which have been a feature of the "Almanac" from its commencement are the following, among others:—

"An Amidol Developer to Keep," by Mr. C. Welborne Piper.

"Development by Reflected Light," by Mr. G. T. Harris.

Mr. G. R. Ballance has a note on reducing and clearing platinum types.

Mr. A. J. Newton, of the Bolt Court School, contributes a valuable article on the use of the different orthochromatic sensitizers, selecting only those which have been found successful in use.

An interesting note on exposing bathed plates wet is contributed by Dr. Edmund J. Mills, among other "practical hints."

Mr. Victor Selb writes of stereoscopic separation, and a reader of the "Almanac" in the Far East, Mr. H. G. Ponting, of Tokio, contributes a description of the method, devised by him and possessing certain novel features, of timing photographic shutters.

An appeal to plate-makers for fewer brands of plates appears from Mr. Alfred Watkins, and Mr. E. Grills describes two modifications of the pinatype process.

These items do not exhaust the contents of the contributed articles,

they will serve to give an idea of the character of the communications to the "Almanac."

Under "Epitome of Progress" the photographic work of the year is brought within the capacity of the average busy reader. To thus reserve what has seemed deserving of that care has been a labour which possibly few readers of the "Almanac" appreciate, but the reward is a reward for those who have expended time and thought on the selection and classification of those papers and articles which have appeared in the photographic periodicals of every country since the "Almanac" of 1906 was sent to press. The scope of these abstracts can best be seen by referring to the headings under which they are arranged:—

- I.—Events of the Year; Copyright; Business; History.
- II.—The Dark-room and Studio.
  - Lenses and Photographic Optics; Optical Glass, Properties of Lenses, Lenses in Practice.
  - Telephoto Lenses.
  - Lens Testing and Measurement.
  - Cameras and Accessories.
  - Instantaneous Shutters.
  - Artificial Light: Enclosed Arc Lamps, Magnesium Light.
  - Materials: Raw Paper, Tests of Paper.
- III.—Portraiture, Landscape.
  - Copying.
  - Stereoscopic Photography.
  - Pinhole Photography.
- IV.—Gelatin-bromide: Backings, Emulsions.
  - Orthochromatic Processes: Sensitisers, Light-filters.
  - Development: Developers, Time Development, Stand Development, and Methods, Defects, etc., in Development.
  - Self-developing Plates.
  - Fixing and Hypo Eliminators.
  - Intensification of Negatives.
  - Reduction of Negatives.
  - Varnishes.
  - Retouching Negatives.
- V.—Positives Direct.
  - Printing Methods and Accessories.
  - Gelatine and Collodion P.O.P.; Emulsions; Toning, Developing.
  - Self-toning Papers.
  - Bromide and Gaslight Papers: Warm Tones by Development, Toning Bromides.
  - The Carbon Process.
  - Ozobrome.
  - Gum-bichromate: Multiple Gum.
  - Oil-printing.
  - Platinum Printing.
  - Iron Printing Processes: Ferro-prussiate, Copying Tracings.
  - Catatype Printing Processes.
  - Miscellaneous Processes and Prints on Various Supports.
  - Mountants and Mounting.
  - Enlarging.
  - Working-up and Colouring Prints and Enlargements.
  - Lantern Slides, Cinematography.
- VI.—Direct Interference Processes (Lippmann).
  - Bleach-out Processes.
  - Three-colour Processes: Apparatus, Plates, Filters, and Sensitisers.
  - Transparencies by the Indirect Three-colour Process.
  - Three-colour Processes on Paper.
  - The Diffraction Process.
  - One-plate Three-colour Processes.
  - Two and Four Colour Processes.
  - Colour Effect from Ordinary Negatives.

Lastly, we must not omit to mention the reviews of recently introduced apparatus, the only drawback to which is the regrettable fact that so little that is new in the way of apparatus has been placed on the market.

Also, the "Almanac" contains the formulæ for the use of the various photographic materials on the market, a section which has been brought up to date, and represents the departures made within the year by a number of makers.

Other features of the volume are no doubt well known to its regular readers, but we may be excused for having pointed out some salient features of the issue which has now been published, and of which, so far as we can judge at the time of writing, the whole supply will be exhausted before complete publication.

#### "G. B. S." ON ART IN UTOPIA.

LECTURING at the Essex Hall, Strand, last week, under the auspices of the Fabian Society, Mr. G. Bernard Shaw had something to say on what may be called the commercial ethics of art, including portraiture. His subject was "Socialism and the Artistic Professions," and the many questions raised in considering such a subject must—politics apart—have an indirect interest for photographers, professional and amateur. Mr. Shaw's point of view is well known. He is a Fabian idealist who is most emphatically not a Philistine, and he recognises that while an "ideal" State would have to acknowledge the importance of the artist, it could not very well fix his remuneration on any cut-and-dried principle. The practical commodities of every-day life cannot be used (or, rather, consumed) over and over again; pictures, like books, can on the other hand, be enjoyed for generations and generations. So, says Mr. Shaw, it comes about that the artist is in a peculiar position, and you cannot arrange for his remuneration, as you would for that of the baker. The matter, of course, hinges on copyrights and royalties, and the lecturer pointed out that this property of the artist in his art is a comparatively recent institution, much younger than the property in land and other things. It is, moreover, strictly limited, for it cannot be held perpetually. At the end of so many years books and plays "went into the common stock" of the country. Here, presumably, is a principle applying equally to pictures and reproductions. He had to admit that the economic problem of art was still very far from being solved. A State run on Communistic principles might choose between allowing copyright to remain as at present and itself purchasing copyrights. As things were now, the artists whose work happened to please the fancy or flatter the vanity of rich patrons were able to make large sums of money, while others, who perhaps worked with more sincerity and zeal for their art, suffered neglect. A man who found a successful groove was strongly tempted to remain in it and produce works to satisfy a popular market demand. Year after year the Royal Academy showed this influence to be operative. Mr. Shaw turned to portraiture for an example of the unequal division of the world's prizes and luxuries. The fee of the successful and ultra-fashionable portrait painter might run to £2,000; while one might get a portrait of oneself in the form of ferrotype at from a penny to sixpence. Many of the pennies and sixpences thus paid might involve a much greater sacrifice in proportion to means than the fee to the fashionable painter. In a community governed according to Fabian ideas, he anticipated that the sources of enormous incomes for artists would vanish, but with a widening of the comforts of life would also come a higher general standard of artistic taste, and therefore a greater demand for pictures and the works of craftsmen. The question was important because of the enormous part played by the arts in forming the human mind, and Mr. Shaw was unable to agree with the suggestion of a questioner in the audience that in a Utopia people would be able to provide for themselves in their leisure time all the objects of artistic interest they needed. That is what may be termed the Philistine solution of the question. They might, replied the lecturer, be able to interest themselves, but he was not sure whether they would interest their friends. He added, with emphasis, that the great artist, in any department, must be the man who had specialised for years. Early in the lecture he pointed to what he thought was an obvious fact, that much of our modern painting came from the "gentleman amateur." It lacked what might be called the "trade finish," clever though it very often was, and it did not compare favourably with, say, the paintings of Hogarth. Perhaps if he were pressed Mr. Shaw would say something to the same effect about modern photography.

The death is announced of Mr. H. A. Mortimer, photographer, of Llanwrtyd, at the age of seventy-five.



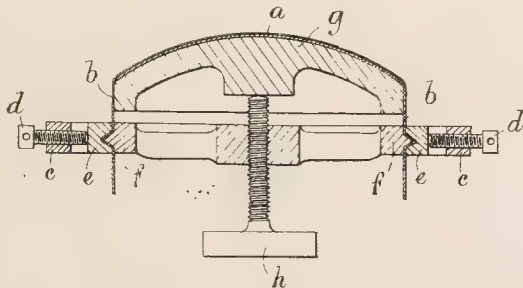
## MR. J. T. SANDELL—AN APPEAL.

THE total sum of donations to the fund started by Messrs. Thos. K. Grant and J. B. B. Wellington now reaches over £160, this amount including contributions sent to the above gentlemen direct or through the photographic journals. We hope that further donations will raise the total to £200, and would ask those who have read our previous comments on the necessitous condition in which Mr. Sandell is now placed not to allow the fund to be closed without adding a donation to it. We have to acknowledge the following contribution: J. C. Burrow, 2s. 6d., and also to announce the donation of the North Middlesex Photographic Society (per H. Stuart, president), £4 15s., making, with the amount already acknowledged of £129 12s., a total of £134 9s. 6d.

## Photo-Mechanical Notes.

## Curved Process Blocks.

ACCORDING to a recent patent (No. 26,715, 1905) of William Francis Cooper, 7, Grosvenor Road, Watford, a piece of apparatus is to be used for printing from film screen negatives on to curved sensitive metal plates, the blocks thus obtained being for use in rotary machines. The printing device provides for the film negative being tightly stretched over the metal plate, and consists of a frame, *c*, carrying screw bolts, *d*, bearing against strips, *e*, fitting a rectangular



frame, *f*, and adapted to firmly grip the celluloid plate, *b*, carrying the negative. The sensitised plate, *a*, is placed on a die, *g*, of the same shape as the printing cylinder, and the die forced against the celluloid by the tensioning screw, *h*. The sensitised plate is thus pushed out against the negative and when sufficient strain is applied the sensitised surface of the plate and the negative are in optical contact and printing can be effected in the usual way.

## Direct Photo-Lithography.

According to the process for which patent rights have been taken out by Cyrus John Hackett, Hedley Street, New Basford, Nottingham, copying is done direct on to the stone or plate, which is prepared first with a solution of black enameloid, a proprietary article consisting, presumably of asphaltum, next with a coating of bichromated gelatine or albumen, containing also a little shellac rendered soluble in borax. After exposure the stone, or plate, is rinsed for a time. Then removing all the upper portion of the film, which leaves the negative of the subject clearly defined, the unremoved portion of the film is left embedded in the stone or other surface used. This result is produced by the light penetrating through the transparent portion of the negative, and, acting on the film, fixes that portion, which is the negative of the subject, firmly in the pores of the stone, all the other portion of the film being entirely dispensed with, and brushed, or washed, away as before stated. (The aforesaid "negative" repelling the greasy nature of printing ink, the copy of the subject is actually printed from the clear portion of the stone, or other surface used, which is the "positive.")

According to the specification (No. 21,120, 1905), the surface is then rinsed with boiling water, allowed to dry, and rolled up all over in black printing ink, adding a little transfer ink to it, and allowing it to stand a short time. Then, washing off the bulk of the ink with a solution of one part camphor to two parts resin, dissolved in methylated spirit and a little of the turpentine solution before mentioned, the face of the stone is rubbed smooth, the parts not required

cleared with gum and whiting, and the subject is then rolled up printer's ink and etched in the usual manner.

## Commercial Considerations in Photo-Engraving.

At the L.C.C. School of Photo-engraving and Lithography the principal lectured on this subject on Thursday in last week crowded audience of employers, managers, and men. The lecture embodied the results of an extensive enquiry for information as to how photo-engraving work was sold, and what it cost to produce. Detailed items of these costs were shown with great completeness, also particulars as to wages earned here and in America by men engaged in the various departments. A number of suggestions were made by Mr. Newton as to how economies could be effected as production increased. The lecture was followed by a number of slides, showing various systems of cost and time-keeping, and also by a good discussion, which was kept up until a late hour. The interesting lectures, which are free to anyone in the trade, are announced in our columns under the heading of "Meetings of Societies."

The following patents were applied for recently:—

HALF-TONE SCREENS.—No. 25,384. Improved method of sealing glasses for half-tone screens and the like. Sidney Littlejohn, 10, Farringdon Road, London.

HALF-TONE BLOCKS, No. 26,012.—Improvements in the method of production of photo-engraved half-tone blocks. Donald Cameron Swan, 116, Charing Cross Road, London.

## Patent News.

Process patents—applications and specifications—are treated in "Photo Mechanical Notes."

The following applications for patents were made between November 12 and 17:—

PRINTING.—No. 25,613. Improved photographic printing apparatus. Harry William Harold, 155, Queen Victoria Street, London.

MAGNESIUM LAMPS.—No. 25,653. Improved magnesium lamps for photographic purposes. Filip Kratz and August Rathgeber, 12, Gitchnerstrasse, Berlin.

NET FOR PHOTOGRAPHY.—No. 25,662. Framed net for photographing. Benjamin Harry Williams, 12, Castle Street, Dudley.

DRY PLATES.—No. 25,728. Improvements in the manufacture of photographic dry plates. Louis Husson and André Frederic Bornot, 7, Southampton Buildings, London.

SHUTTERS.—No. 25,741. Improvements in focal-plane and other roller blind shutters. Arthur Lewis Adams, 26, Charing Cross Road, London.

CINEMATOGRAPHS.—No. 25,798. Gates for protecting the films of kinoscopes. Leon Lipman Borris, Fife House, Kingston-on-Thames.

PHOTO-TELEGRAPHY.—No. 25,818. Photo-telegraph. Gerlar Christian Geisler, 16, Colebrook Row, Islington, London.

TONING BATHS.—No. 25,869. Improved agent for fixing photographic images. A. G. Bloxam, for the Actien-Gesellschaft für Anilin Fabrikation, Germany.

VIGNETTES.—No. 25,880. Improvements relating to photographic vignettes. Philimon Makeeff, 7, Southampton Building, London.

EMULSIONS.—No. 25,906. Improvement in emulsion for photographic purposes. Otto Pfenninger, 105, Hythe Road, Brighton.

COLOUR PHOTOGRAPHY.—No. 25,907. Improvement in apparatus for colour photography. Otto Pfenninger, 105, Hythe Road, Brighton.

COLOUR PHOTOGRAPHY.—No. 25,908. Improved mirror box for photography in colours. Otto Pfenninger, 105, Hythe Road, Brighton.

## COMPLETE SPECIFICATIONS ACCEPTED.

These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.

NEGATIVE HOLDERS.—No. 22,469, 1905. The invention is intended

to apply to negative holders for enlarging apparatus, and consists of a carrier frame made to move, in a circular movement, so that its rotating movement allows of the negative being placed at any desired angle in the plane of the holder. William Tulliffe Turner, John William Turner, and Robert Hope, 17, Beaumont Street, Liverpool.

**PIGMENT PAPER.**—No. 14,435, 1906. This invention relates to a photographic pigment paper so made that at the beginning of the development the original support of the pigmented layer, generally paper, can, under all conditions, be easily separated from the pigmented layer. When the latter is transferred to another, temporary or final, support without carrying away with it parts of the pigment contained in the pigmented layer and thus giving rise to faulty places or even gaps in the picture, and that notwithstanding this easy separation the pigmented layer will not float off its original support in cold solutions.

For this purpose between the pigmented layer and its original support there is an intermediate layer which, under all conditions, remains soluble in warm water, so that it dissolves after the pigmented layer has been transferred to a temporary or final support in developing the picture, and thus allows the original support to be removed with ease. Such intermediate layers are well known; indeed, they have been made of the very material most advantageously used according to the present invention, namely gelatine, glue, gum, or the like.

According to the present invention there are added to the gelatine glue or the like constituting the intermediate layer, one or more substances which transform into alkaline monochromate the alkaline bichromate, which is absorbed by the intermediate layer during the process of sensitising the pigmented layer. It is known that a mixture of a normal chromate and gelatine or glue is 20-50 times less sensitive to light than bichromated gelatine is under like conditions.

In a sensitised pigment paper thus prepared, therefore, the alkaline bichromate required for producing the picture exists in the upper layer, while in the intermediate layer such bichromate has been absorbed by the layer has been converted into monochromate. Since the pigmented layer is only exposed to light long enough to produce the picture, the light which penetrates to the intermediate layer cannot render the gelatine insoluble because of its much greater insensitiveness. This layer remains, therefore, practically completely soluble in warm water.

Sodium carbonate is particularly suitable for converting alkaline bichromate into chromates. Other alkaline or basic substances also serve, such as magnesia, borax, sodium phosphate, and water glass.

The pigment paper made according to this invention has the advantage over existing papers having an intermediate layer that this layer may be considerably thinner than the coloured layer, as there is no question of absorbing the light, and the conversion of the bichromate into chromate by sodium carbonate, for instance, can occur in quite a thin layer. Such a layer, therefore, need not be thicker than 0.03—0.04 mm.—thus saving between two-thirds and three-fifths of the material for the intermediate layer.

The following recipes yield suitable intermediate layers for this invention:—

- (1) 100 c.c. of water  
100 grams of hard gelatine  
20 grams of crystallised sodium carbonate
- or (2) 100 c.c. of water  
100 grams of hard gelatine  
20—25 grams of magnesia.

Generally, instead of sodium carbonate or magnesia, the equivalent proportion of another of the additions named above, may be used. A. G. Bloxam, for the Neue Photographische Aktien Gesellschaft, 27, Siemens Strasse, Steglitz, Berlin.

Complete specification open to public inspection before acceptance under the Patents Act, 1901.

**PICTURE ATTACHMENTS.**—No. 16,923. Phillips.

## CATALOGUES AND TRADE NOTICES.

**MESSRS. HOUGHTONS, LTD.**, 88-89, High Holborn, London, W.C., have produced a useful booklet entitled "Some Hints on Enlarging," and bearing out its title. The booklet also lists the many-enlarging accessories supplied by Messrs. Houghtons.

The large list of the subjects obtainable as cinematograph films which reaches us from the Charles Urban Trading Company, 48, Rupert Street, London, W., is, after all, only a supplement to previous lists, yet it runs to 200 pages, and illustrates by excellent half-tones almost every one of the films. The Urban productions are familiar to visitors to the Alhambra, where "Urbanora" is a regular and popular item in the programme, and the list should be valued by all who are interested in public or private cinematographic entertainment.

## Commercial & Legal Intelligence.

**A "STICKYBACK" Dispute.**—Last week, before a Dublin magistrate, Mr. John Arnall, photographer, Camden Street, summoned Mr. Henry Roe McMahon, Aungier Street, for the alleged unlawful detention of fifty photographs and one dozen mounts. Mr. James W. Davis prosecuted, and Mr. McMahon defended. Mr. Davis said that the case was a row between two stickyback photographers. Complainant went into the witness box. He stated that he had been a photographer in Dublin for six or seven years. He said he carried on an extensive business. Defendant was once in his employment, and had charge of a small studio. Defendant remained with him as an assistant until September of this year. After leaving him the defendant opened a shop of his own in Aungier Street. Outside defendant's shop there were three photograph frames, and witness discovered that those frames contained a number of photographs which had been taken in complainant's studio, and the paper and negatives had been his property. It was stated for the defence that the photographs displayed by the defendant were given to him as presents by friends. Defendant gave evidence in support of this. He opened a studio in Aungier Street about three weeks after he left Mr. Arnall. He never took any of Mr. Arnall's property. All the photographs exhibited by him were his own property, and those which had been taken at Mr. Arnall's were given to him by friends. Several witnesses were called in support of this statement. The summons was ultimately withdrawn on the defendant undertaking that he would not exhibit in future on his premises any photographs taken at Mr. Arnall's studio.

**THE Ilford Dividend.**—The report for the year ended October 31 last states that, after making allowance for depreciation and provision for doubtful debts, the net profit for the year's trading is £28,419. This amount, with £1,258 brought forward from last year, gives £29,677 for appropriation. The directors have paid an interim dividend on the ordinary share capital for the half-year ended April 30, 1906, at the rate of 6 per cent. per annum, absorbing £5,700, and for the same period they have paid the dividend on the 6 per cent. preference shares, amounting to £5,700. Since then the second dividend on the 6 per cent. preference shares has been paid. From the balance, £12,577, the directors recommend that £4,000 be written off goodwill, processes, etc., and that a dividend be paid on the ordinary share capital for the half-year ended October 31, 1906, at the rate of 6 per cent. per annum, making with the above interim dividend, 6 per cent. for the year. This will absorb £9,700, leaving £2,877 to be carried forward. The sales of the company's products have shown a satisfactory increase during the past twelve months, the output being considerably larger than in any previous year of the company's existence.

## NEW COMPANIES.

**HARVEY, BARTON, AND SON.**—£5,000 (£1) (3,500 preference). To take over the business of photographers, art publishers, etc., carried on by W. H. Barton and W. H. Barton, jun., at Lower Church Lane, St. Michael's, Bristol, as Harvey, Barton, and Son. No initial public issue. First directors (not less than three nor more than five): W. H. Barton, W. H. Barton, jun., L. W. L. Thomas, and J. H. Watling. Remuneration, £100 per annum, divisible.



# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

Nov.	Name of Society.	Subject.
30.....	Cardiff Photo. Society .....	"Swiss Scenery." Miss H. A. Coates.
30.....	Aberdeen Photo. Art Club.....	"The Photographic Lens." C. P. Goerz.
30.....	Edinburgh Photo. Society.....	"Sports and Pastimes with the Goerz-Anschutz Folding Camera."
30.....	Sutton Photographic Club.....	"Japine Platinotype." Hector Maclean.
Dec.		
2.....	Luton Camera Club.....	"Preparing the Negative for Printing."
3.....	Oldham Equitable Ph. Soc. ....	"Theory and Practice of Self-Toning Papers."
3.....	Leek Photo. Society .....	Monthly Lantern Night.
3.....	Lancaster Photo. Society .....	"Enlarged Negatives." Rotary Photographic Company.
3.....	Catford and Forest Hill Ph. S. ....	"Carbon." Illingworth & Co.
3.....	Blackburn Camera Club .....	"Mounting and Passepartout Making." Demonstrated. W. A. McLeen.
3.....	Bowes Pk. and Dis. Ph. Soc.....	"Lantern Slide Making." T. R. Somerford.
3.....	South London Photo. Society .....	Lecturette Prize Competition.
3.....	Southampton Camera Club .....	"Rochester and its Cathedral." Illustrated. C. M. Cooper.
3.....	Preston Camera Club .....	"Toning Bromides." Demonstrated. W. Duxbury.
4.....	Royal Photographic Society .....	"Three-Colour Photography." Demonstrated. Rotary Photographic Company.
4.....	Thornton Heath Photo. Soc. ....	"Latest Kodak Productions."
4.....	Blyth and District Cam. Club .....	"Flower Photography." A. J. Hunter, F.R.H.S.
4.....	Manchester Amat. Ph. Soc. ....	"Recent Advances of Photography." Harry Wade.
4.....	Hove Camera Club .....	Informal Evening.
4.....	Stafford Photo. Society .....	<i>Amateur Photographer</i> 1906 Prize Slides.
4.....	Keighley and Dis. Ph. Assn.....	"Wanderings in the West Riding of Yorkshire." W. Holmes.
4.....	Glasgow Southern Ph. Assn.....	"A Trip to South Africa." G. S. Competitions. 1. Landscape. 2. Architecture.
4.....	Burton-on-Trent Nat. His. A.S. ....	Members' Sale.
4.....	Hackney Photo. Society .....	Criticism Night. Conducted by R. W. Chapman.
4.....	Darlington Camera Club .....	"Home Portraiture." D. G. Urquhart.
4.....	Sheffield Photographic Society .....	"Rambles Round Worthing." Illustrated. A. C. Osborn.
4.....	Worthing Camera Club .....	"Gum." E. H. Hazell.
4.....	Bristol Photographic Club.....	"Rotary Papers."
4.....	Wigan Camera Club .....	"Enlarging simplified."
4.....	New Mills Camera Club .....	"Microscopic Photography." C. P. Goerz.
4.....	Y.M.C.A., Cam. Club, Belfast .....	"Telephotography." C. P. Goerz.
4.....	Faversham Inst. Photo. Soc.....	"Ozobrome." Mr. Manly.
4.....	Birmingham Photo. Society .....	"Artistic Sensibility: Its Characteristics and Cultivation." Illustrated. P. M. Macintyre.
4.....	Edinburgh Photo. Society .....	"Matrices Papers, Wood, Linen, Silk, Satin and Japanese Vellum." Demonstrated. P. Leuthardt-Thornton.
5.....	Central Tech. Coll. Photo. Soc. ....	"A Visit to the English Cathedrals." H. W. Bennett, F.R.P.S.
5.....	Woodford Photo. Society .....	"What Can be Done with a Hand Camera." E. P. Goerz.
5.....	Edmonton and Dis. Ph. Soc.....	Visit to Messrs. Wratten & Wainwright's.
5.....	Croydon Camera Club.....	First Annual Exhibition.
5.....	North London Photo. Society .....	"Theory and Practice of Self-Toning Papers."
5.....	Lincoln Amat. Photo. Soc. ....	"Enlarging on 'Rotograph' Bromide Paper, including a Chat on Toning Bromide Paper."
5.....	Ashton-under-Lyne Ph. Soc.....	1906 Affiliation Competition Prize Slides.
5.....	Borough Polytechnic Ph. Soc. ....	"Sports and Pastimes with the Goerz-Anschutz Folding Camera."
5.....	Southsea Photographic Soc. ....	"Pictures with the Goerz Lens."
5.....	Brierly Hill Camera Club .....	"American Observations." E. L. Davis.
5.....	Hull Photographic Society.....	"A Visit to the Island of Java." Frederick R. Sternberg.
6.....	Blenheim Club.....	"The Wide World—Notes of Travel." E. R. Ashton.
6.....	Tunbridge Wells Amat. Ph. A. ....	Members' Evening.
6.....	Chelsea and Dis. Photo. Soc.....	"Artistic Lighting—the Revival." E. F. Strange.
6.....	L.C.C. School of Photo-Eng. ....	"Whitsunide at Gloucester." F. T. Aman.
6.....	Liverpl Amateur Photo. Assn .....	Lantern Evening. Members' Slides.
6.....	Richmond Camera Club .....	"Open Night."
6.....	L. and F. Photo. Society .....	"Enlarged Negatives on 'Rotograph' Negative Paper."
6.....	Bolton Photo. Societv .....	"Leading Features of Velox Manipulation."
6.....	Darwen Photo. Assn.....	"Theory and Practice of Self-Toning Paper."
6.....	Whitefields Camera Club .....	"The Photographic Lens." C. P. Goerz.
6.....	Bath Photographic Society.....	

## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held November 27, Mr. J. Sterry in the chair. Mr. Thomas Manly lectured upon his new process, "ozobrome," and the large attendance showed the interest taken in the process. The method demonstrated was that styled the second method in our description of the process published in our issue of October 5, and the details were so nearly the same that we need not recapitulate all of them. Mr. Manly secures a "safe edge" on his pigment plaster by the simple expedient of using a plaster that is rather larger than the bromide print to which it is squeegeed. He demonstrated the application of the process to both bromide postcards and prints. In the case of the former he recommended bringing the postcard and plaster into contact in the way described in our article on page 786, but in the case of prints he laid the bromide print of a slab and squeegeed the plaster over it. After squeegeeing the print the plaster is placed between two pieces of blotting paper and pressed between two sheets of plate glass. He recommended fifteen minutes as the proper time of contact, and explained that too long contact produced a condition akin to over-exposure, and rendered the subsequent development slower.

Mr. Manly strongly impressed his audience with the desirability of hardening the bromide print with formaline or chrome alum, expressing a preference for the latter on the ground that the effect of formaline tended to disappear in the presence of the "pigmenting solution" in which the pigment tissue is soaked.

Incidentally, it appeared that Mr. Manly has not yet found a way of dealing satisfactorily with sulphide-toned prints, and is very desirous of arriving at one. The results produced at the demonstration were all most successful, and will be left at the R.P.S., so that they can be examined and compared with the originals when dry. In the wet state the "ozobromes" show images in high relief, and the swollen gelatine naturally detracts somewhat from the apparent faithfulness of the copy. It appears that bromide prints on very rough paper are not quite so easy to deal with as those on paper of ordinary surface. Mr. Manly attributes the trouble, not to the roughness, but to the softness of the gelatine used in such papers, and hopes to surmount the difficulty with a suitable hardening bath. Asked as to the number of times the process could be repeated with the same bromide print, Mr. Manly seemed to consider that the number was unlimited if only the paper would hold out. Occasionally a poor quality of paper will disintegrate after about a dozen applications.

Mr. Sterry stated that a feature of the process that appealed to him strongly was the fine quality of the prints obtained. A bromide at its best was unsatisfactory compared with a carbon print, and the "ozobromes" had the good qualities of ordinary carbon prints. Mr. Manly previously had explained that a good bromide print was an essential requirement, as the "ozobrome" would repeat more or less the faults of the original.

WEST LONDON PHOTOGRAPHIC SOCIETY.—At the meeting held on Friday, November 23, 1906, Mr. J. Brown, vice-president, gave a demonstration on "Home Sensitised Papers." This process, which is very similar to P.O.P., appeals especially to those who like to do everything themselves. The only drawback, however, is that a good light is required for printing. The working instructions are as follows:—A piece of good paper, free from hypo., such as Whatman's, is first sized in a solution of starch, arrowroot, or gelatine, and then salted in a solution of common table salt, 5 grains to the ounce of water, or, if preferred, these two operations can be performed together. The paper is now ready for sensitising, which is done by applying a solution of 60 grains nitrate of silver, 15 grains citric acid to 1 oz. of water, to the paper by means of a mop brush, taking care to coat the paper evenly, and to avoid all air bubbles. When dry, which should be done quickly, it is re-coated in the same manner. Care should be taken to avoid using a brush with a wire round it, or pins, which, if allowed to come in contact with nitrate of silver, would cause a nasty stain. If the only brush to hand is an ordinary mop brush, the difficulty may be got over by covering the wire with sealing wax, and this will be found quite effective. The next stage is the printing. This should be very deeply done, until hardly any detail can be seen, and the print well washed before toning. At this stage there is a choice of three methods of procedure:—

1. The print may be fixed only, which gives a good sepia tone.  
2. It may be toned in gold chloride 1 grain to 15 oz. of water.  
3. The deeper the print is toned in this bath the deeper will be the resulting print after platinum toning.

4. It may be toned first with gold, then with platinum, which produces the most characteristic tone of this process—a fine blue-black.

The platinum bath is made as follows:—Dissolve 5 grains of metallic acid in 2 dms. of water, and add  $2\frac{1}{2}$  grains of common salt. When the precipitate has subsided pour off the clear solution and make up to 1 oz. with water. To this add 5 to 10 drops of a 15 grain to the oz. solution of chloroplatinite of potassium. After all the toning operations the prints must be carefully washed, as the gold bath is alkaline and the platinum bath acid. After the platinum bath Mr. Brown strongly recommended placing the prints in a solution of carbonate of soda to remove all traces of the acid before fixing.

The prints should be fixed in a 10 per cent. solution of hyposulphite of soda for twelve minutes.

The lecturer laid great stress on the necessity for thorough washing and deeply printing, as, in his opinion, most of the failures in this process were due to these causes rather than to improper washing. But he also advised that the prints should be washed several changes of water rather than a prolonged soaking for a long time.

The most suitable negative for this process was a dense negative of the type known as the carbon negative.

The Secretary then passed round some excellent examples of prints on Mattos paper lent by that company, and explained that Mattos was very similar to the paper Mr. Brown had used, except that it was supplied ready sized and sensitised, thus saving the trouble of these operations.

**CENTRAL TECHNICAL COLLEGE PHOTOGRAPHIC SOCIETY.**—At a meeting held Wednesday, November 21, Dr. C. E. Kenneth Mees, F.R.S., read a most interesting paper on "The Theory of Photographic Processes." The paper dealt particularly with instruments used for measurements and the degrees of accuracy obtained; also the theory of development, and was very much appreciated, dealing, as it did, with the more scientific side of photography.

**LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.**—At the meeting, November 22, 1906, Mr. W. Thomas being in the chair, Mr. A. J. Bull lectured upon "Bathed Plates and Ortho-work Up to Date." He was, he said, only going to attack the old problem, namely, the rendering in monochrome things that were in colour, and the only improvement in this class of work since he last visited the Association was the introduction of new dyes, the chief of which were, perhaps, pinacyanol, which was a very good sensitiser for the blue, and had in his own work brought the exposure down from one hour at  $f/16$  to one minute at  $f/64$ , these comparative exposures having been made upon the best panchromatic plate obtained and plates bathed in the new dye. Bathing the plates was extremely simple, the drying of them giving the most trouble. A clean working plate should be selected, a large dish taken, and plates placed over some three-quarters of its bottom. The dish was then gently tilted, so that the empty end was the lower, and the dye in use was poured in at the spare end. Upon tipping the dish the other way the plates would be well covered at one sweep, and at this point the light should be shut off, and the bathing finished in extreme darkness. After three minutes in the solution the plates were put into another dish and washed in running water for from three to five minutes, and then with a ball of cotton wool surfaces were wiped and the plates dried in a drying cupboard. The trouble was to dry quickly, and he found that a large box with a tray of quick-drying material in the bottom, heated from underneath, was very adaptable for the small worker. Drying should not take more than three hours; longer had a tendency to produce fog. The dyes used, pinacyanol and pinaverdol, were expensive to buy, but cheap to use, and lasted a very long way. The stock solution was made 1 in 1,000 in alcohol, and for use this was diluted to fifty times its volume in distilled water. Pinacyanol gave sensitiveness to red only, whilst pinaverdol was used for the greens and part of the red. By mixing the two dyes it was possible to make a mixture that was panchromatic, but even then the blue would predominate to some extent, and a light filter was needed, but this need not be dense

in colour. A series of comparison slides were shown by Mr. Bull, as were also a series of spectrum slides upon various plates. Mr. Freshwater asked how long bathed plates would keep, and Mr. Bull said that one for which pinachrome was used was good after eleven months, but he had not tested the newer dyes. Mr. Teape asked why would not the use of a fast plate instead of the slow one used give greater speed. Mr. Bull replied that a certain sensitiveness was obtainable upon a slow plate, but a proportionate increase was not obtainable when using the faster plates. A vote of thanks to Mr. Bull, proposed by Mr. Rapson, seconded by Mr. Teape, brought the evening to a close.

**CROYDON CAMERA CLUB.**—On Wednesday, the 21st inst., Mr. A. E. Salt dealt with some elementary branches of photographic optics, including the Gauss theory, aperture, the constancy and inconstancy of lenses, and focal length, a modified form of Day's apparatus for determining the nodal points and focal length being shown, and its principles explained. Nearly every anastigmat of note was also considered, and illustrated by diagrammatic and other lantern slides. Various practical "tips" and an explanation of the method adopted by Mr. Welborne Piper in the construction of his medalled and extremely ingenious exhibit of lens aberrations at the R.P.S. exhibition, closed a solid two hours' talk. The evening terminated with a decided difference of opinion between the lecturer and Dr. C. E. Kenneth Mees as to the possibility of being able to measure the loss of light due to reflecting surfaces in a separated lens system.

WE congratulate Messrs. C. E. K. Mees and S. E. Sheppard on being granted the Doctorate of Science of the University of London for their researches in photo-chemistry. Dr. Mees, as our readers may know, is a director of Messrs. Wratten and Wainwright, and Dr. Sheppard is at present working at Marburg, Germany, under Professor Schaum.

**MESSRS. JOHN J. GRIFFIN AND SONS, LTD.,** Kingsway, W.C., send us samples of sensitised postcards bearing Christmas designs. The cards are issued as P.O.P., Bromide, and Goldora, and the designs are certainly above the average. Messrs. Griffin are also giving away with each packet of portrait Velox postcards, until Christmas, a negative design, with Christmas greeting and masks, which permits the combination printing of the photograph and the motto on the back of the card. Price, including negative and mask, per packet of twelve, 1s.

**AN ENLARGER'S BANKRUPTCY.**—An application was made for the discharge of Alfred Margand, trading as The Crown Art Company, photographic enlarger, 115, Seven Sisters Road, Holloway, N., at the London Bankruptcy Court, on November 23, before Mr. Registrar Brougham. Mr. G. W. Chapman, who attended as official receiver, reported that the debtor filed his own petition on July 20. The statement of affairs showed liabilities expected to rank against the estate for dividend amounting to £637 3s. 4d., and the assets were estimated to produce £2, but this amount was exceeded by the claim for rent. The proofs lodged amounted to £340, and the unproved debts brought up the total liabilities to £637. A sum of £1 10s. 3d. had been realised in respect of the estate. The bankrupt was of French nationality, and after being in America for some years he came to England in 1901 and commenced business on his own account, but two years afterwards he abandoned the business. He had lost £100 through an unsuccessful action for libel brought against another person. He was also liable under judgments obtained against him early in 1902 for about £600 damages in actions for libel and malicious prosecution brought against him by two canvassers in his employment whom he had charged with embezzlement. He then went to Aberdeen, where he commenced business as a photographic enlarger in partnership with another person. The partnership, however, only lasted about six months, and since then he had carried on business alone under the name of The Crown Art Company, at Dundee and at Yarmouth. Since October, 1905, he had only carried on business from his private address at 115, Seven Sisters Road, Holloway. The books of account kept by the debtor were altogether insufficient for the business he carried on. The cash book, which was never properly kept, ceased altogether in January, 1905. The discharge was suspended for the minimum period of two years.



## Correspondence.

- \* \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.
- \* \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### A PHOTO-MECHANICAL INVENTOR IN DISTRESS.

To the Editors.

Gentlemen,—I wish to call the attention of your readers to what seems to me to be a deserving and a "helpable" case.

There is at the present time in an institution for the relief of the destitute in this town a Hungarian who, almost entirely through misfortune, got into very low water. The man has given satisfaction to, and holds references from, the following firms in the capacity of printer, retoucher, and operator:—I. Weissbach, Vienna; M. Balde, Salzburg; Joseph Albert, Munich; Wurtle and Spinheim, Salzburg; Muller, Munich; W. Bailey, late Chandos Street, and other firms in London.

He was "mainly engaged in photo-mechanical patents, i.e., automatic or self-acting machines."

What this man wants is work, and I believe that he would be found industrious and intelligent. I do not want to have donations of money sent to me on behalf of the case, as the one and only way of helping the man *permanently* is by giving him a situation. I shall be happy to answer any further inquiries about him, and it would be as well if any firm or individual who thought of employing him would write to me first.

Trusting that you may be willing to insert this letter in your paper.—I am, yours, etc.,

R. S. MEDICOTT.

The Vicarage, Portsmouth,

November 24, 1906.

### CANVASSERS: THEIR METHODS AND HOW TO FIGHT THEM.

To the Editors.

Gentlemen,—The canvassing frauds perpetrated up and down the country are now receiving many severe blows. Photographers of sound business principles should now rise *en masse* and fight it to the bitter end. The ball is now rolling, and in no case should it be stopped rolling until the frauds are exterminated. It means the uplifting of photography, better business methods, better relations between master and man, sound satisfaction to the public generally, and, above all, the uplifting of the assistants, who are struggling on with hopes of bettering their positions, but are certainly not making headway to that exalted position they would like to place their profession in. Every master, every assistant, both male and female, knows the enormous damage done to the trade by the methods of these low types of men and women, who are simply playing with photography to their hearts' content, without the slightest opposition from the profession generally, barring one or two who seem to be taking up the fight single-handed, and are to be placed amongst those who have really their profession at heart. One is really astounded to think the present-day public can so easily be gulled by these slippery-tongued canvassing fiends. People would be more astounded if they took the trouble to make a house-to-house visit and listen for themselves to the lies told by these swindling canvassers, as explained by the householders themselves.

As a photographer, I have no need to trouble about these canvassing men and women, as my clientele would never dream of allowing these men to gain a foothold, as they have been too well drilled by me in their different methods, and it is wonderful what a photographer can do single-handed to prevent these frauds continuing. After being asleep for some time, I suddenly woke up to the fact that I could fight these frauds without going to the police myself for aid. One golden opportunity gave itself to me in the shape of these men using our name to gain business by, and this

one opportunity gave me the opening to stamp out the curse in my own district.

The methods I use are the following:—In the case where a name was used for the swindling method I simply rushed to the printer's, had 3,000 circulars printed, and sent them from house to house. We explained that we were in no way connected with these men, and this gave us the opportunity to explain on other points the methods of the double gangs that travel together. The circular was extremely effective; hundreds questioned me on the things, and, above all, the local papers took it up red hot, and they put the town in such a state that the doors are simply slammed on their faces now, should any of these men and women turn up. To show how effective it was, even one of my own profession called on me personally, and thanked me for the good done, as he said that he had been able to go one step better without the desperate trouble of canvassers on his brain. The next method I use is to have a large printed card in the reception room, warning people against these methods, with explanatory remarks on the different processes and the value of frames accordingly, and one is surprised to hear one's sinner remark: "I should not have thought we could be had so easily." With these fighting methods there are numerous opportunities to explain to the people when one is questioned on the subject.

U. DOWSE.

Romsey, Hants.

### A POSTCARD CONCESSION.

To the Editors.

Gentlemen,—Doubtless you are aware that the Postmaster-General issued a new regulation, which came into operation on November 1, providing that no postcard must be less than 4 in. in length and 2½ in. in width. A considerable trade in sensitised postcards in the size 3½ by 2½ in. has been done, and we wrote to the Secretary of the General Post Office, pointing out the inconvenience and loss that would arise if this regulation came into force without some due notice, and we are pleased to report that to-day we have received the following reply:—

"In reply to your letter of October 31, I am directed to state that in view of the inconvenience which might in some cases be occasioned to dealers in postcards by the immediate enforcement of the new minimum limit of size, the Postmaster-General has decided that until the end of April, 1907, cards which are not smaller than the old minimum size of 3½ in. by 2½ in. are to be allowed to pass without challenge, provided that in other respects they conform to the present postcard regulations."

We are, yours faithfully

ELLIOTT AND SONS, LTD.

THEIR Majesties the King and Queen of Norway, his Royal Highness the Crown Prince Olaf of Norway, and her Royal Highness the Princess Victoria honoured Messrs. W. and D. Downey with sittings for their photographs last week.

PHOTOGRAPHIC Trade in South Africa.—A somewhat unusually optimistic view of trade in South Africa is expressed in the "British and South African Export Gazette." The author of it is Mr. J. H. D'woodie, President of the Transvaal Board of Pharmacy, who, in reference to the photographic side of the chemist's business, says:—"With regard to the trade in photographic materials, this is a very big line with chemists in all colonial centres, for the amateur photographer is a great power in the land. Everybody in South Africa possesses a camera at one time or another, and there are plenty of temptations for using it. The business is confined to reliable all-round goods, and there is no demand for such items as special lenses, etc."

MR. H. W. LEWIS, of the St. James's Colour Studio, was commanded to appear last Saturday at Buckingham Palace to photograph little Prince Olaf, Crown Prince of Norway, and obtained some very successful results.

GRANTHAM Industrial and Fine Art Exhibition.—The twentieth annual exhibition is to be opened at Grantham on January 30. From the schedule just published, we find there are 110 classes for competition, including oil and water-colour painting, photography, needlework, repoussé work, etc., open to all England. The schedules can be obtained of Mr. Geo. Jackson, Grantham.

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- A. Walker, 58, Queen Street, Maidenhead, Berks. Photograph (combination) containing five different views of Maidenhead, with floral decorations and Crest.
- J. R. Browning, 11, Bedford Circus, Exeter, Devon. Photograph of H. J. Edwards, Doctor of Music. And two photographs of D. J. Wood, Doctor of Music.
- W. A. Sawyer, "Westfield," Dover Road, Walmer, Kent. Two photographs. Brass band of the R.M.L.I. Depot, Walmer, and the string band.
- W. T. Carter, 43, Drake Street, Rochdale. Photograph of Rochdale Town Council and Officials, 1906.
- J. Terras, Lawhead View, Markinch, N.B. Three photographs entitled, "At the Fountain," "News of Battle," and "The Postman."
- C. W. Clarke, 57, Richmond Place, Beacon Hill, Bath. Photograph (combination) of an original poem entitled "Mister Skimy-tail," with six birds and six snails alternating round same, forming a border.
- W. J. Moffett, 53, Bridge Street, Portadown. Photograph of Mr. Wm. Moore, K.C., M.P., addressing Constituents in Portadown with his coat off.
- W. A. Culshaw, 119, High Street West, Sunderland. Photograph (combination) of a placed group of eleven Sunderland League Players.

- S. D.—There is no better method than stripping from plate glass, polished with French chalk (which must be all dusted off again). The prints should be alummum.

**COPYRIGHT.**—I have a set of copyright photographs selling as post-cards, showing various attitudes of drill by boy's brigade. Some local person has sent one of the cards, unknown to me, up to —, and it has been reproduced in their paper for November. I wrote them about the matter, and a card was sent, in reply, that they would investigate. A later letter says the following: "Sir,—We have now made further enquiries in the matter of photograph reproduced in our last issue, and find that same was taken in a ground which had been engaged by the people concerned for their own exclusive use for that day. Under the circumstances, as you had not obtained the necessary permission, we do not see how you can justify your claims to copyright." How do I stand over the matter? Is that a safe plea on their behalf? I took the photographs after I had paid for admission, and also the grounds are a public park, but admission was charged for that day. By their letter, copyright in these photographs belongs to the committee. I take it that I can claim upon them for reproduction in their magazine, as copyright is entirely my own, and have claimed from them a fee as well as an apology through the local Press.—MAGAZINE.

Providing that you registered the copyright before the reproduction complained of took place, you have a clear case for action. The fact that the grounds were exclusively used by other persons has no bearing on the validity or otherwise of your copyright in the photographs then taken.

**GOODWILL.**—You would greatly oblige if you would inform me what you consider is the usual custom for arriving at the value of "goodwill" in a photographic business—that is to say, the basis upon which reckoning should be made? I assume you will deal with this in your "Correspondence Column," and under the heading "Goodwill."

Your question scarcely comes within our province to answer—

it is such a purely business matter. However, in our volume for 1902, p. 585, is a long and exhaustive article on the subject. This, no doubt, will give you all the information you desire, whether you are purchasing or selling a business. You will also find much useful information in the book, "How to Buy a Business," recently reviewed in our columns.

**ANXIOUS.**—With a lens of sufficiently large diameter and fitted with two diaphragms, or with the "transmitter" sold by Theodore Brown, of Bournemouth.

**DISPUTED CONTRACT.**—A reply to the following in your next issue will oblige: A year ago a representative of the — Advertising Company called and induced me to advertise in a case affixed to the wall in the market place. The engagement, as far as I understood at that time, was for a year for 35s., payable in advance. They now say the contract was for two years, but I am quite sure nothing was said about a two years' contract at the time, and I cannot understand my signing a two years' contract without knowing it. I am enclosing the letters just received from them, and should thank you for your opinion. Could I demand to see the original contract?—GLOBE.

We cannot understand anyone signing such a contract without noticing it was for two years—that is, if the form is the same as the copy that has been sent you, for in that "two years" is printed in bold type. We should advise you to go to the office of the company and demand to see the original contract, and if the people cannot or will not show it let them sue you in the county court. There they will have to produce it, or they will lose their case. If you see the original, and it is the same as the copy, you will, of course, have to abide by the contract. Should you find that the original does not agree with the copy, we should advise you to send the particulars to the secretary of the Professional Photographers' Association—that is, if you are a member of that useful body. The correspondence has been returned to you as requested.

**H. J. LEWIS.**—Better take out provisional protection (cost, £1) before showing the lamp to anybody.

**SWING LENS.**—The arrangement seems perfectly satisfactory. We should advise you to approach one or two camera-makers with it. If it is adopted, you can complete the patent—if not, you can save your money. There are, of course, several patented methods for obtaining the same end.

**BROMIDES.**—What is the quickest developing process for turning out quantities of postcards? I have been using rodinal, but find it takes a whole evening to properly turn out a dozen. I have been used to P.O.P. work. ENQUIRER.

The quickest method would certainly be to find first the correct exposure for the negative, then expose, say, three or four dozen, and make up a good quantity of developer, either rodinal or metol-hydroquinone; then immerse about a dozen cards in the developer one after the other, and develop till sufficient depth is obtained. Throw the cards, as developed, into a good-sized tank of running water, leave for a few minutes, and immerse a second dozen cards in the developer. Whilst these are developing remove the cards from the tank into the fixing-bath. Proceeding in this way it is possible to turn out a very fair number of cards in the evening. Great care must be taken, of course, not to use the developer too long, or it gets too slow; also to avoid any transference of the hypo into the developer; but if one hand is kept for developing and the other for the fixing there should be no trouble from this. Naturally an exposing machine would considerably facilitate matters.

**COPYRIGHT INFRINGEMENT IN SOUTH AFRICA.**—It has just come to my notice that one of my Naval comical pictures (which are registered and copyrighted) has been copied by a photographer, an Englishman, in Simons Town, S. Africa, and that he has been selling same for some time now. I shall be glad if you can tell me if I have any remedy in stopping him selling (he being in South Africa), and the best means of getting at him. I may say that I have a similar case at Hong Kong, but it is a Chinaman.—NAVAL MOUNTED HORSE.

Your copyrights are valid in South Africa, and you can proceed against the maker and vendor of the cards. You had



better consult a solicitor, to whose notice it may be well to draw the *résumé* of the copyright law in the "Almanac," 1906.

**BURDETT MASON (France).**—All depends on focal length of your eyepiece. The length of tube, or separation between objective and ocular, is about equal to the difference between the focal lengths of the two lenses. Thus with a six inch ocular the length would be about 18 inches. For photographic work, if both lenses are used, the tube length will have to be greater. The whole telescope will then be similar to a telephoto lens.

**PARTNERSHIP.**—Will you kindly reply to the following question? A and B were partners as photographers, picture framers, etc., the studio being about 200 yards away from the shop. They have dissolved partnership, and A paid B out. C buys the studio from A, with the goodwill, cameras, and all negatives since the commencement. B opens another shop and studio, about 300 yards from studio now belonging to C, and is showing specimens from negatives belonging to C, the said negatives having been taken away before the dissolving without permission of A, and the negatives being orders in the book of A and B. Now C had some orders for photographs, and could not find the negatives, the said B having taken those negatives away, and is showing specimens from those very negatives, as well as from the others he has taken away. Has C any claim for damages against B? If so, which is the best way to proceed?—A. W.

This is a question for a solicitor to deal with, after seeing the deed of partnership and the conditions under which it was dissolved. It rather seems to us, from the facts stated, that C can take no action against B, as he had no dealings with him. His action, we imagine, would be against A for not handing over the whole of the negatives. A might have cause for action against B for taking away the partnership negatives. But, as we have just said, the question is one for a solicitor's opinion, after he has learned all the facts.

**STUDIO QUERIES.**—I am thinking of opening a branch business, and have some premises offered me, but at present there is no studio; the only available room is on the first floor, and is 16ft. x 10ft., with only one window at the end, but think I can get permission to knock out the end and extend it by about 5½ft., on girders, over a pathway at back of premises. I fear it cannot be extended more than this, as it would then project over a graveyard, and no doubt the authorities would object. The extension I propose to be glass both sides, also roof, so that I could light from either side as desired. (1) I should be much obliged if you would inform me if you think I can get sufficient light from this amount of glass to do good work. (2) Also what space should be unglazed at the end (top and sides) for the backgrounds? (3) What would be the most suitable focus lens to use for cabinet portraits in studio of this length (21½ft. with proposed extension)?—NORMAN.

(1 and 2) It seems to us that even with the extension you will have a very unsuitable studio for doing good work in, inasmuch as all the light you will have will be immediately over and at the sides of the sitter. It will be necessary to have some portion above, and at the sides, of the sitter opaque, and if this is only, say, 3ft. or 3ft. 6in., you will only have about a couple of feet of light to work with. If you use the light from the extension as a side light, you would not have sufficient length for the camera. The best plan is to put a side light in the room, if possible. (3) A portrait lens of about 10¼in. or 11in. focus.

**WET COLLODION TROUBLE.**—I have made a silver bath for wet collodion work, and it has worked clean and well for the first few days. Now a fog appears during development (which after wiping off and redeveloping I get the same desired result), but, of course, risking scratching film in doing so. Can you tell me how to rectify this, as I keep bath on the acid side. I use every care as to filtering, cleanliness, etc.—WET PLATE.

As you say, the fog is only on the surface of the film, and can be wiped off, we should suspect that it is the developer, and not the bath, that is at fault. Try the addition of more acetic

acid to it, and see that the vessel from which you pour it to the plate is perfectly clean. If that does not remedy trouble add a drop or two of nitric acid to the silver bath.

**J. G.**—If you have made the cards you can sue the man for the whole amount, or for whatever part of the commission you have done.

**F. M. (Penge).**—You can get a higher gloss by stripping from conditioned glass, but we think you will find the use of plain plate glass (polished with French chalk) in place of the ferrotype plate give you sufficient improvement.

**ARTIST.**—Any large draper will supply a canvas to take a distemper coating. As to rollers, we doubt if the trade houses would supply you, except in very large quantities. Better try O. Sichel & Co., 52, Bunhill Row, E.C.

**REASON AND OTHERS.**—In our next.

**CANVASSING FRAUDS.**—The "Llangollen Advertiser" quotes a portion of our recent articles on the free enlargement frauds by which residents in its district have been defrauded. Our contemporaries point out that "these men are not travelling the country at certain amount of expense, to give goods away; and all who get their proposals a moment's serious reflection will recognise at once that they bear upon them the impress of fraud. In these hard, dry, matter-of-fact business days, reputable firms do not do business upon such lines; and our advice to readers is, when proposals are made to them to participate in back-door transactions of this nature, to clear their pockets, open the kennel door, and let the house-dog do its worst."

**AMATEUR PHOTOGRAPHY IN CEYLON.**—A society has been formed in Ceylon as the result of a meeting convened by Dr. Andreas Neill of the Victoria Memorial Eye Hospital, Colombo, Ceylon. At the meeting a number of influential people were present, and it was announced that the society started with a membership of seven. Dr. Neill was elected secretary, and Mr. J. H. de Sarum president.

**HERR F. SCHROEDER** recently described, before the Breslau Photographen-Verein, his flashlight apparatus, one of the chief features in which was a large banner, one side of which was dark, which turned towards the lens, protected it from any light from the flash itself. He stated that with two of his flash-lamps, with lens working at *f*/32 he was able to obtain full exposure with 60 grains of powder in each lamp, the plate being a 20 by 16 cm. The use of the dark banner enabled the lamp to be well in front of the lens.

A postcard frame, entitled the "Wilco," has been placed on the market by Mr. Chad Hodgson, 5, Wade Street, Leeds. The frame consists of two parts, one of which laid on the other forms the complete frame. The negative is placed between the two portions, and each postcard is thus given a white margin without the aid of a mask. The frame lends itself to the making of a number of identical prints. Its price is 2s. 6d., post free, the maker offering to send it on approval.

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## The British Journal of Photography

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## SUMMARY.

The first portrait taken by Daguerre is stated by the nephew of the sitter to have been Mr. Andrew Shanks, a well-known British engineer of the last generation. (P. 977.)

Dr. W. Scheffer, of Berlin, contributes the results of a micro-optical examination of negatives reduced with the ferricyanide and persulphate reducers. The photo-micrographs show how the former penetrates slowly and dissolves quickly, whilst the persulphate penetrates quickly and dissolves slowly. (P. 964.)

Following on the experiments of Professor Korn on electrical long-distance transmission of photographs, a French engineer, M. E. Jehn, of Nancy, has announced his discovery of a method of photographing at a distance or of even cinematographing by electrical connection. (P. 972.)

Dr. W. J. Russell, F.R.S., has examined the action of many plants and the seeds of plants on photographic plates in the dark, the results of which favour the hypothesis that the active agent concerned is hydrogen peroxide. (P. 966.)

The Canvassing Frauds.—A gang in Sheffield which absconded suddenly left behind them a large number of photographs and enlargements, the re-distribution of which has been undertaken by the police. (P. 972.)

The reception-room and how it should be furnished and decorated. (P. 963.)

A movement is reported in Austria in favour of the abolition of peeping studios on Sunday. (P. 962.)

Major Puyo hopes to apply the ozobrome process to oil printing, as introduced by Mr. G. E. H. Rawlins. (P. 969.)

## EX CATHEDRA.

**"Gum-Bichloride."** A particularly choice gem of the photographic ignorance which we are accustomed to find blazing in the lay Press occurs in an American journal, "The Great Round World." The following is its illuminating description of gum printing:—"The newest process is the bichloride of gum, discovered and made practical by a man named Demachy, the leader of pictorial photography in France. The process is simple, consisting of a basis of bichloride of gum-arabic and bichloride of potash, to which can be added any shade of colouring matter." Not content with this howler, the writer has interviewed Mr. Alfred Stieglitz in New York. His version of the conversation with Mr. Stieglitz on the roof of the Camera Club is distinctly good reading. The Director of the Photo-Secession is reported to have described his entrance into pictorial photography as due to his having "gradually switched over to the art side." In dispraise of medals, Mr. Stieglitz is made to affirm: "We have ruled out all that sort of junk out of expositions." The hasty journalist has many things to answer for, but it is rarely that he manages to crowd photographic errors quite so thickly on one another as in the article before us.

\* \* \*

**Free Portrait Canvassers.** The recent publicity given to the canvassing frauds by the "Perth Constitution" had the happy result of effectually driving the canvassers from the district, and, as we reported, in our last issue, the same result was achieved in Romsey, Hants, through the active measures taken by a photographer there, Mr. U. Doust, supported by the local Press. The latest intelligence to reach us of the same species of fraud, and probably of the identical gang who are working it, is from Helensburgh. Their methods have come in for some caustic comments from the "Helensburgh and Gareloch Times." In Sheffield, as reported on another page, the gang has fled from the town, leaving the photographs and the "free enlargements" made from them to be dealt with by the police. We should like to express the hope that the larger papers throughout the kingdom will publish a plain exposure of this bane to photographers and the public alike.

\* \* \*

**Home Preparation of Papers.** Some weeks back, it will be remembered, we made a few comments on the apparent neglect of photographic technics by photographic societies generally. But these must not be applied to the energetic West London Society, whose programme includes a number of papers of a really practical



ture. At its last meeting Mr. J. Brown gave a demonstration on "Home Sensitised Papers," a very interesting, as well as useful, subject. There was a time when every photographer—professional or amateur—had perforce to prepare his own paper, as then there were no ready sensitised papers in the market. The methods of preparing them in those days were in some respects different from those now adopted, which are in some instances not so satisfactory as the older ones. In salting the paper, for example, it was usual to float it on the salting solution. By this means the printed image was retained more on the surface of the paper than if it were immersed; consequently there was a greater transparency in the shadows when the picture was finished. In sensitising the paper it used also to be floated on the silver solution; now it is generally applied by brushing it over the paper. The old method was the simpler and was the more quickly done, and, at the same time, the sensitising was more evenly accomplished than is possible by brushing the solution on to the paper. Moreover, there was no risk of disturbing the fibre of the paper. At the present time, when possibly only a few sheets of the paper are required, it would be inconvenient to many to make up sufficient silver solution to float, say, 15 by 12 sheets upon; hence the brush is used. In the olden days, when the ammonia nitrate of silver (which would keep but a short time) was used as a sensitising agent, only a small quantity of it was prepared at a time, and it was applied in this way. The salted paper was laid on two or three pieces of blotting-paper; a glass rod a little longer than the width of the paper was laid at one end. Then a little of the solution was poured along it, and the rod passed along the paper, carrying the solution before it, which was afterwards evenly distributed with the rod, if necessary. In this way a number of sheets of paper may be sensitised without a large quantity of silver solution being required. Furthermore, there is no risk of the texture of the paper being raised as there might be by brushing.

#### Brushes for Coating.

When brushes are used, camel-hair ones are those that are usually employed. These are generally mounted in tin, and any of the silver solutions coming in contact with the metal will be immediately decomposed; added to this, the brush has to be thoroughly cleansed each time after use. Also, the silver has a deleterious action on the hair. Better than camel-hair is what was known as the Buckle, or the Blanchard, brush. The former was simply a tuft of cotton wool drawn into a piece of glass tube. The most convenient way of making one is to take a large test tube and knock a hole in the bottom with a piece of wire or a penholder, then pass a piece of doubled string through it, then drawing into the open end by the loop a tuft of cotton wool. After the loose fibres of the wool have been pulled off, the brush is ready for use; and when done with the wool can be thrown away. The Blanchard brush is different, and is better suited to the purpose when large surfaces are to be dealt with. To make it, a piece of glass is taken, say, a quarter-plate, and over one end a piece of swan's-down is doubled, fluffy side outwards, and the ends secured with an indiarubber band. The swan's-down can be thrown away after use, or washed out ready for use when next required. Both these appliances, it seems to us, are preferable in all ways to the more costly camel-hair brushes. While on the subject of home-made papers, we may mention that in most modern formulæ chloride of sodium—common salt—is given as the salting medium. With the old workers it was tolerably well known that the chloride used had a marked influence on the colour of the image when printed. The chloride of sodium, the chloride of barium,

and the chloride of ammonium all gave a different colour in the printing frame, and the first-named salt was rarely employed. It was the last two that found most favour when photographers had to prepare their own papers.

#### Photographs with Apparent Relief.

The idea of producing photographs in relief is by no means a new one. Patents have from time to time been obtained for producing photographs in has relief and companies formed to exploit them, though few of them have proved of much commercial success. Most of the methods have been based upon the swelling properties of bichromated gelatine when printed from a photographic negative and obtaining a plaster of Paris cast from that. The specification of a patent, applied for in this country by an American inventor, has just been published for producing photographs which are "optically in relief, or intaglio, while they are mechanically flat." From the specification (which is abstracted on another page), the method is seen to be as follows: First, a negative of the subject is made in the ordinary way, and a transparency produced from it. These two pictures are then superimposed a short distance apart and a fresh negative then made from them by transmitted light. In lighting this compound picture an oblique light is employed so that a somewhat strong shadow is obtained from the image. This negative yields a print which has the appearance of being somewhat in relief. It may be remembered that a short time back Mr. Gordon described a method of making photographs in apparent relief by printing from a negative and transparency superimposed. The method described in this specification appears very similar. While on the subject of photo-reliefs, we may mention a curious fact that may not be known to everyone. If a photograph be made of coins or medals or plaster casts from them, illuminated by a strong sidelight so that there are good cast shadows, the designs will appear in strong relief when the picture is looked at the right way up. But if it be turned upside down the design will then appear to be in intaglio and not in relief as before. This optical illusion is, of course, simply due to the inversion of the shadows.

#### Magic Postcards.

We see from an Australian paper that a form of postcard is upon the market the origin of which, we have no doubt, is photographic. The card is purchased in a light-tight package, and on exposure to light acquires a picture which is permanent in the light. Those who have experimented with bleaching agents on bromide prints will not experience much difficulty in drawing up a formula for the preparation of such cards, a variant of which, we believe, has been patented and manufactured in Germany. According to the brief particulars which have been published, the bromides are bleached in solutions of copper salts which contain also certain proportions of alkaline chloride. The idea has been worked out, we believe, of producing a card bearing a partial picture, additions to which make their appearance on the card being kept in the light. This modification should also be possible by taking advantage of the various toning and bleaching compounds.

#### Sunday Photography Abroad.

While legislation is pending in our own Parliament on Sunday labour, it is worthy of note that a movement which appears to be of considerable magnitude is on foot in Austria among the photographic employers and their employees, the object of which is to reduce or abolish the opening of studios on the Sunday. We read in the Munich

Journal, "Photographische Kunst," that in Budweis, a town of 35,000 inhabitants and six photographic studios, all the latter have joined in closing on the Sunday, and that in Prague and Vienna the closing all day or at 4 o'clock on Sundays has been very actively taken up by both classes in photographic establishments. While we should advocate resistance to the suggested interference of the Government in making Sunday closing of businesses compulsory, we would commend these measures of conference and united action to photographers in English towns, many of whom are compelled to work seven days in the week, not because there is a great business on the Sunday, but because a competitor keeps open. This form of competition applies more especially to the cheap class of trade, but the same argument may be expended with even greater force to the half-day weekly closing, which is impossible in many towns owing to one firm standing out from an arrangement.

### THE RECEPTION ROOM.

The up-to-date photographer cannot spend too much thought on his reception room. From a business point of view it is the most important part of the establishment. It is here that the prospective sitter obtains that most important first impression, which, if it does not actually lead to the making or marring of an appointment, frequently has great bearing upon the spirit in which proofs are received. A tasteful reception room will give the sitter a reassuring idea as to the status of the business, and will lead to a more confident order. A slovenly, patchy, or even an over ornate, room will lay the germs of misgiving that will tinge all further transactions, leading, if not to dislike of proofs, to a very guarded order. Moreover, good specimens tastefully displayed tell their own story, and orders for more expensive work than that otherwise intended should result.

Nothing out of the ordinary in the way of decoration is required. Good quiet wall-covering, artistic artificial light fittings and wood-work, whilst the furniture should be solid, substantial, and good, but not in any way gaudy. When decorating a room one must remember that a certain amount of repetition has to be introduced. A very good rule is to decide on a scheme in two prevailing colours, and stick to them, introducing as little as possible of any other tint. Blue and green are a good combination, so are brown and green or brown and cream. Cream and red, too, is a splendid combination, but not satisfactory for a reception or show room, where the great necessity is that the wall-covering should be quiet, dark, and unobtrusive, so that pictures are shown off without any distractions.

When choosing wall-covering, therefore, it must not be chosen for its own inherent beauty, but for its value as background for pictures. It will scarcely be necessary to add that papers with very small indefinite patterns in itself colour or quite plain papers or fabrics are the only suitable ones.

When selecting furniture, go in for straight lines and plain square features. Turning usually looks cheap. Avoid carving unless you can afford real antique. Carpets, of course, vary; the very dear Donegal carpets at £2 2s. a square yard are unapproachable, though the Goblin art squares are equally artistic, and about five shillings per square yard. Art canvas cannot be beaten as an artistic wall-covering, and, if broken into panels with a simple moulding, the result is rich and impressive. A good plain paper, however, will look well if a suitable frieze is chosen, and the furniture, etc., satisfactorily harmonises. We

should advise the prospective purchaser of art canvas to get plenty of patterns, for the material from different firms varies greatly in price.

A good table should be obtained for showing mounted prints, since it is very inadvisable to keep specimens scattered about; one with a shelf underneath is useful, so also is a chest of drawers with glass top and receptacle for miniatures, coloured work, or any special goods which it is desirable to give an added suggestion of value. The drawers should be shallow, say three inches, and, if provided with movable trays to hold specimens, are very useful.

The mantelpiece and overmantel may be made into very valuable pieces of furniture, and it would pay to have one designed by an artist with the special idea of its position in a photographic show room. A mirror should not be included, the space being more profitably and suitably occupied by panelling, against which the framed pictures will show to greater advantage. If, however, it is not desired to make a feature of this important adjunct to the room, simplicity may once more be relied on to demonstrate its pictorial value. Do not go in for the elaborate marble arrangements so popular during the Victorian era, but rather have a simple wood mantel harmonising with the furniture and tiles, agreeing in colour with the general scheme. The grate itself should not be highly polished or elaborated with ornament. The pictures to be hung on our walls should have frames that not only harmonise with the prints, but also with the walls. It will almost be unnecessary to warn the reader against gilt frames.

Above all, do not crowd the walls. A very few perfect specimens have a most pleasing, restful, and tasteful effect, quite different from the general tone conveyed by overcrowded walls, where a multitude of specimens kill one another and defeat the ends of the photographer who wants by his exhibition to convey an adequate idea of the work done. Touching on this subject one may refer again to the mistake of overcrowding tables with unframed specimens. Two or three in tasteful folders are quite sufficient to have lying loose; the others should be kept in trays easily brought forward and returned. The slovenly effect of a number of photographs lying jumbled up and necessarily dirty is very distracting and harmful. It would be just as well to classify these trays, such as men, ladies, children, heads, three-quarter, etc., for, as any one of reception-room experience knows, the prospective client has usually very definite ideas as to the position, etc., required before entering the establishment. The proprietor himself should occasionally go through the specimens and weed out the worn and old.

It is, we think, a great mistake to have a counter in the reception room, for this is much too shoppy. Facilities for writing must, however, be handy, and a neat desk of the pedestal type will not be out of place in an unobtrusive position.

The old-fashioned album has almost disappeared, though a few silvers or other cheap line kept in them very effectually transfers a client's ideas to platinotype and carbon. It is useful, however, to have a book with plain leaves and thick guards into which to place the modern paper mounts one on a page. If the prices and name of the style are appended it is often more comprehensible than voluminous explanations made by the receptionist.

HIS MAJESTY THE KING has bought from Mr. F. A. Swaine, of Southsea, a copy of his successful pictorial photograph called "Even-song." A copy of this picture is now on view at the New Zealand Exhibition, promoted by the British Government.



# MICROSCOPICAL RESEARCHES ON THE EFFECT OF THE PERSULPHATE AND FERRICYANIDE REDUCERS AS ALSO ON THE REDEVELOPING OF BLEACHED NEGATIVES WITH ALCOHOLIC DEVELOPERS.

It is a well-known fact that the ammonium persulphate reducer of Lumière produces soft, and that of Farmer (ferricyanide of potash), harsh results; i.e., the former attacks the parts of the gelatine which are rich in grain, more than those which are poor in grain. The ferricyanide works in the opposite manner.

The question in point for the experiments here described was: Is there any difference in the topographical behaviour of the two types of reducers in the gelatine film?

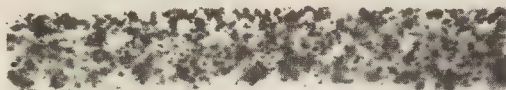


Fig. 1.

First, a few bromide of silver dry plates were exposed, fixed, and thoroughly washed. Then each plate was divided into three equal parts, one of which was set aside for comparison, the second was reduced in persulphate of ammonia, and the third in ferricyanide of potash. This was done in such a manner that the two reduced pieces gained the same amount of

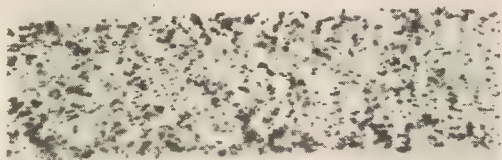


Fig. 2.

transparency. The three films were then carefully stripped and vertical sections were made with the microtome. Figs. 1 and 2 are photo-micrographs of sections of the reduced films. Fig. 1 is reduced with ferricyanide: Fig. 2 with ammonium persulphate. It can be seen from Fig. 1 that the effect of the cyanide is distinctly limited to the upper part. Here all grains are dissolved while in the lower half they are not touched. The persulphate of ammonia, Fig. 2, has worked in quite a different

way. It has penetrated the whole film and has reduced grains in an equal proportion. The original film had the same appearance as the under half of Fig. 2. The difference in the action of the two reducers lies in the fact that the Farmer reduces the grains according to their position in the film; the nearer the grains lie to the free surface the earlier they are dissolved, and the upper have entirely disappeared before the

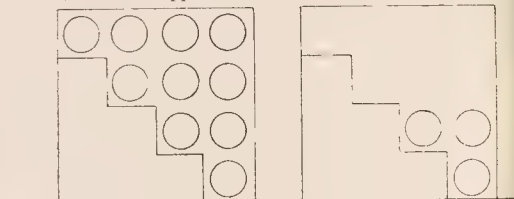


Fig. 3.

Fig. 4.

lower show any change. In a manner of speaking, the persulphate of ammonia works inversely. It is a matter of no difference to this reducer whether the grains lie on the surface or on the lower parts of the film near the glass. It reduces grains approximately at the same time no matter if they are located in the uppermost or lowest parts of the film.

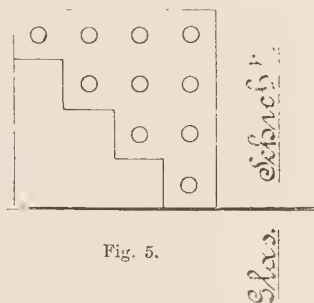


Fig. 5.

It is to be seen from this that the Farmer reducer penetrates the film relatively slowly, and dissolves the grains relatively quickly, whilst the persulphate reducer penetrates very quickly and dissolves the grains very slowly. The relation of the time taken by the reducer to penetrate the gelatine to that taken



Fig. 6.

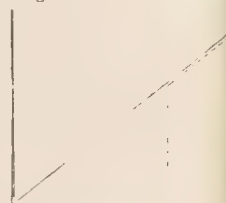


Fig. 7.

dissolve the grains determines the harsh or soft action of the reducer.

Figs. 3, 4, and 5 show these processes graphically. For the sake of simplicity the grains and their behaviour in the reducer are shown in circles. Fig. 3 is the film before reducing. Fig. 4 shows the reducing with ferricyanide. It must be stated that this reducer penetrates the film approximately with the same

speed, no matter whether the part of the film is rich or poor in grains. It has been seen that the ferricyanide of potash reducer has dissolved all the grains in the parts where a comparatively small number of grains is to be found; i.e., it has destroyed all details of the image in these parts, whilst the parts which are rich in grain are comparatively weakly attacked. A print



Fig. 8

from such a reduced plate would be harsher than one from the same plate before being reduced.

Fig. 5 shows the working of the persulphate reducer: in this case the parts which are richer in grain are naturally comparatively strongly attacked.



Fig. 9

Let  $L$  be the transparency of a certain part of a plate,  $U$  the opacity, and  $S$  the quantity of grains. If we reduce with persulphate in such a way that we dissolve the half of the quantity of grains equally over the whole plate the former opacity is to that now obtained as  $U : \sqrt{U}$ . Let us take, for example, a part which has the opacity 100, that is which lets through 1/100 of the incident light, and another part whose opacity is 9,

i.e., which lets through 1/9 of the incident light. After a reduction which dissolves half of the grains, the more opaque part will have the opacity of  $\sqrt{100} = 10$ , and the more transparent parts an opacity of  $\sqrt{9} = 3$ . From this it can be seen how the persulphate of ammonia makes a negative softer.

Figs. 6 and 7 show the reduction of the grains graphically. Fig. 6 shows the action of persulphate of ammonia; Fig. 7, that of ferricyanide of potash. It has been supposed that the grain is half dissolved.

There is another known process of reducing. The negative is first bleached, then again developed. Herr Hans Werkner has lately published in "Helios" a good method of redevelopment, which is specially suited for the purpose of changing harsh negatives into soft ones without loss of image in the transparent part.

The bleaching solution is made up as follows:—

Water .....	100 ccs.	.....	3½ ozs.
Potass. bichromate conc. sol..	10 ccs.	.....	170 mins.
Hydrochloric acid, conc. ....	2-3 ccs.	...	34-50 mins.

After thoroughly washing, the plate is redeveloped with

Alcohol .....	100 ccs.	.....	3½ ozs.
Pyrocatechin .....	1 gm.	.....	16½ grs.

And

Alcohol .....	100 ccs.	.....	3½ ozs.
Caustic soda .....	0.5 gm.	.....	8 grs.

Mixed in equal parts.

Figs. 8 and 9 are sections of films before and after this treatment. The hardening of the gelatine by the alcohol retards the penetration of the developer, so that it can only affect the upper parts of the gelatine. Consequently only those grains can be redeveloped which lie in the upper parts and not the lower ones, so that nothing of the image will be lost in the places poor of grain; but in the richer parts where the grain reaches deeper, comparatively much of the density is lost. This process is, in a sense, similar to a hypothetical reduction with ferricyanide of potash from the glass side.

Finally it may be stated that it is not possible, by changing the relative amount of ferricyanide and hypo in water to obtain a Farmer's reducer which works softly, similarly to persulphate of ammonia. Every test showed that the typical differences remain. Herr Doctor Lüpko-Kramer has lately published some interesting facts about the chemical constitution of negative parts rich in grains (long exposure), and those poor in grain (short exposure). The statements of Dr. Lüpko-Kramer are also entirely confirmed by microscopical research.

I intend shortly to publish some articles on this subject. It is probable that the facts detected by Dr. Lüpko-Kramer, together with the facts described in this article, explain the aforesaid differences in the working of the two reducers.

DR. W. SCHEFFER.

## ORTHOCHROMATIC WORK AND THE BATHED PLATE.

A Paper read before the London and Provincial Photographic Association.

The great superiority in colour sensitiveness of plates bathed in the newer iso-cyanine sensitisers over anything previously procurable necessitates some modification in the colour filters employed to obtain approximately correct colour rendering, where such plates are used. The increased sensitiveness to red of some of these plates, for instance, one which has been bathed in a mixture of pinachrome and pinacyanol, renders superfluous the employment of orange filters of the classes described in a previous paper, particularly one (type III.) possessing a gradual absorption throughout the spectrum. To obtain with the particular plate mentioned a good rendering

of coloured objects, one may adjust to it either a yellow filter having a somewhat abrupt absorption in the blue or one where the absorption of the blue and violet is gradual. The former type is perhaps preferable, on account of the greater transparency to the shorter wave-lengths that is obtained, and the result is less likely to be modified by any variation in the ratio of the plate. The complete absorption of the spectrum violet which this entails is without serious effect in the rendering of compound colours, for the reason that violet is a colour which practically never occurs alone in nature, all ordinary violet colours reflecting some blue and red in addition to violet.



A filter absorbing all light of shorter wave-length than 4,700 A.U. gives the requisite correction for a commercially-bathed plate sold under the name of "Panchromatic," to render subjects of all colours very correctly as regards their light and shade. This combination of filter and plate has, moreover, the very practical advantage that it is sufficiently rapid to employ in all ordinary work, the H. and D. speed being somewhere in the neighbourhood of 60. It has been used for focal plane shutter work. A liquid form of this filter may be made by using a solution of picric acid, 0.5 mgr. per c.c. in a glass cell having 1 cm. internal thickness. In view of this my previous paper may therefore be modified as follows, that is, of course, if one has regard only to the most colour sensitive of the available plates.

1. For green sensitive plates of the erythrosine type, which still predominates in numbers, one may with advantage, for landscape and some other work, employ an abrupt absorption filter, absorbing at about 4,900 A.U.

2. Secondly, where reds and oranges are colours of importance, the filter and plate described above for the correct rendering of all colours is all sufficient. This combination has been used with equal success for landscape and interior work, and also for copying in picture galleries. It does sometimes happen that strictly correct colour rendering is not desirable, chiefly in copying pictures, where an over corrected effect may be more pleasing. This is readily accomplished by employing a somewhat deeper yellow filter than the one specified above, which will lighten the reds and oranges and darken the blues. The reverse effect is obtainable by using a filter transmitting more blue light.

The filters and plates for selective colour work, where the object may be either to enhance or minimise colour contrasts, are not affected by the introduction of the bathed plate, except in that exposures under red filters may be reduced to less than one hundredth of that previously necessary.

The following are the most useful selective filters:—

1. To photograph reds and yellows as white, thereby reducing

the contrast between these colours and white and increasing contrast with greens and blues. This effect is given by a red filter and panchromatic plate.

2. Any of the green sensitive plates and a yellow filter absorbing all light beyond 5,000 A.U. will tend to reduce the contrast between yellows and greens, and white, while increasing it between violets and purples, and white.

3. The ordinary plate without any filter photographs blue and violet lighter than they appear, and renders as black a great majority of yellows, oranges, and reds; greens, too, if yellow shade may be very dark.

4. Another filter, which has proved very useful in process work where the wet collodion plate is being used in conjunction with the enclosed arcs, is one absorbing the ultra-violet, because some of the "whites" which are used in the original drawing absorb this light, and in consequence photograph darker than they should.

5. A rhodamine filter and pinacyanol bathed plate are occasionally useful to render greens as black and lighten in tone most other colours. That some colours in general give rise to greater colour contrast in photographic work than others depends upon the fact that the general absorption of light varies with the different pigments. Their varying complexity is another factor.

Many yellow pigments reflect actually more red and green light than the majority of the bright red and green pigments, while the absorption of blue and violet is often very perfect. Therefore when photographing them by either red or green light they often photograph lighter than do the reds and greens, while when reproduced by the ordinary plate they are very dark. On the other hand many pigments, blues and greens in particular, absorb a considerable proportion of all colours, while the reflection extends over a large part of the spectrum, and in consequence the contrast effects that can be obtained with them are not so striking as in the case of most yellows, reds and oranges.

A. J. BULL.

## THE ACTION OF PLANTS ON A PHOTOGRAPHIC PLATE IN THE DARK.

A Paper read before the Royal Society, by whose courtesy the illustrations are reproduced.

It has been shown in former papers that wood has the property of acting in the dark on a photographic plate, when placed in contact or in proximity to it. Not only does wood act in this way, but leaves, seeds, roots, bulbs, and, in fact, with only few exceptions, all vegetable substances act in a similar way. The more important bodies which are without this property are starch, celluloid, gum, sugar, pith, and pollen. To obtain this action on a plate it is necessary that the body used be tolerably dry, or else the moisture contained in it will act on the gelatine of the photographic plate and destroy the picture. The time necessary for the exposure to the plate varies from a few minutes to eighteen hours or more. To quicken the action, heat may be applied, but the temperature must not be above 55 deg. C., nor the time of exposure, under ordinary circumstances, longer than eighteen hours, or the photographic film will be injured. Any ordinary rapid photographic plate may be used, and its development is exactly the same as that of an ordinary picture. The best and most general method of driving vegetable substances before exposing them to the photographic plate is to place them between pure white blotting-paper and subject them to considerable pressure, say from 1 to 5 or 6 tons per square inch. This process has also the advantage of giving a second picture, for it is found that the liquid which has been expressed and absorbed by the blotting-paper is capable of acting on a photographic plate, and that it gives a good representation of the plant from which it came (Plate 19, fig. 1, and oak leaf).

Since different woods are capable of acting on a photographic

plate it was to be expected that leaves, stems, flowers would do the same. This has been found to be the case, and the action has been traced from its commencement in the sprouting embryo of a plant till after its death. Postponing for the present the full discussion of the cause of this activity of vegetable matter on a photographic plate, it may be assumed as a working hypothesis that the active substance is hydrogen peroxide. As far as the activity of a plant goes, it is comparable with that of hydrogen peroxide. For instance, if one part of pure peroxide be dissolved in one million part of water it is sufficient to enable the solution in twenty-four hours at ordinary temperatures, even when the plate is  $\frac{1}{8}$  in. above the liquid, to give a marked action on the plate; and, on the other hand, a seed leaf of a runner bean weighing only 0.02 gramme can give a similar effect.

Taking now the case of a bean, both the broad and the runner bean act in the same way; the cotyledons, when tested by bringing them in contact with the photographic plate, either whole or in a crushed state, are always found to be quite inactive; the plumule and radicle before growth has begun is also without action, and even when growth has just commenced and the plumule lengthened 2 or 3 mm. it is still apparently unable to act on a plate, but as soon as plumule and radicle have increased in length about 15 to 20 mm., then it has become distinctly active. The following experiments illustrate this point:—

A plumule and radicle 8 mm. long, taken from a dry bean, was entirely inactive. Another bean which had been in moist soil for



Fig. 1.

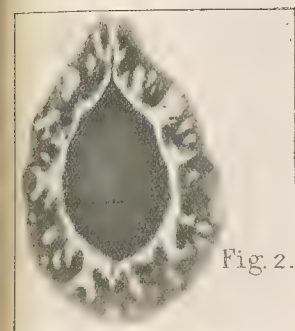
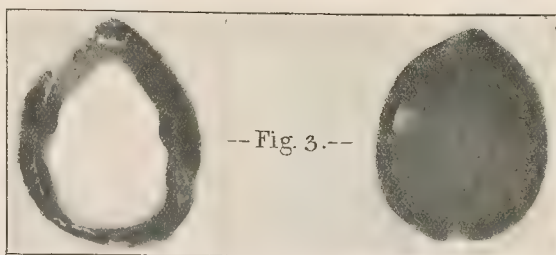
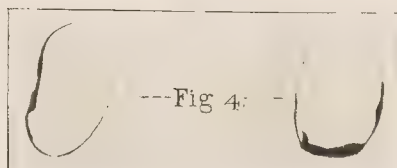


Fig. 2.



--Fig. 3.--



--Fig. 4.--

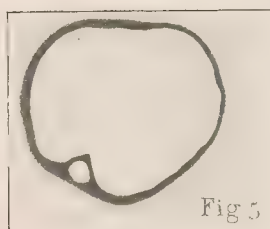


Fig. 5.



Fig. 6.

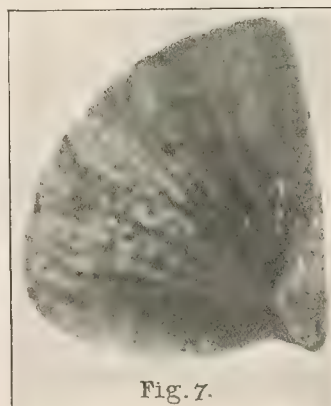


Fig. 7.

four days, and was 15 mm. long, and just beginning to grow, was still unable to act on a photographic plate, but in another case in which the plumule and radicle had grown to the length of 19 mm. there was a faint action on the plate, and where the growth had extended to 80 mm. the liquid from this plant was distinctly active. Finally, a young bean plant, 170 mm. long, contained a liquid which was very active. The cotyledons remain always quite inactive. Wheat in its ordinary dry condition is without action on a plate, but if allowed to sprout by being placed in moist sand for about two days the shoots on being squeezed between paper show considerable activity. In fact, it appears that all seedlings contain in every part, plumule, radicle, and seed leaves, a juice which is capable of acting on a photographic plate. If seedlings be grown in the dark they still have this power.

In addition to the bean and wheat, other seeds and fruits have been experimented with, specially acorn, horse chestnut, pea, barley, almond, and many others, and the conclusion is that in their dry state they are devoid of all power of acting on a photographic plate, but that as soon as growth commences this power appears.

Supposing, as has more than once been suggested, and is strongly urged by Usher and Priestly,\* that formaldehyde and hydrogen peroxide are the first products of growth, this action on a photographic plate is exactly what would occur. At the same time it must be remembered that terpenes and resins, which are so commonly present in plants, can even in very small quantities, either directly or indirectly, give rise to this body.

Nuts such as walnut, Brazil nut, Barcelona nut, etc., act like seeds; the endosperm is inactive in its original state, but if charred

as nuts often are, with a considerable amount of oil, this, on exposure to the air, oxidises and becomes very active. For instance, if the kernel of a Brazil, Barcelona, walnut, or almond, nut be taken out of its shell and at once crushed between blotting-paper, neither nut nor expressed liquid are active, but if the paper with the expressed liquid in it be kept for a short time exposed to the air, then it gives a very dark picture. If the nut be extracted with ether and the solution evaporated, the residue becomes strongly active. Of all nuts and seeds examined, castor-oil seed appears to be far the least active; the expressed liquid from it may be exposed for a month or more, and it is still without the power of acting on a plate.

The examination of different bulbs has shown that the fleshy scales forming them, from centre to outside, are active, but that the nucleus of the future plant which it contains, if in its primary state, is inactive like the plumule in a seed, but when growth has commenced it is active. This is well seen in the snowdrop, onion, and shallot; the shoot, if not visibly grown, is quite inactive. The amount of activity of different bulbs varies very considerably, the snowdrop bulb is slightly active, whereas the narcissus and the tulip bulb is much more so. This variation may probably depend to a considerable extent upon the state of development of the bulb. In the case of the crocus, which has a solid bulb, its activity is like those above mentioned. The tuber of the potato squeezed between blotting-paper gives a very active juice, the Jerusalem artichoke a juice which is much less active. If bulbs or tubers be dried even at ordinary temperatures they lose their activity. The rhizome in different plants varies much in its activity, and probably in the same plant at different times of the year; in the iris it is but very slightly active, in sea kale it is more so, and in the Pteris it is very active.

\* Roy. Soc. Proc., B, vol. 77, p. 369.



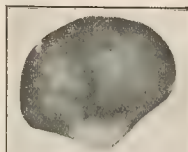


Fig. 8.

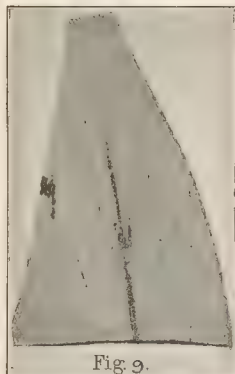


Fig. 9.



Fig. 10.

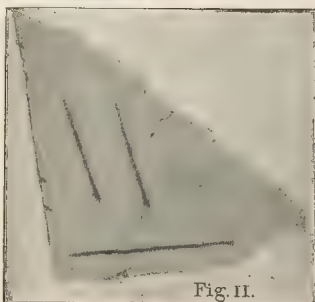


Fig. 11.



Fig. 12.



Fig. 13.



Fig. 14.

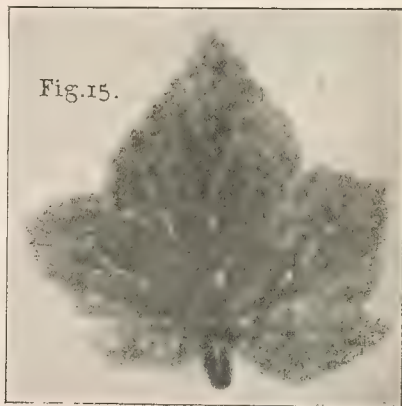


Fig. 15.

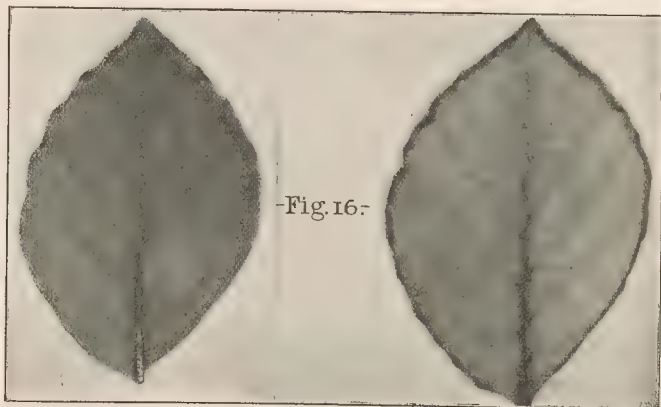


Fig. 16.

A considerable number of different roots have been experimented with, and in all cases it has been found that the root has very considerable activity; in fact, the root of some of the larger trees—for instance, Scotch fir—gives a picture similar to that given by the wood itself.

There are some interesting points with regard to the shells which protect different seeds and fruits. The outside is quite inactive; even if laid on a plate for a long time it produces no effect. The horse chestnut is apparently an exception, but in this case the out-

side skin of the nut is very thin, and the brown material immediately beneath is very active, but the nut itself, as before stated, is quite inactive.

With regard to the woody substance which forms the substance of a shell, it consists of at least two distinct substances, one of which is able to act on a plate, and the other is not able to do so.

For instance, in a cocoanut shell, the constituent of the shell which is lightest in colour is quite inactive, and the darker part is very active. Again, in the butter nut, Fig. 2, the red portion of the

shell is quite inactive, while the dark part is strongly active. In the Brazil nut the same thing also occurs, the central dark layer being very active, and the outside part is entirely without action. In fir comes the same kind of thing occurs; the axis of a cone consists of materials varying but slightly in colour, but very considerably in their power of acting on a plate. In the case of the almond shell it is throughout perfectly inactive.

Both the shell of the acorn and of the Barcelona nut consists of two layers, which are easily separated, the outside one is inactive and the inside one is active. Immediately within the shell of a nut there are one or more integuments, and they have very different powers of acting on a plate. For instance, in the cocoanut there are three integuments, the one next to the shell is very thin and of a whitish colour, the next one is much thicker and of a brown colour, and the third one is very thin and also brown in colour. The thin integument next the shell and the thick brown one in contact with it are both active, but the third layer is without activity. There is also a thin skin adhering to the kernel; this is also quite inactive. This variation in the action of different parts of a nut is well shown in Fig. 3, which represents the two halves of a walnut split through the middle; from one half the kernel has been removed, but not from the other half; the kernel filling up the shell is quite inactive, but the lining to the empty shell is quite inactive.

Actions of the same kind occur with broad and runner beans and other seeds; the outside, the testa, is inactive, and the inner layer is active.

Fig. 4 is a picture given by a section of a broad and a runner bean, and Fig. 5 a section of a horse chestnut.

On examining the flowers of different plants the petals in all cases have been found to be active. They are best dried by squeezing between Ford blotting-paper, and a picture can be obtained both from the petal itself and from the expressed juice in the paper. In many cases a characteristic picture is obtained from the paper. Fig. 6 is one obtained from the paper on which an Auricula flower has been squeezed, and Fig. 7 is from an Oriental poppy. Fig. 8 is from the petal of a viola. The colour of the petal does affect the result. White, blue, and pink petals of the Canterbury bell, red and white rose petals, dark purple and yellow viola petals, and many others, all give similar results, and all, as far as rough experiment goes, appear to be active to about the same extent. They show, however, greater activity than an equal area of the leaf of the same plant.

The pistil in a number of plants—for instance, poppy, lily, cactus, tulip, iris, etc.—were examined, and in all cases were found to be very active. The stamens of different plants when squeezed

were found to be very active but pollen, on the contrary, when examined alone was always found to be quite inactive. That from the sedge, hazel, Scotch fir, *Pinus pinaster*, *Pinus cembra*, and many other plants was examined.

*Leaves.*—Carrying the investigation on to leaves, large numbers have been experimented with, and all have been found to act on a photographic plate. The amount of action naturally varies with leaves from different plants; where there is much sap juice there is generally much action. If a leaf be simply dried its activity is much lessened, or may be clearly destroyed, and its surface is rendered uneven; but even in old and dried leaves a very appreciable amount of activity remains. For instance, beech leaves picked up off the ground were found to have about the same degree of activity as the ordinary green leaf, and a canna leaf which had been between blotting-paper in a press for one and a half years, and other leaves which had been pressed for two to three years, still were able to give a faint picture. If these old leaves were slightly moistened before putting up with a photographic plate, this activity was considerably increased (Figs. 9 and 10). Also it is interesting to note that if a slit be cut in the dry leaf, this becomes in the picture very visible. Fig. 11 appears as if an active emanation had taken place from the body of the leaf. The best way of obtaining satisfactory pictures of leaves is to subject them to considerable pressure between white (Ford) blotting-paper; this, of course, squeezes the leaf juice out, and the leaf is left in such a condition that after standing in the air for a short time it may be put up with the photographic plate. Whether the squeezing should be repeated, and whether the pressure should be a quarter of a ton or six tons, depends on the nature of the leaf experimented with. This way of drying a leaf has also the advantage, as previously pointed out, of giving a second picture, which is often a very interesting one, and is simply obtained by exposing the paper with the absorbed sap from the leaf to a photographic plate.

Figs. 12 and 13 are from the leaf itself, black currant, and Figs. 14 and 15 are pictures of the same leaf, but are from the paper between which it was squeezed. As further illustrating the nature of the pictures obtainable by these processes, Fig. 16 shows the front and back of a beech leaf taken direct from the leaf. Ferns and mosses also give interesting results, but these will not be dealt with in the present communication.

The above investigation has been carried out in the Davy-Faraday laboratory, and my thanks are due to the managers of the Royal Institution for the use of their laboratory. I am also much indebted to my assistant, Mr. O. F. Bloch, who has been of much help to me, and has made all the photographic pictures for the illustrations.

W. J. RUSSELL, F.R.S.

## FOREIGN NOTES AND NEWS.

### Oil-Ozobrome.

M. Puyo, in describing, in the current number of the "Revue de Photographie," his first essays in the combination of oil printing and ozobrome, says that photographers, like all human groups, are divided into two schools. The one includes those who make good negatives, or, finding their negatives good, do not alter them. The ozobrome process is for this class. The second school includes those photographers who make bad negatives, or who find the negatives that they have made bad. These are those who wish to control the negatives by correcting the values, etc. They have not any respectful deference to this classic process of carbon.

But there is a new process, full of resources—viz., oil. For the last three months I have used this process, and the idea naturally occurred to me to combine it with ozobrome. To this end then I applied to a postcard representing one of our choreographic glories, a sheet of gelatinised paper, soaked in ozobrome solution. After a few minutes' contact I separated the two papers, and having washed and dried the gelatinised paper, I attacked it with a brush charged with lithographic ink.

At first sight, if this inking up should be easy, the results would be grand. The great discovery required more trouble. I had a lot of trouble, however, but with insistence and application it was

at length accomplished. Certain parts of the image were good, others but mediocre. The method was not a complete success, but the first trial was very encouraging, and if M. Manly will give me the help of his special knowledge I hope to arrive at a satisfactory result. The ozobrome solution contains apparently a little alum. The difficulties perhaps arise from this, for experience has proved to me that aluminised gelatine takes ink badly. Then it may be advisable to study the action of the bath. All these trials would be very long, and I do not know when oil-ozobrome would see the light of day. I cannot fix a date.

"There is, however, no reason why ozobrome should not be applied to all papers in which there is a colloid insoluble in cold water; in other words, in all papers for development by soaking, pure gum paper excepted. And, in fact, I have made a hasty test to transfer the image of a bromide postcard to a fragment of Fresson paper. It is obvious then that M. Manly's discovery is of general interest, and may shortly receive the most interesting applications."

### Flashlight.

The following notes are abstracted from a little pamphlet published by Herr Pettauer descriptive of the use of a special flashlight powder



made by Seib, of Vienna, but they are also generally applicable. The necessary quantity of flashlight powder can be calculated from the following formula,  $M \times E^2 \times V$ , in which  $M$  is the quantity of powder required to give a fully-exposed negative, when burnt 1 yard from the sitter with a lens working at  $f/9$ , which may be considered as equal to 2 grains of pure magnesium.  $E^2$  is the square of the distance, and  $V$  the ratio of exposure for the stop used; thus, assuming that the sitter is 3 yards from the light, and  $f/16$  be used, the quantity of pure magnesium required would be  $2 \times 3^2 \times 3\frac{1}{2} = 57$  grains. Unless a diffusing screen be used, the shadow cast by a sitter is always very heavy, and the two following simple rules are given to avoid the too great prominence of the same. If the source of light is placed lower than the highest point of the sitter, then the background should be placed nearer the object. If, on the other hand, the source of light is placed higher than the highest point of the sitter, then the background must be further away.

#### Testing Ortho Plates and Screens.

M. Monpillard describes, in the "Revue des Sciences Photographiques," his method of testing ortho plates and colour filters. The source of light is the Fery acetylene standard which, however, is not calibrated to diffused daylight. The filters used for splitting up the spectrum are a yellow, consisting of a 5 per cent. solution

of neutral chromate of potassium in 10mm. thickness; this absorbs the whole of the violet and blue up to  $\lambda$  488. A blue-violet filter is a 6.6 per cent. solution of ammonio-sulphate of copper, which transmits the blue-violet from  $\lambda$  400-470. A blue filter of 0.1 per cent. of esculine transmits from  $\lambda$  437 to  $\lambda$  480. A green screen is made with

Cupric chloride pure (50 per cent. solution).....	30 c.c.s.
Hydrochloric acid .....	5 drops.
Potassium chromate (5 per cent. solution) .....	4 c.c.s.
Distilled water to .....	50 c.c.s.

In 10mm. thickness this solution transmits from  $\lambda$  485 to 600, with a maximum from  $\lambda$  530 to 570. An orange filter is made with

Potassium bichromate (5 per cent. solution) .....	4 c.c.s.
Potassium permanganate (1 per cent. solution).....	1.25 c.c.s.
Distilled water to .....	50 c.c.s.

This transmits the whole of the more refrangible rays to  $\lambda$  570.

The plates are exposed behind the rotating sector, the opacities plotted out, and the sensitiveness of the plates and the increase of exposure with different screens determined. The use of so many colour filters and the neglect of the spectrum composition of the acetylene standard makes this process less practical than that adopted by Messrs. Mees and Sheppard.

## THE "MECHANICAL" ACTION OF LIGHT ON THIO-RESINATES.

THE following abstract is taken from a paper by F. Alefeld in the "Chemiker Zeitung," in which he describes at great length this somewhat curious process. He points out first of all the researches of others, dating back to 1728, on the so-called photo-crystallisation—that is, the formation or alteration of crystals under the influence of light. It is a well-known fact that if a few pieces of camphor are placed in an empty well-corked glass bottle, in a short time a beautiful crop of crystals forms on the side of the bottle, and generally on that side which is exposed to the light. This was described by Schaum and Raikow to heliotropic crystallisation. Alefeld has repeated these experiments under conditions which included the action of heat, and found that this heliotropic crystallisation is actually due to that side of the bottle which is exposed to the light being colder than that which stands near to the wall of the house. From his experiments, however, the author was led to believe that there was not "any action on an existing sublimation, but the production of a movement, a diffusion, by the action of light, and that it could be used for the production of prints by light."

Briefly, the new reproduction process is as follows:—Solutions of certain compounds, which on heating leave behind a highly coloured ash, are coated evenly on glass, and after drying exposed under a negative. If now the plate, without any other treatment, be heated, at a given moment when the last traces of solvent have most completely evaporated, the positive image will appear in sharp relief, the shadows of the positive being in relief and the high lights sunken. There is obviously on the exposed parts more of the coating than on the unexposed, and if the plate is heated till the organic substances are burnt, the ash that remains gives an exact positive from the negative—the picture is seen as a kind of transparency, a dark drawing on the transparent glass.

"The only explanation which can be given from all the observations of the formation of the picture according to this process is that under the action of light the substances dissolved in the coating solutions migrate from those parts unaffected by light to the exposed parts, so that with the duration of exposure more and more accumulate under the negative-lights, whilst the negative-shadows become always more free from the same."

#### Diffusion Images.

Although this "diffusion" or "migration" would apparently require such a condition of the film that the particles would have a certain freedom of movement, and that therefore the film must be damp, the author states that the films must be dried at 212 deg.

Fahr. for fifteen to thirty minutes; this enables intimate contact to be obtained between negative and positive film.

This "mechanical light-sensitiveness," as the author calls it, is not confined to silver salts, "but is very widely, perhaps universally, distributed." The essential properties of the compounds which can be used for this process are:—

1. As the pictures must be heated after exposure to a red heat only glass, porcelain, metals, or enamels, etc., can be used as the support, and the compounds must be such as can be coated on these in thin and even films; aqueous solutions, therefore, are mostly excluded.

2. The solutions must dry on the support in amorphous, even, coherent films, so that they can be pressed into contact with the negatives without adhering to it; yet when this state of dryness is attained the film must not present too great a resistance to the diffusion.

3. When "burnt-in," the image must remain sharp and clear, and the compounds must not remain long in their melted condition, otherwise the details will run together. For the same reason the adhesion to the glass or support must be sufficient.

4. Finally, as strongly a coloured ash as possible must remain behind, so that the image may be clearly visible, and this residuum must adhere sufficiently to the support.

The lustre colours which have been used for a long time in ceramic work for the decoration of glass and porcelain are very satisfactory. They are usually resinates or thio-resinates, or similar compounds, are easily soluble in ethereal oil and other compounds, and when they contain metals they leave behind an ash which consists largely of oxide.

The glass or support is coated with the requisite solution, dried for fifteen to thirty minutes at 212 deg. Fahr., exposed for about half an hour to bright sunlight, and then burnt in. "Extraordinarily sharp images are obtained, which reproduce the smallest details of the negative—for instance, very small writing, the letters of which are only fractions of a millimetre high. The new process is by this distinguished from all existing processes for the production of burnt-in photographs, which only give somewhat fuzzy pictures."

Unfortunately no pure whites are obtainable, as, so far, it has not been possible to obtain, even with long exposure, the unexposed places quite free from light-sensitive salts.

"All solutions which have actually been tested so far prove to be light-sensitive in this sense—that is, they are capable of giving the

'mechanical' light action by diffusion." This mechanical light-sensitiveness was observed with the resins or thio-resins of the following elements:—Aluminium, antimony, arsenic, barium, bismuth, boron, bromine, cadmium, calcium, cerium, chromium, chlorine, cobalt, copper, gold, iodine, iridium, iron, lead, magnesium, manganese, mercury, molybdenum, nickel, niobium, osmium, phosphorus, platinum, potassium, rhodium, ruthenium, selenium, silicon, silver, strontium, sulphur, thorium, titanium, tin, tungsten, uranium, vanadium, zinc, and zirconium.

It was also found that a pure resin solution possessed this mechanical light-sensitiveness; it was observed, too, with resin dissolved in turpentine, Venice turpentine, the oils of aniseed, rosemary, and lavender, with natural asphalt dissolved in chloroform, benzole, oil of turpentine, etc., collodion in ether-alcohol, in aqueous solution of silver nitrate in gum, ferric chloride in water, solutions of resin in borax, solution of malt extract. The best results were obtained with those solutions containing resin.

### Exposures.

The duration of exposure depends on the quality of the light, the character of the solution, and especially on the drying. When the plates are dried for fifteen to thirty minutes at 212 deg. Fahr., about half an hour in direct sunlight is correct, but the commencement of diffusion can be seen much earlier, even after thirty-five seconds' exposure, with plates which had been exposed to the air for ten minutes, without drying by heat, showed the action in ten seconds. Plates dried at 212 deg. Fahr. for fifteen minutes showed the first action in direct light in four minutes, when dried in two minutes, and with poor magnesium light in one minute.

With very long exposures, several hours in the strongest sunlight, the burnt-in picture becomes very rich in contrasts, and the halts appear to accumulate in the middle of the lights in thin, dark lines, so that after several hours of the most intense exposure, i.e., drawings, instead of exact copies, were obtained after burning in.

"The low sensitiveness to even light—that is, light which is not separated into bright and dark rays by passing through a negative, whether direct or reflected diffuse sunlight, or arising from any other source—is extremely convenient as all the operations—the preparations of the solutions, coating the plates, the burning in after exposure—can all be done by daylight without any harm resulting."

It is interesting from a photo-chemical point of view that with normally dried plates a chemical action of light—that is, change of colour or darkening—was never observed even with several hours' exposure to the strongest sunlight. On the other hand, plates which were dried too much, especially when the solutions dried very hard and firm, or when collodion was added to obtain the same effect, after a short exposure showed chemical action as a dark image on a light ground. The image was then visible, but not in relief, and completely disappeared in burning.

"These observations may perhaps explain that, at least in the present case, light acted in a distributing manner as long as diffusion was possible, and that as long as this took place there was very little chemical action. If, on the other hand, diffusion was prevented, the light was converted into chemical energy. In substances of greater light-sensitiveness it may be different, but may be comparable. Perhaps the ripening of gelatino-bromide of silver may be explained by assuming that strong drying of the film and further consolidation of the silver bromide grains produces greater insolubility, and thereby increased chemical light-sensitiveness."

In order to determine whether the action observed was due to light or heat, plates were exposed under glass ruled with black lines three millimetres wide, with strips of blue, yellow, and red glass laid over the same; an image was obtained in one minute, five minutes, and two hours respectively. An alcoholic solution of iodine prevented any action.

### A "Mechanical" Change.

To prove that mechanical migration or diffusion and not photo-chemical action was the cause of the phenomena, the author refers to the relief obtained, and the darker colour of the shadows is ascribed to the particles having migrated from the high lights. As a further proof, he cites that between lights and shadows there is always a dark outline or a lighter line, the edge of the shadow

are darker, and that of the lights lighter than the other portions. A further proof is stated to be that the image is seen better on a smooth than on a rough support; any powdery deposits prevent the formation of the image.

That oxidation or reduction is not the cause is proved, because when burnt-in this action would be general, and no image would be seen. If the mechanical migration theory is correct, then one exposure should have no effect on a second exposure, and the particles which had migrated during the first should again make the grand trek during the second exposure. Unfortunately a second exposure did not obliterate the first picture, but the author explains this on the ground that the migratory power was lessened through further drying or resinification during the first exposure, and he says: "Perhaps there is also with the mechanical a little chemical action, which is the obstacle to complete success."

If the author's theory is correct, one should be able to quantitatively determine the truth of his statement and arguments, because if a non-volatile substance was used, it should be possible to find more of it on the exposed than on the unexposed parts. Sheets of gelatine 6 by 6.6 cm. were fastened with Venice turpentine to glass and coated with a solution which would only leave metallic silver as a residue. The exposed and unexposed strips were then incinerated, the ash dissolved in nitric acid, and the quantity of silver titrated with ammonium sulphocyanide solution, and the amount of silver found to be:—

Exposed Strips.	Unexposed Strips.
1. 0.05594 gm. Ag.	0.00303 gm. Ag.
2. 0.03524 " "	0.00292 " "
3. 0.03703 " "	0.00216 " "
4. 0.00526 " "	0.00221 " "

In Nos. 2 and 3 only thin coatings were used.

The author comes to the final conclusion that in consequence of the inherent faults the process will be of no practical value, but that it is sufficiently interesting from the theoretical point of view to warrant publication in order that others may pursue the subject, of which he has no further time.

### PLATE-SPEED NUMBERS.

A CIRCULAR newly issued by Messrs. Wratten and Wainwright, of Croydon, supplies in convenient form information for which application is frequently made, and in regard to which a considerable diversity of opinion exists—we refer to the speed numbers which must be given to a plate according as the Hurter and Driffield, Watkins, or Wynne system of exposure is adopted. Messrs. Wratten give the following relations between these three systems, the correctness of which they have proved in regard to their own plates. It is to be supposed that there would not be an appreciable departure from these ratios in the case of any commercial plates. It is Messrs. Wratten's intention to issue periodically a circular which shall bring this multi-speeding of their plates up to date. It will be sent to all those who are upon their addressing list.

The Wratten speed numbers are found by the method laid down by Hurter and Driffield, which gives a number known as the Inertia (i), which is a measure of the insensitiveness of a plate.

H. and D. No.—If 34 be divided by this we obtain the "actinograph" number, which we call "H. and D."

Thus, if the inertia be  $\frac{1}{i}$ ,  $\frac{34}{i} = 136$ , and the plate is "H. and D." 136.

The inertias are found by the developer given, metol-hydroquinone, without bromide.

P. No.—A number which corresponds to the P. No. of Mr. Watkins is found by dividing 50 by the inertia—

Thus— $\frac{50}{i} = 200$ , and the plate is 200 "Watkins."

This method has been approved by Mr. Watkins.

Wynne No.—According to the original method of the Infalible Exposure Meter Co., the Wynne F. numbers should be found by multiplying the square root of the Watkins number by 8.

Thus— $\sqrt{200} = 14.1 \times 8 = F. 112.8$  Wynne.

This is the method we have employed hitherto.



Alterations in the paper employed in meters have produced an alteration in the ratio, and we are informed that the Wynne Speeds are now to be found by multiplying the square root of the Watkins number by 6.4.

Thus— $\sqrt{200}=14.1 \times 6.4 = F.90$ .

This is the method which we shall employ in future.

#### PHOTO-TELEGRAPHY.

THE recent accounts of the advances made by Professor Korn in his methods of transmitting photographs by electric communication have been discussed in the newspapers for the past week or two, and will be the subject of an article in our pages at an early date. But Professor Korn is not alone in the field. According to the Paris correspondent of the "Daily Telegraph," M. Edouard Belin, an engineer of Nancy, who, we see, is a member of the Société Française de Photographie, has an even more startling discovery to announce. The Munich professor is able to telegraph a photograph. Mr. Belin says that he can photograph by telegraph. He places his camera in a spot A, opposite the object which it is intended to photograph. Some equivalent of a sensitive plate is placed at B. The points A and B, directly connected by an electric current passing along a wire, may be "at any distance." You press the button at A, and the sensitive plate at B takes the picture instantly, miles away. This sounds marvellous enough, but it is not all. The picture taken at B is no negative requiring to be developed, but a positive image, which is, ipso facto, fixed, and is a permanent photograph. M. Belin withholds the secret of his invention, and one can, therefore, only describe, not explain, the apparent miracle. He says that he has carried out many successful experiments in the last year. His first achievement was to telegraph merely one black dot from one sheet of paper to another, at a distance of nearly three hundred miles, over a public wire lent by the Postmaster-General. The transmitting and receiving apparatus were both placed in Paris. But they were connected by a telegraphic line running to Havre and back. The black dot was transmitted by this roundabout route instantaneously on the blank sheet of paper. The first experiment was effected with M. Belin's first instrument, which he calls his "simplex" machine. He afterwards built "multiplex" apparatus, with which he took complete pictures at a distance. His phototelegrams are printed, not as those of Professor Korn, in lines, but in dots, and there are 6,400 of the latter in the most complete image which he has yet obtained. The phototelegrams can be produced directly not only on paper, but also on copperplate, which can be at once treated with acid and used for photogravure.

In a short while M. Belin will attempt an experiment on a larger scale than he has yet tried. He will endeavour to photograph a human face over a circular telegraphic line from Paris to Lille, Brest, Bordeaux, Marseilles, Nancy, and back to Paris again, and he hopes to "loop the loop" successfully. The engineer's feats take one's breath away, but he is bent on still greater. He has studied the problem of transmitting successive images, and "is on the brink of a solution." This means that he may realise a far greater miracle than that of the telegraph or the telephone, and greater even than phototelegraphy. "When his apparatus has been improved to the extent of producing ten successive images in one second the problem of sight at a distance will have been solved. A scene photographed at Nancy will be instantly printed on a revolving roller in Paris, and events happening in one spot will be visible almost at the same instant to persons in another." Finally, M. Belin "proposes to apply his invention to the telephone, and hopes that shortly one will be able to see as well as talk to a friend over the wire."

#### A SEQUEL TO THE CANVASSING FRAUDS.

THE most interesting photographic studio in Sheffield last week was situated at the Central Police Parade Yard, Castle Green, which presented an unaccustomed scene. There, in long rows across the floor, and resting against the walls, were hundreds of enlarged photographs, in varying stages of incompleteness, of young men and maidens, old men and children, in all sorts of possible and impossible "artistic" poses. On a large table in one corner of the parade ground lay large numbers of the original photographs. In and out among the rows of picturesque studies walked people, mostly of the working classes, anxiously looking for lost relatives or friends, or

for reproductions of their own faces and figures. They were there at the invitation of the police, who recently seized the photographs at the offices of the "National Fine Art Company," in Pinestone Street. The distinguished members of the National Fine Art Company have disappeared. Their business was apparently conducted on simple lines. They or their agents visited the homes of the poorer classes, and, it is alleged, offered to provide them with magnificent enlargements of photographs of themselves or other members of their families for virtually nothing—all to advertise the firm. But presently the representative of the Fine Art Company called again—this time with a half-finished enlargement enclosed in a most attractive frame. Of course—it is charged against them—Mr. Smith must pay for the frame, and must pay a part of the amount before the completion of the work of art. In a great many instances this was done, but most of the various Mr. Smiths are still waiting for the completed and beautifully framed enlargements. In many cases the sums required and paid reached as much as 15s. and 18s.

#### MR. J. T. SANDELL.—AN APPEAL.

THE following sums have been sent to Mr. Thomas K. Grant, in further response to the appeal which has been made by him and Mr. J. B. B. Wellington in our columns and those of our contemporaries for some weeks past:—

	£	s.	d.
C. Churchill	1	0	0
Blaigowrie Photographic Society (per John B. MacClachlan)	0	16	0
Glasgow and West of Scotland Photographic Association (per A. G. Watson)	5	0	0
Preston Scientific Society (per A. W. Cooper)	0	15	0
Amount already acknowledged	7	11	0
	134	9	6
	142	0	6

## Exhibitions.

#### LANCASTER PHOTOGRAPHIC SOCIETY.

The awards made by the judge, Dr. A. T. Lakin, of Manchester, in the open classes were as follows:—

Class A (Landscape, Seascapes, and River Scenery).—Silver Plaque—"The Landing Place," C. D. Baxandall, Lancaster; Bronze Plaque—"Departing Day," Harry Lindoe, Sunderland.

Class B (Portraiture and Figure Studies).—Silver Plaque—"Kartoffelausmachen," H. Y. Summons, Sandhurst; Bronze Plaque—Withheld.

Class C (Architecture: Interior or Exterior).—Silver Plaque—"Old Durham," H. Lindoe, Sunderland; Bronze Plaque—"A Bit of Old York," A. W. Walburn, West Hartlepool.

Class D (Lantern Slides, set of four, any subject).—Silver Plaque—"Departing Day," Fred Judge, Hastings; Bronze Plaque—"A Confidential Chat," A. G. Thistleton, Newton Heath.

Class E (Postcards).—Silver Plaque—"The Lavatorium, Gloucester," Rev. E. T. Clarke, Tiverton; Bronze Plaque—"Church House," T. H. Boycott, Bootle.

#### WELLCOME PHOTOGRAPHIC CLUB.

The sixth annual exhibition of members' work was opened on Saturday, December 1, at Dartford, by Mrs. Wellcome, in the presence of a large gathering of members and friends. The exhibits, 172 in number, were displayed on the walls of the spacious gymnasium in the grounds of the Wellcome Club and Institute. A high standard of artistic and technical excellence was reached; and Mr. A. Horsley Hinton, who very kindly consented to act as judge, made the following awards:—

Class A (General).—Plaque (No. 41), "A Road in Flanders," G. T. Gale; plaque (No. 75), "Chislehurst Common," S. F. Morgan; plaque (No. 126), "Sunset," F. C. Starnes. Honourable Mention.—(No. 63), "Outward Bound," R. E. Jackson; (No. 116), "Anstey's Cove," H. C. Sayer; (No. 138), "Child Study," A. Wilson.

Class B (Holiday Sets).—Plaque (No. 148), "Thames to Tyne," R. E. Jackson. Honourable Mention (No. 152), "To Edinburgh by Water," F. C. Starnes.

## THE NORTH MIDDLESEX PHOTOGRAPHIC SOCIETY.

On Thursday evening of last week the N.M.P.S. opened its annual display of prints and slides. The former reputation of this energetic society is, perhaps, surpassed on this occasion. What strikes the public is the general air of maturity in the work shown. Have the N.M.P.S. no beginners at all, or are their elementary members all prodigies? There is no selecting committee; everything entered for exhibition, and the result is a first-class and highly interesting display of technical and artistic performance, local though it also is. Out of 124 pictures, 120 are bromide prints, a fact that says something for the popularity of this process. Only four, however, were silver prints, which shows what a change has come over the spirit of amateur photography since 1888, when, we were told, the majority of exhibits of the N.M.P.S. were upon P.O.P., and the hanging was accomplished by fastening the prints on to strings with tacks. Of course, there were no frames, and the pictures danced up and down before the gaze of their admirers. That was in the society's first year. Gum-bichromate is very healthy in this show, for, out of fifteen specimens, two have awards and two have certificates. Ozobrome is represented by eight samples, carbon by thirty-six, and platinum by six. The awards were given to the following works:—"Niagara Falls," by T. Bowden, a highly pictorial view, full of nice feeling; "A Rural Sheltered Scene," by H. Stuart, a gum print of much freshness of style; "The River in its Childhood," by A. H. Piddington, another gum, of charming subject with a good composition; "White Currants," by D. Fox, highly realistic, but not without reality; "When Shadows Lengthen," by A. G. Lawson, a delightful carbon print; and "Hill and Dale," by W. Pringle, of which the time exactly may be said. Besides these, "The Medway at Rochester," by A. H. Piddington; "A Low-roofed House, etc.," by H. Stuart; and "A Venetian Byway," by W. Pringle, as well as a capital set of slides by F. P. Bayne, representing birds' nests, were highly commended" by the judges, who, upon this occasion, were Mr. Reginald Craigie and Mr. Furlley Lewis. The list of awards, however, by no means comprises all the fine things. We were much struck by "A Glimpse of the Moor," by E. R. Matlocks, and by the excellent works by H. W. Fincham. The first of these was titled "London's Justice," and represents one of the romantic corners of which this great city abounds for such who have enthusiasm to meet them out. Mr. Fincham penetrated into the "ruins" of the old Bailey (which reminds us that the Editor of "Photography" has been here this year), and has found a nook where the dome and the gilded figure of the new Central Criminal Courts tower with effect over dark houses and an open space covered with interesting litter. The same worker's "Ruined Tomb" is highly worthy. The President, Mr. C. Beadle, has some good mountainous subjects, "Hill Cattle" being perhaps the finest. His portrait of "Miss Milfax" has charm, dignity, and quality. A pair of naked twins, whose laughing faces show over the hedge of a bath, is the subject of "Mixed Bathing," by G. E. Williams. It is the favourite with visitors. The work of Mr. Mummery, Mr. S. E. Wall, and Mr. Merchant is too well known to require detailed description. Very naturally it is not entered for competition, but a liberal show of it is a great distinction to the walls. The Record Section keeps up interest. The present numbers range from 185 to 232, from which it will be seen that this excellent and valuable work goes on apace. Indeed, the antique corners of North London seem to be far from exhausted by the North Middlesex searchers and recorders.

## CATALOGUES AND TRADE NOTICES.

Messrs. L. GAUMONT and Co., 22-27, Cecil Court, Charing Cross and London, W.C., are very quickly in line with public events assuming a new film of the Santos-Dumont airship ascents. A new catalogue gives particulars of the latest record, which will doubtless be esteemed by cinematographic entertainers.

CHRISTMAS PRESENTS.—Messrs. W. Butcher and Sons, in the December issues of their "Camera House Journal," offer the photographic dealer particulars of a number of attractive selling lines in photographic and allied goods. There are also some bargains in photographs and model toys.

DR. TRAUBE'S New Process.—The necessary plates and solutions of the above new process are supplied by the well-known plate worker, Herr Perutz, 50, Dachauerstrasse, Munich.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents have been received from November 19 to 24:—

CINEMATOGRAPHS.—No. 26,374. Improvements in cinematographs. Arnold Thackall Browett, 18, Hertford Street, Coventry.

PRINTING FRAMES.—No. 26,423. Improvements in photographic printing frames. Aaron Henry Howell and Henry Handyside Bates, 38, Chancery Lane, London.

CINEMATOGRAPHY IN COLOURS.—No. 26,671. Animated pictures in colours by direct photography. George Albert Smith, Laboratory Lodge, Roman Crescent, Southwick, Brighton.

## COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

PRINTING FRAMES.—No. 4,527, 1906. The invention is a printing frame of the kind in which the back is made in several hinged pieces. In the present apparatus the ordinary pressure springs, having a horizontal movement, are used to hold the back from end movement. This is done by the spring fitting a groove in the back and a slot in the side of the frame, there being a pivoted catch to hold the pressure spring. Leon Faure, trading as Grey and Co., Bridlesmith Gate, Nottingham.

PRINTING FRAMES.—No. 4,730. The invention is a frame adjustable to hold various-sized negatives by means of sliding pieces with rebated edges. The sides are formed with slots or spaces, one end piece with a rebated edge on the underside, a sliding adjustment piece having a similarly rebated edge and provided with grooves engaging tongues on the side pieces, and means for locking the sliding piece in the required position. John Batty, 124½, Wells Street, Lozells, Birmingham.

DEVELOPING MAGAZINE.—No. 7,295, 1906. The invention is an attachment to a camera to which plates can be transferred and developed. The first claim is: Photographic apparatus comprising a magazine, adapted to receive plates arranged in a box that is formed with grooves in which the plates can slide, and is provided with a light-proof cover capable of being withdrawn when the plate box is within the magazine, and an adjustable blind controlling the mouth of such magazine, one edge of such blind being formed with a lip adapted to engage a suitably formed part of a camera into which plates from the magazine can be caused to pass when the blind is withdrawn to the necessary extent.—Cesar Motti, Villa du Ray, 15, Avenue Thiers, Grasse (Alpes Maritimes), France.

DEVELOPING ATTACHMENTS.—No. 22,590, 1905. A development chamber, comprising a guide frame for films, two slots for withdrawing black paper from the spools which are geared together by gear wheels or any other suitable device, and plates which can be used as a cover when folded and as walls of the charging chamber when in vertical position, and which is used in combination with frames provided with openings for introducing the hands. Nicolas Wladimoroff, 10, Rue Michel Charles, Paris.

RELIEF EFFECTS.—No. 11,072, 1906. The process for which a patent is claimed consists in making from any given photograph or other original—

A. An ordinary negative copy.

B. A positive copy on glass of the same size as A—that is, a transparency printed from A by contact.

These two, positive and negative, are placed in register with a space of a fraction of an inch between them and a photograph of the combination thus made is taken under special conditions of lighting.

The peculiar characteristics of the compound photograph of A and B can be seen by holding it vertically at arm's length in a room moderately lighted from one side, and between the eyes



and a wall of that room which is under its window and with its positive side turned toward that wall. In this position light coming through the window reaches the positive side of the compound photograph somewhat diagonally from above and causes the opaque leaf thereon to cast a shadow on the negative part, which shadow falls wholly or mainly upon the clear leaf of the negative part; but that shadow does not register with the clear leaf of the negative part, and its boundaries are graduated and indefinite. Those portions of the clear leaf of the negative part which are not covered by that shadow appear to be light, while that portion which is covered by that shadow is variably dark in appearance, and the borders of the shadow gradually lighten off into the light of the clear leaf of the negative part of the compound photograph. That photograph can be held in such a position and such a light as that the shadow cast by the opaque leaf of its positive part will appear to fall entirely within the clear half of its negative part, or the compound photograph can be held in such a position and such a light as that the shadow of the opaque leaf of its positive part, while falling mainly on the clear leaf of its negative part, will lap over the tinted field of its negative part. In either case that shadow combines with the clear leaf and with the tinted areas of the negative part of the compound photograph to present the appearance of a relief photograph and the relief effect is rounded and artistic instead of being sharp and mechanical, as it would be if the two parts of the compound photograph had no distance between their films, even if they had been fixed together out of register with each other. John William Lloyd, 101, Beekman Street, New York, U.S.A.

The following complete specification is open to public inspection prior to acceptance under the Patents Act, 1907.  
CINEMATOGRAPHY.—No. 25,798. Gates for protecting the films of kinetograph series.

## New Books.

"The American Annual of Photography, 1907." New York: George Murphy. (London: Dawbarn and Ward.) 2s.

The text portion of this annual is made up, as hitherto with contributed articles and collections of formulae and tables. The former relate in the main to the practice of photography, as it is prevalent at the present time among amateurs. They contain little of permanent interest, and some things which betray the ignorance of the writer. For example, a person named W. F. Oliver, whose literary—or should it be scientific—contribution is entitled "'07 Pepper Sauce for Plain Roast of '05," courteously refers to the pioneer work in sensitometry as follows:—"Hunter and Driffeld" (Mr. Oliver cannot even quote a name correctly) "also ran, with a few high-flown nonsensical theories, something about the number of possible gradations in a picture." The illustrations are really a greater incentive to purchase the "American Annual" than the text, for among the many half-tone reproductions scattered through the pages there are a number which are quite excellent examples of photography with pictorial aims; though few, we must admit, which rise above the level of the many photographs to be seen in the illustrated papers in this country devoted to amateur photography. The printing and general productions of the "Annual" are of the best.

"TRICK Photography." A sixpenny book which should "go" has been published by Messrs. Marshall, Brookes, and Chalkley, Limited, under the above title. It describes the many pleasantries which may be perpetrated and the variety of amusing effects which can be obtained by photography. These include the magic photographs, doubles, photographic caricatures, wide angle effects, distorted portraits, and the many forms of combination printing. The many illustrations are a feature. We are glad to see that the author, in speaking of trick photographs by means of sulphate of

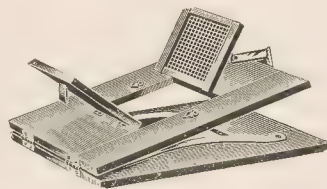
quinine, points out that the wet-plate process should be used. The caution is frequently omitted by writers on the subject.

The Christmas number of the "Weekly Press," Christchurch, New Zealand, has reached our table in time for us to lay it side by side with the numbers of London weeklies, in comparison with which it makes a very good showing. The half-tone work is excellent, and the colour printing of a kind which puts many an English printer to shame.

## New Apparatus, &c.

The Straight-Edge Lantern-Slide Printing Frame. Sold by W. Butcher and Son, Camera House, Farringdon Avenue, London, E.C.

Lantern-slide making by contact calls, as every slide-maker knows, for a special frame, or the work of printing from a set of mixed negatives becomes tedious in the extreme. Hence the variety of



printing frames for this purpose in the market. Messrs. Butcher nevertheless, in the instrument before us have gone one better than their predecessors in providing an additional convenience, and one which we judge lantern-slide makers will be very glad to have. In addition to allowing any portion of the negative—up to whole plate in size—to be used, and besides permitting the negative to be placed at an angle in the frame so as to compensate for skew-wise placing of the subject on the plate at the time of exposure, the makers give the slide maker the means of instantly seeing whether his slide will be correctly printed as regards the perpendicularity of the subject. This is done by the addition of a ruled screen, which is brought over the negative. The illustration shows it raised. The negative being seen to be correctly inserted, the lantern plate is placed in contact and the hinged back, seen on the left of the drawing, brought down upon it to press it into contact. Slide makers can obtain this frame from their dealers for 4s.

A PRINT-TRIMMER which is specially adapted for professional use is the Merrett, marketed by the Adhesive Dry Mounting Co., of 27 and 28, Fetter Lane, London, E.C. We have used many varieties of trimmers, but we know of none that will cut so cleanly and work with such uniformity as the Merrett. It will trim print wet or dry, and is made also in the larger sizes for working by treadle. The trimmer is not intended for cutting cards, but for prints, even those on a fairly heavy stock, it is an excellent instrument.

ROMANIAN Tariff.—Recently changes have been made in the duties on photographic materials imported into Roumania, and the following are the chief items:

Postcards, picture, photographic, etc.	per 100 kilos	200 lei.
Sensitive papers	" " "	50 "
Sensitive plates	" " "	20 "
Plates for cinematographs, optical lanterns, etc.	" " "	20 "
Optical glass, cut, polished, unmounted	" " "	150 "
Photographic apparatus	per 1 kilo	0.50 "

A lei is practically equal to a franc, and 25.50 go to the pound sterling.

PHOTOCHROM COMPANY.—Mr. E. Hagger has been appointed to the representative staff as London traveller for the process department.

## New Materials.

"Fixolene" (Lumière fixing salt). Sold by the Lumière N.A. Co., 4, Bloomsbury Street, London, W.C.

Under this title the Lumière firm has brought upon the market a fixing salt which is presumably on the lines of the investigations by M. Lumière which appeared in our pages some weeks ago. The commercial product is a white salt which dissolves in cold water to a pale green solution. This operation takes place very quickly, the solution not being appreciably chilled as in the case of making up a fixing bath from hypo. only. The chief feature of the bath, however, is its simultaneous fixing and hardening action, the very pronounced character of which will be obvious from the recital of the tests which have been made with the sample cartridge sent to us for notice. Two plates were fixed, one in the normal acid sulphite fixing bath and the other in a bath prepared with this new salt. The plates were then rinsed and part of each immersed in water at 100 deg. Fah.; that fixed in the normal bath was in five minutes practically melted, whilst the plate treated with this new bath showed no change. Further tests were then made with the plates fixed in the latter bath, and after five minutes' immersion in actual boiling water—that is, water boiling the whole time—gelatine seemed unaffected, except for having swollen somewhat. Another plate was then immersed in boiling water for five minutes and left in the same till the water was cold: this also seemed unaffected.

It is obvious from these tests that the new fixing salt will be of considerable practical value, for preliminary tests showed that there is no practical slowing of the actual operation of fixing, and the removal of the hypo. by subsequent treatment with hot water must be considerably hastened.

Agfa Fixing Salt. Sold by Charles Zimmermann and Co., 9 and 10, St. Mary-at-Hill, London, E.C.

The claims made by the makers of this new fixing salt are that it is more rapidly, and that it is not rendered appreciably slower by repeated use in the way that other fixing baths are. We are not able to confirm the first of these important claims, for we find on making up four-ounce per-pint baths of the Agfa fixer and of ordinary hypo, that the former completely removes the visible silver in a plate in one-half the time required by the latter. This was found, not in the case of one plate only, but in the course of fixing six half-plates successively in the same seven ounces of each bath. We found that the time of fixation did notably increase in the case of the plain hypo compared with the Agfa salt, though not in the proportion stated by the makers in the circular. We were not informed in the circular, however, what volume of solution was employed, say, for the fixation of ten half-plates, and therefore our own trials may not have reached the degree of exhaustion which is necessary before a comparative test becomes of any value. Yet the fact is clear to us that the bath is very rapid fixer, and as it is made in a few moments and preserves its clearness in use it should be a very satisfactory form of hypo, particularly for the use of amateurs who are apt to go wrong in commanding an acid fixing bath.

The fixing salt is sold in tins in three sizes, sufficient for baths of 5 ozs., 31 ozs., and 75 ozs. respectively, the price of the tins for these solutions being 5d., 9d., and 1s. 4d. It is also marketed in cartridges to make 3½ ozs. of bath sufficient to fix 25 quarter-plate negatives. The price of ten cartridges is 2s. 3d.

Cadett "Royal Standard" Ortho' Plates. Made by Cadett and Neall, Ashstead, Surrey.

Messrs. Cadett and Neall, who for many years past have been manufacturers of colour-sensitive plates, have of late applied themselves more to plates of medium colour-sensitiveness than to those of extreme red-sensitiveness such as the "Spectrum." This policy—which is no doubt the natural result of the greater demand for a plate which can be worked in a reasonably comfortable red light—has led them now to bring out an orthochromatic variety of the popular "Royal Standard," the properties of which bear out the old opinions formed of its "ordinary" predecessor. The "Royal Standard Ortho" is a liberally coated plate of good speed and "dear" characteristics in development. Like all plates of its degree of colour-sensitiveness, a light filter is necessary to take advantage of its properties under ordinary conditions, and one in-

creasing the exposure five or six times will be found to give a very good rendering of subjects in which reds do not occur. We have no fault to find with the new plate in regard to its mechanical properties of evenness of coating. The sample sent to us is on thinner glass than usually used for negative plates, and the film of emulsion exhibits the signs of the most careful manufacture.

In continuance of our usual practice, we give also the results of sensitometer in tests now made for us by S. E. Sheppard, D.Sc., F.C.S.,\* which are as follows:—

Inertia (pyro-soda H. and D.), .254.

$\gamma$  (density-giving power of the plate), 1.76.

K (velocity constant of development with standard ferrous oxalate), .120.

$t_{\gamma}$  (time in minutes to reach a standard development factor of 1), 7.0.

Blue sensitiveness  
× = Yellow sensitiveness, 13.2.

These figures, on reference to former articles on sensitometric valuation of plates which have appeared in the *BRITISH JOURNAL*, and are epitomised in the "Almanac," show the "Royal Standard Ortho" to be a plate of the erythrosine type, with a tendency to softness in the negatives and a time of development which is also an average one. In other words, anyone taking up the new plates will find his routine need not be disturbed in order to obtain the orthochromatic effects which the plates give.

## Commercial & Legal Intelligence.

CANASSER SENTENCED. Edward Smith, a canvasser, was charged last week at Marlborough Street, W., with being a suspected person, found on premises at 3, St. Alban's Road, Highgate, supposed for a felonious purpose. The evidence showed that about 12.30 on Saturday morning Mr. Goodison's son saw the prisoner come out of a lumber room, descend the staircase, and walk out of the house. Police-constable 247 Y, into whose custody the prisoner was given, found on him a book of coupons for photographs. Those coupons were for sale at 3s. each, the balance to be paid subsequently. Detective Page made inquiry, and found that the firm—Messrs. Lintott, photographers, of Bond Street—to whom the coupons referred, had ceased to exist for the past two months. In his defence the prisoner said he had worked for that firm as a canvasser up to two months ago. Lately he had been hard up, and was induced through want to try and sell some of the coupons for 3s., but had not sold any. The prisoner's character was disclosed by Detective Page, who said that Smith was sentenced in 1899 to twelve months' imprisonment, after previous convictions. Mr. Page sentenced the prisoner to two months' imprisonment.

ALLEGED CANVASSING FRAUD.—Charles King, apparently a man of good education, was committed for trial by the Manchester City Stipendiary last week on three charges of obtaining money by false pretences. According to the evidence, the prisoner called at three shops, representing that he was a canvasser employed by Messrs. Brown, Barnes, and Bell, photographers, of Victoria Street. In each instance, it was alleged, he called at small shops and offered enlargements of photographs at cheap rates on condition that part of the money was paid down, and that the photographs were displayed in the shops for a week as an advertisement. He received three sums of 2s. 6d., 5s. 6d., and 2s. 6d. King had called at the photographers and was supplied with the ordinary printed matter and receipts for canvassers, but he never took them any orders or went to their premises again. When charged with the offences prisoner replied, "I have collected some of them."

SMASHED NEGATIVES. At Greenwich Police Court, last week, R. W. Burge and J. Keene, inventor, of Belmont Hill, Lee, were charged with damaging a number of photographic negatives at 17b, Empire Road, Sydenham, Burge being also charged with assaulting Albert Ashby. Ashby who is manager of a photographic studio, stated that the prisoners, with a sailor and another man, called there on Saturday and said they wanted their photographs taken. Seeing

Mr. Sheppard has made these tests for the "British Journal" since Mr C. E. K. Mees, D.Sc., joined the firm of Wratten & Wainwright.



they were in drink, he told them he was not taking photographs that afternoon. Keene at once smashed a number of negatives, while Burge swept several off the mantelshelf. When he tried to close the door, so as to keep them there until the police came, Burge struck him in the face. The damage amounted to about £2. The prisoners were each fined 10s. and 20s. damage, and for the assault Burge was bound over in £5 to keep the peace for three months.

**RAPID PHOTO. PRINTING COMPANY, LTD.** (London).—Issue on November 1 of £300 6 per cent. debentures, part of series created July 2, 1906, to secure £10,000, charged on the company's undertaking and property, present and future, including uncalled capital. No trustees. Total amount previously issued of same series, £6,300.

**W. H. HARRISON, LTD.** (Photographers, South Kensington).—A 5 per cent. debenture, dated November, 1906, to secure £500, charged on the company's undertaking and property, present and future, including uncalled capital (if any), has been registered. Holders: Peacock, Wilson, and Co., Lincoln.

#### NEW COMPANIES.

**VICKERS' MINIM PHOTO. PRINTER, LTD.**—Capital £1,000, in £1 shares. Objects: To acquire and deal with any interests in patents and inventions relating to improvements in photographic printing, developing, and drying apparatus, and to carry on the business of manufacturers of and dealers in such apparatus, etc. No initial public issue. The first directors are not named. Registered office, 822, Salisbury House, E.C.

**WALLACE AND GILBERT.**—This company has been registered with a capital of £5,000 in £1 shares (1,600 5 per cent. cumulative preference) to acquire the business carried on by J. W. Wallace and J. C. Gilbert at James Watt Street, Birmingham, as "Wallace and Gilbert," and to carry on the business of photographers, draughtsmen, designers, engravers, etchers, electro-typers, die sinkers, etc. The subscribers are J. F. Wallace, Mrs. A. Wallace, Miss E. M. Wigston, J. C. Gilbert, Mrs. A. M. Gilbert, J. S. Gilbert, and Miss A. D. Gilbert.

## News and Notes.

**ILFORD Platona Paper.**—In consequence of the increasing rise in the price of platinum the price of the Ilford Platona paper is raised to 1s. 8d. per tin of 20 quarter-plate pieces; other sizes in proportion. The 24 x 17 sheet will now be sold at 27s. per half quire, and the 26 x 20 sheet at 34s. per half quire. A circular of all the new prices may be obtained free from the Ilford Company.

**IMPROPER Photographs.**—A man, named Kumberg, trading at Kilburn as Wilson and Co., was charged last week with sending improper postcards through the post. Prisoner was committed for trial on bail of £200.

**NOTTINGHAM Exhibition.**—The Nottingham Camera Club has arranged with the Sheffield and Leicester exhibitions for photographs to travel free between the three shows. In addition to this inducement, the Nottingham Society will present awards to successful exhibitors in the shape of pictures purchased from the walls to the value of one guinea each. The last day for receiving entries is February 14. Entry form from Mr. G. R. Cranch, St. Jude's Avenue, Mapperley, Nottingham, and the judge is Mr. Furley Lewis.

The new Spanish banknotes have a fine steel-plate engraving back and front, with a special colour ground in specially chosen colours for the prevention of imitation by photograph, which is one of the most popular methods of forgery; in fact, nearly all banknote forgeries are photographic in origin; and the aim of the designer and engraver is to guard against this. The notes are of the value of 25, 50, and 100 pesetas respectively; each of the values contain a different picture in the way of vignettes, and each carries a different scheme of colour work; all of them are considerably smaller than the Bank of England notes.

Last week a fire occurred on the premises in Nethergate, occupied by Mr. J. T. Chisholm, photographer. The damage, which amounted to about £150, is covered by insurance. The origin of the fire is not known.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
7.....	Newton Heath Camera Club...	"Postcard Photography on 'Rotograph' and 'Rotox' Postcards."
7.....	West London Photo. Society...	"Enlarging by Artificial Light." F. Hart.
7.....	Cardiff Photo. Society .....	"Bruges." W. A. Meyrick and R. Harris.
7.....	Hampstead Scientific Society	"Weather and Weather Observing Illustrated." Hugh Robert M.D.Sc.
8.....	Aberdeen Photo. Art Club....	Lantern Evening.
10.....	Leek Photo. Society .....	Exhibition of Competition Prints.
10.....	Gravesend and Dis. Ph. Soc....	"Ozobrome." A. E. Swift.
10.....	South London Photo. Society	"Trimming and Mounting." W. Calverley.
10.....	Lancaster Photo. Society .....	Marshall, F.C.A.
10.....	Preston Camera Club .....	"The Growth of a Picture." J. Cranstrated, Miss Marsden.
10.....	Oxford Camera Club .....	Photography Prize Slides.
10.....	Muirkirk Amat. Photo. Assoc.	"Enlarging Simplified."
10.....	Oldham Equitable Ph. Soc....	"Pictures with the Goetz Lens."
10.....	Bedford Camera Club .....	"Sports and Pastimes with the Goetz Anschutz Folding Camera."
10.....	Derby Photo. Society .....	"Enlarging Simplified." J. J. Griffith & Sons.
10.....	Stone and District Photo. Soc.	"Enlarged Negative on 'Rotograph' Negative Paper."
11.....	Royal Photographic Society ...	"Thunder-storms and a Camera." W. J. S. Lockyer.
11.....	Glasgow Southern Pho. Assn.	Discussion.
11.....	Leeds Photographic Society...	"Lantern Slide Making." Demonstrated, Godfrey Bingley.
11.....	Hove Camera Club .....	"How to Mount and Frame Photographs." Col. W. L. Noverre.
11.....	Sheffield Photo. Society .....	"Developers and Developing." Demonstrated, F. B. Hirst.
11.....	Darlington Camera Club .....	"Tinted Borders on Bromides and Post Cards." F. Airey.
11.....	Burton-on-Trent Nat. His. A.S.	"Some Schools of Art and their Photographic Imitation." H. Barratt.
11.....	Hackney Photo. Society .....	"Flower Photography." A. J. Iford.
11.....	Birmingham Photo. Society ...	"Some Spanish Pictures." A. Marshall.
11.....	Southampton Camera Club .....	Sixth Annual Exhibition.
11.....	Northampton Nat. His. S. (P.S.)	"What can be done with a Hand Camera." C. P. Goetz.
11.....	Hanley Photo. Soc. Y.M.C.A....	"Postcard Photography on 'Rotograph' and 'Rotox' Postcards."
12.....	Devonport Camera Club .....	"Theory and Practice of Self-toning Papers."
12.....	Sefton Park Photo. Society ...	"Ozobrome." Demonstrated. H. Tubley.
12.....	Croydon Camera Club .....	"Photomicrography." J. Rawcom.
12.....	Birmingham Photo. Society ...	"Making Enlarged Negatives." Moore.
12.....	Borough Polytechnic Ph. Soc.	"The After Treatment of Negative E. W. Taylor.
12.....	Redhill and Dis. Camera Club	"A Dive into Belgium." Illustrated by W. L. E. Wastell, F.R.P.S.
12.....	Warrington Photo. Society .....	"Enlarging on 'Rotograph' Bromide Paper, including a chat on toning Bromide Paper."
12.....	West Calder Photo. Assoc.....	"Stereoscopic Photography." G. Goetz.
13.....	L. and P. Photo Society .....	"Colour Printing in an Original Frame, and the Dischner Natural Backgrounds." Oliver S. Dawson.
13.....	Rugby Photo. Society .....	"A Visit to the English Cathedral H. W. Bennett, F.R.P.S."
13.....	Walsall Photo. Society .....	"Latest Kodak Productions."
13.....	L.C.C. School of Photo-Eng. ...	"The Production and Printing of Artistic Lithographs." T. R. Wainwright.
13.....	Liverpool Amateur Photo. Assn.	"The Loire and the Royal Chateau of Tournai." Fred Clibborn.
13.....	Richmond Camera Club .....	"Mr. Punch's Living Pictures."
13.....	Blenheim Club .....	"Writing Implements and Appliances Ancient and Modern." James Maginnis, A.M.I.C.E., M.I.M.E.
13.....	Hull Photographic Society .....	"The Use of Artificial Light Applied to Photography." G. Bristow, Jun.
13.....	North London Photo. Society	Conversational Evening. "Our Exhibition and its Lessons."
13.....	Handsworth Photo. Society ...	"Architecture."
13.....	Leek Photo. Society .....	"Relaying on 'Rotograph' Paper Demonstrated. Rotary Co."
13.....	Small Heath Photo. Society ...	"Leading Features of Velox Manipulation."
13.....	Leek and District Photo. Soc.	"Enlarged Negatives on 'Rotograph' Negative Paper."

### ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, December 4, Mr. E. J. Wall in the chair. A demonstration of three-colour portraiture and printing was to have been given by Mr. H. W. Lewis, of 8 James's Studio, but Mr. Lewis was unable to be present through

indisposition, and his place was taken at an hour's notice by Mr. W. A. Sims, of the Rotary Photographic Company. Mr. Sims described the method adopted for taking the three negatives in the studio, and proceeded to deal with the process of printing them on three-colour carbon films. He exhibited a number of specimens of a carbon three-colour print in various stages of manufacture, and demonstrated the completion of the trichrome by laying the red impression upon the yellow and blue.

A number of questions were asked. Mr. H. O'Farrell said he had not been able to develop his carbon films at the low temperature of 85 degrees recommended by the Rotary Photographic Company, but had to use 110 degrees. He sensitised his prints one day and printed them the next. Dr. Mees said he found it was essential to develop the prints within an hour or two of sensitising. In reply to a query by Mr. Hector Maclean, Dr. Mees said he had not stored the sensitised films in a calcium tube. In the course of other discussion, the chairman stated that he sensitised his films with a bichromate solution containing citric acid, as recommended by Mr. H. W. Bennett, making it just alkaline with ammonia. He found that the films could be used perfectly the day after sensitising without special precautions. In place of the hot gelatine solution, directed by the Rotary Company for cementing the prints, he kept a stock of cold solution of gelatine, made by dissolving the gelatine in glacial acetic acid and diluting the solution with alcohol.

A vote of thanks to the St. James's Studio and to Mr. Sims concluded the business of the evening.

**CROYDON CAMERA CLUB.**—Mr. H. W. Bennett, F.R.P.S., on the 22nd ult., read a paper, "Is Time Development Desirable?" an abstract of which, together with the discussion which followed, we publish next week. On the proposition of Mr. Dodsworth, seconded by Mr. J. M. Sellors, the club formally recorded and tendered its congratulations to Messrs. Mees and Sheppard on their becoming Doctors of Science for original work in photo-chemistry, and all, including the lecturer, informally, and with evident sincerity, expressed their gratification at the distinction gained. Mr. Sellors struck a true note when he said that the high regard they all had for Dr. Mees rose, not so much from the knowledge he possessed, but rather from the unassuming way in which he was ever ready to impart it to others. Dr. Sheppard they had not seen for a long time, but on his return from abroad they hoped this would be remedied.

**HARROW DISTRICT PHOTOGRAPHIC AND SCIENTIFIC SOCIETY.**—The above society has been formed, and the first meeting was held on Saturday last in the Harrow Technical School, when Mr. W. S. Cullen read a paper on "Gaslight Printing." Those in the district desirous of joining should approach the honorary secretary, Mr. Edmund A. Robins, "Newlyn," 86, Station Road, Wealdstone.

**SOUTHAMPTON CAMERA CLUB.**—On the 3rd inst. Mr. C. M. Cooper lectured to a good attendance on "Rochester and its Cathedral."

**DAGUERRE'S First Photograph.**—Mr W. Gardner, M.I.Mech.E., sends to the "Westminster Gazette," of November 29, an interesting note apropos of the statement made the other day that Lord Avebury was the first person photographed in England by Daguerre: "It might (he says) interest your readers to know that my uncle, Andrew Shanks, a well-known engineer in London a generation back, was personally acquainted with M. Daguerre, and visited him in Paris up to the time that he had invented his process for taking photographs. Up to that time M. Daguerre had never attempted to take portraits, but simply architectural subjects and landscapes. My uncle suggested to him that he ought also to apply it to portraiture. M. Daguerre replied that if he would sit down he would make his first experiment upon himself. This challenge my uncle accepted, and he sat for one hour in brilliant sunshine in order to have his portrait taken by the new process. This portrait is still in existence, and in possession of my mother, who had it given to her by my uncle." It is an undoubted fact, adds Mr. Gardner, that this is the first photograph ever taken by Daguerre under his patent process.

At the Optical Society, next Thursday, Dr. C. V. Drysdale is to read a paper on the "Evolution of Artificial Lighting." Visitors are admitted to the meeting, which is held at the society's rooms, 20, Hanover Square, W.

## Correspondence.

\* \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.

\* \* \* We do not undertake responsibility for the opinions expressed by our correspondents.

### SULPHIDE TONING.

To the Editors.

Gentlemen,—In reference to Mr. Carnegie's interesting article on "Sulphide Toning," it might be worth noting that excellent warm tones are obtainable if one "bleaches" with ferricyanide alone, omitting the bromide; the solution can be used as strong as 5 per cent., and the yellowish image makes its appearance in thirty to sixty seconds. With sixty seconds' "bleaching" quite a warm sepia tone is obtained on treatment with the sulphide solution. The bleached image is very much more visible also than when bromide is used with the ferricyanide.

Perhaps Mr. Carnegie could express an opinion as to whether the image bleached with ferricyanide alone consists of sub-bromide or only ferricyanide of silver.—I am, yours faithfully,

T. THORNE BAKER.

Chislewood, London, N.W.

December 1, 1906.

### WASHING POSTCARDS.

To the Editors.

Gentlemen,—In your issue of September 14 last, Mr. G. T. Harris gave an account of a practical washing procedure by which two gross of postcards could easily be washed in three-quarters of an hour single-handed. We have endeavoured to work his method, but find we take a much longer time than three-quarters of an hour, and we should be glad if Mr. Harris or yourself would be good enough to indicate where we have gone wrong.

As we understand the method, each card is separately and carefully drained as it leaves the hypo bath, and the cards are then passed, with careful draining, from one tray to another for about four changes of water, left soaking for ten minutes, squeezed, soaked again, passed through a second four waters, squeezed a second time, passed through a third four waters, squeezed a third time, and placed to dry. There are thus twelve waters, two soakings, and three squeezeings.

It appeared at first sight that in this process it was intended that each card should be drained singly twelve times. But we find that two dozen cards are the most that can be drained singly per minute, so that twelve minutes, at least, are occupied in each draining of the two gross. Allowing fifteen minutes for the two soakings, and ten minutes for the squeezeings, only twenty minutes remain for draining and transferring the cards, and it is evident that the process cannot be completed in three-quarters of an hour, even if each card is separately drained twice only, and the other ten transfers between washing waters are effected en masse. We doubt whether in this case the cards would be sufficiently washed.

I may add that the method I adopt for washing my (gaslight) postcards is to pin each to a cork and float it on a domestic bath, allowing one change of water for every three dozen cards. This method is rather slow, and possibly imperfect, and I should be grateful for any suggestion for improving on it.—I enclose my business card, and am, yours faithfully, A COUNTRY POSTCARD PRINTER.

### THE UNITED STEREOSCOPIC SOCIETY.

To the Editors.

Gentlemen,—I am aware your journal takes great interest in stereoscopy, hence I wonder that it never mentions any of the proceedings of a society called the United Stereoscopic Society. A. J. Snow, hon. secretary, 74, Lloyd's Road, Walthamstow, L. There are about forty members, and the work is exclusively stereoscopic. Every month a set of about thirty slides, supplied by members, circulates amongst them, with criticism sheets. There is also a regular intercourse and improvement in the work done. Eventual exchanges are also made. Further, in November every year, there is a competition amongst the members, which is judged by themselves,



everyone sending to the secretary the name of the slides he selects as best.

I have been one of the members for the last three years, and this November competition set has just been sent in to me for examination, and I re-forwarded it to one of our members in England. This competition set is composed of 128 slides, all in normal size, prints on paper, mounted on boards.

I am the only Continental member, and it is singular that on this side of the Channel it has proved so difficult to establish stereo-clubs. The only one that has been in existence since 1904 is the Stereo Club Français, at Paris, but no circulation of slides nor criticism have been started up to the present. The English stereo society is therefore somewhat a pioneer, and hence the more worthy of notice.—I am, dear Sirs, yours sincerely,

VICTOR SELB.

42, Rue des Drapiers, Bruxelles.

November 30, 1906.

### THE STABILITY OF PYRO-SODA DEVELOPING SOLUTIONS.

To the Editors.

Gentlemen,—Re your leader on "The Pyro-Soda Developer," in the B.J.P., of November 23, I regret I omitted to mention temperature at time of development. Finding that platinotype printing requires a negative as full of gradation as possible, and yet of sufficient contrast to give an artistic result, I experimented with several formulæ with 1, 1½, and 2 grs. of pyro to each ounce of developer, using sufficient developer to ensure each 4-plate receiving two grains of pyro.

So far, I find the most pleasing results follow the 1½ gr. pyro per ounce, with a factor of twelve without potass bromide, or a factor of six if included. Consequently I was much interested in the three formulæ published in your issue of November 2.

The following is the exact order of mixing:—Temperature 62 deg. F. Time of first appearance: Formulæ A and C, 45 secs.; factor 12: 9 mins.; formulæ B, 90 secs.; factor 6: 9 mins. Equal parts I. and II.

A.		
I.—Soda sulphite .....	33	grs.
Potass metabisulphite .....	8	grs.
Water to .....	2	ozs.
Pyraze .....	6	grs.
II.—Soda carb. ....	66	grs.
Water .....	2	ozs.
B.		
I.—Soda sulphite .....	48	grs.
Potass metabisulphite .....	3	grs.
Water to .....	2	ozs.
Pyraze .....	6	grs.
II.—Soda carb. ....	48	grs.
Pot. bromide .....	14	grs.
Water to .....	2	ozs.
C.		
I.—Soda sulphite .....	36	grs.
Potass metabisulphite .....	6	grs.
Water to .....	2	ozs.
Pyraze .....	6	grs.
II.—Soda carb. ....	72	grs.
Water to .....	2	ozs.

—Yours very truly,

Woking. November 25, 1906.

CLAUDE DE NEUVILLE.

[We are much obliged to M. de Neuville for the information contained in his letter. Our conjecture that he made up all three formulæ in the same way is correct, hence it is not surprising that the results were so similar. His experiments seem to prove that the excess of metabisulphite in A will not account for our experiences. We omitted to mention in our note on page 922 that all M. de Neuville's negatives show a greenish stain in the sky portion. This is contrary to our experience with A formula, which in our hands invariably gives absolutely stainless results. This may perhaps be peculiar to the ortho plates used by our correspondent, but it rather suggests a poor quality sulphite, and this again would account for the fact that the action of A in M. de Neuville's hands is decidedly quicker than in ours. Nine minutes at 62 degrees would, we believe (from experience with similar formulæ), be rather too long with B if made up in the manner adopted by Mr. Bennett. We have, how-

ever, not actually tested B, and the idea that the speed of a developer can vary simply with the order in which the ingredients are put together is too revolutionary to be accepted without careful experiment. Up to the present we are only prepared to assert that mode of mixing certainly affects the keeping qualities and cleanliness of the developer, and that on this account the sulphite should not be with the alkali.—Eds. B.J.P.]

### DR. LEHMANN'S WORK ON LIPPMANN COLOUR PHOTOGRAPHY.

To the Editors.

Gentlemen,—You would please me very much by allowing me to say, in reference to Mr. E. J. Wall's article (in your issue of November), "A Treatise on Lippmann-Colour Photography," that the is on page 947 a serious confusion in Mr. Wall's statement in the last but one paragraph of the named article.

Mr. Wall condemns Dr. Lehmann's diagram, reproduced as Fig. on page 946, as not correct, because, when the rays cross, the . . . is no light."

The error is, that Mr. Wall confounds the real crossing of light-rays of a different phase of oscillation—which causes darkness—and the mere symbolical, geometrical crossing of light-waves in the diagram above named. Such a diagram will be treated only accordingly to the laws of geometry: the upper curve is a mere geometrical construction, and shows the result of the lower ones, obtained in any way, known to all students of physics. The darkness in the upper curve at the end of the maxima is not caused by crossing of the rays, but by the circumstance, that there the lower waves both are at the zero-point; the little maxima following in the upper curve on the extreme right of the diagram, are not in contradiction with the crossing, but wholly proved by the—though small—positive sum of the opposed oscillations of the lower curves.—Yours faithfully

C. W. CZAPKA.

### THE CANVASSING TRADE.

To the Editors.

Gentlemen,—I was more than delighted to read in your column the letter signed "W. Doust," giving experience and how he was able to rout these gangs (nothing else) that infest not only England but Scotland, and they seem to thrive and grow fat on the credulity of the British public. It is not my intention, however, to explain or enlarge on their modus operandi, but, rather, to get at the root and give my experience at the fountain head. I may say I am a photographer of twenty years' experience in best studios, but I am another line now. Seeing, however, an advertisement in a Glasgow contemporary for a photographer, all-round man (alive), no duffers salary (mark the word) and half-profits, apply so and so, I went and saw my gentleman in a cosy armchair, with a rare fire and a snug. There were in outer office five men, two boys, and three girls all doing nothing inside the counter, and busy at it. I stated my business and was asked to be seated. I was then questioned as to my ability, which I answered by showing my references, which were evidently good, for he offered me a cigar and we got quite "pally." He then explained the business. Briefly, a studio at present shut, but having a lot of arrears (orders), he wished to complete to save proceedings. What did he mean? I was to do the work, which was considerable. When finished I was to share (not before), as he had to pay the gangs, rent, taxes, etc., etc., and in return, I was to get 10s. per week. I said, "per day?"—but he said, "No, per week!" Would you believe it? And he had a dozen applicants, so he said I was struck dumb, but looked as if I was willing. "There is a lot of money in this business, and I will make you my partner," was the next bait, "as I have a lot of irons in the fire." What was I to do? I sat on, and then it came out. "Outside are some of my canvassers waiting to go on. Would I fix?" Still I hesitated. They get 2s. 6d. per order. You copy photograph I get, 20 x 16, on stretcher for tenpence, then a little India ink to touch up; frame 3s. 3d. glass and back 9d., and there you are—7s. 4d.; add 4d. for negative and 6d. to the artist—in all, 8s. 2d.; and he charges 17s. 6d., and gets lots. I saw a pile three feet thick. A profit of 9s. 4d. is not bad, and yet he gets a lot to do. The office is in a principal street, and he goes under the name of \*\*\*\*\* I rose, gathered my own, and departed declining.

A BRILLIANT OFFER.

## PHOTOGRAPHERS, ASSISTANTS, AND CANVASSERS.

To the Editors.

Gentlemen,—Before again writing respecting the above heading, perhaps a few words of thanks will be appreciated by those photographers who have sent me letters of congratulation. Also, I thank particularly those who have so kindly offered to assist me in any scheme which I wish to bring forward; also to those assistants who have voluntarily sent in their names for the purpose of starting a society to work in conjunction with the P.P.A. to their advantage. The last few months a number of us have been trying to form some scheme whereby the assistants can gather a better knowledge generally from professional standing, and have intercourse with the best talent in the country. I should say, judging by the correspondence I have received, there is certainly a great opening for the same. After careful consideration, we have come to the conclusion that a union of the principles of most unions in the country is unworkable, owing to unfair competition, the bad state of the trade, also the general jealousy which exists amongst the assistants generally, and the variations of the different classes of work in photography. Until things are altered to a sound basis, by becoming efficient in the art, this state of things must always exist. I wish to point out to the assistants who have written to me (both male and female), to please refrain from sending me specimens of their work; also, I am not prepared to prescribe a remedy for their individual complaints. What I am going to do is to start a society for the ultimate benefit of all. So please note after this I am open for suggestions only, as the other makes me up with unnecessary correspondence.

Photography.—Perhaps no business lends itself so easily to fraud as that of photography. After the recent discussions in the JOURNAL of several of the leading local newspapers in the country, I have come to the conclusion that perhaps a little sidelight on the subject will convince the members of the profession generally. Since the articles quoted in the JOURNAL, also my letter of last week's issue, I have had several interesting letters from and chats with members of the profession who have made it their business to call. Also two canvassers called personally, and I assure my readers it was a pleasure to meet such men face to face and thoroughly discuss the principles of the trade. After carefully arguing the points at stake, we certainly came to the conclusion that the present methods of business require revising. Even the canvassers admitted that the methods were not worthy above suspicion. The photographers who employ these men, therefore, to side over a great many complaints against them, also to be very forgiving to them, or else to be continually engaging canvassers, which method is not always to the advantage of the business. Then to be continually forgiving, these men become familiar, and then familiarity breeds contempt, and they ultimately do as they think fit. After having passed through two or three of these establishments myself, I made a strong resolution that should I ever stand in a position which enabled me to say my say and to be heard with any credence, I would strongly advocate the demoralisation of these methods. At the same time I should aim at bringing employer and employee into closer union with each other. The opportunity has now come, and I intend to take the utmost advantage of that opportunity, after years of struggle to maintain the end. What I intend to advocate on behalf of employers and assistants, "both male and female," I place under two headings.

**For Employers.**—In the first instance, when advertising for assistants, etc., he should certainly state whether he is doing "cheap canvassing" work or not. The assistant who is travelling from a distance then would exactly know what he is going to, as in many cases on arriving he finds he has been completely duped, and after a short stay to recover himself, is compelled to return home, to be unemployed perhaps for a considerable while, after missing a good opportunity in order to take up what he thought to be a better one. If he finds himself compelled to stay at this establishment, perhaps owing to not having a home to go back to (and in my career I have known such cases), he is perhaps ruining his prospects of a brilliant and prosperous career. Who is to blame but the employer? If the advertiser would kindly note this when advertising, by placing in advertisement "no canvassing," they will be doing a great kindness to assistants generally.

**For Assistants.**—In many instances they apply for situations which cannot possibly fill owing to being incompetent. On arrival at the establishment that has engaged them, the head of the establishment (either

proprietor or manager), finds they are quite incompetent to undertake the work, but keeps them on solely as an act of generosity until they are landed into another situation, and a sigh of relief is heaved by employer when at last they have departed to fields anew. I am not going to mince matters, but tell you straight, whether I offend or please, that you are more or less to blame for this state of things, through not having a proper organisation. Before anything can be done you must recognise a parent society, and that parent society must in all cases consist of the best talent in the land; therefore, we must look to the P.P.A. for that help, as no other society exists which can undertake such things. We are not going to discuss merits, we having had enough pessimism before; we must be straight to the point, and sharp about it; so I will deal in my next paragraph as to the methods of obtaining the desired end.

All those assistants, both male and female, of all the different branches of photography, who are willing to become members of a Photographic Assistants' Protective Society will kindly send their full names and addresses to me. I shall be very pleased to receive the same. Any suggestions will be warmly welcomed, and will enable one to form some idea as to what the assistants require. To make the society a success it requires a great number to be added to the existing fifty-four who have offered to assist me. No fee is asked, and all costs are being borne by me until some idea is gathered as to whether photographic assistants generally are in one accord with the idea of improving matters generally. When I have gathered in all members, or, at least, intending members, the general numbers, also practical suggestions, will be sent to the JOURNAL. So I hope all assistants will take in the JOURNAL to watch over coming events, and to let me have from time to time practical suggestions that might occur to one. Now, when I have placed all suggestions in order, and got everything in working order, I intend to kindly ask the P.P.A. to meet me to discuss the matter, and I hope they will extend the hand of welcome, however humble one's cause might be. I have no doubt this opportunity will be taken by them, and then, perhaps, a lasting and most beneficial society will be formed, and always in one accord with each other. Rules so far suggested:

1. That a book of names be kept of all the photographic firms in England, Scotland, Wales, and Ireland, the object being for the use of assistants when applying for situations, the said book giving their names and standing.
2. To be amalgamated with the P.P.A. to aid in gaining better facilities for passing examinations.
3. To have a correspondence bureau direct with the P.P.A. on all matters pertaining to assistants.
4. To pay an annual subscription to the P.P.A. to aid in these matters.

Also, that we petition the P.P.A. to supply suitable books for professionals only, at a nominal charge, to aid in the different courses of examinations.

Now, I have had my say, and nobody can say I have not tried to make matters brighter, and if I go under through the assistants being afraid to rally, then I go under knowing I have tried my best.

Will the assistant please note that it is very costly to reply to letters, etc. All I want is intending members and suggestions, so I have decided not to reply unnecessarily, as my time is fully occupied at present with other correspondence.—Believe me, your servant at all times.

W. DOUST.

19, Richmond Terrace, Romsey, Hants.

MESSRS. WINDOW AND GROVE have removed to 58, Westbourne Grove from 63, Baker Street, the premises where their business has been carried on for the past fifty years.

It is announced that the first exhibition at the International Art Gallery, consisting of works by modern British, French, and Dutch artists, will be held at 14, King William Street, Trafalgar Square, from December 12 till January 5.

Those interested in cinematographic and lantern work should write to The Service Company, Ltd., 292 and 293, High Holborn, for a card of invitation to their lantern and cinematographic display, which will be given on Tuesday evening, December 11, from 7 to 8.30 p.m. This company is also giving talking machine and pianola recitals every Monday, Wednesday, and Friday, from 1.30 to 3 o'clock, and will be pleased to welcome all who are interested.



## Answers to Correspondents.

- \* \* \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* \* \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* \* \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & CO., 24, Wellington-street, Strand, London, W.C.
- \* \* \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPHS REGISTERED:—

- J. W. Agar, Gildersome Street, Gildersome, near Leeds. *Photograph Titled: "It's Done at all Ages."*
- R. Thirlwell, 21, Bridge Road, Stockton-on-Tees. *Two Photographs of Mr. Geo. Butterfield.*

**DRY COLLODION PLATES.**—I should be glad if you could inform me if there is a dry collodion plate made for process work, so that instead of using a wet plate one could use a dry plate. If you would kindly reply through your paper.—COLLODION.

So far as we are aware there are no dry collodion plates, made commercially, at the present time. Messrs. Penrose and Co., Farringdon Road, E.C., supply a collodion emulsion with which you could make your own dry plates with little trouble. Possibly Mr. Wm. Brooks, of Reigate, might make you some collodion dry plates to order. You might communicate with him.

**LICENCE FOR STILL.**—Could you tell me if it is necessary to have a licence to redistil alcohol used in photograph—and if so, how much would it cost?—T. A. KEYSER.

The cost of a licence to use a still is 10s. per annum. You can get it by applying to the Excise Department at Somerset House. With the licence you will not be allowed to tamper with methylated spirit with the view to purifying or deodorising it. If you require unmethylated alcohol for photographic purposes, the usual kind as supplied by such houses as Hopkins and Williams, and others, is all that is required. With that there would be no necessity to redistill.

**VALUE OF PAINTING.**—Kindly let me know what the value would be for a picture of the Madonna and Child, by Gustave Doré, size 36 by 28, in a good state.—T. M. K.

Out of our province. Your best course is to send the painting to an expert, e.g., Mr. Augustin Rischgitz, Linden Gardens, Bayswater.

**LENS QUERY.**—I have to make some full-length figure studies and small groups (quarter and half plate negatives), and the farthest I can get camera from figures is about 20 ft (the space distance being really 22 ft. 6 in.). To do this work what is the best kind of lens? Would an Optimus 1/1 plate Rectilinear do; or a Busch No. 3 Aplanat? Kindly advise me.—RURR.

For taking groups at this time of year we should advise you to employ a portrait lens above all others. For the half-plates we should recommend a lens of about 11 in. focus. Such a lens requires about 18 ft. between camera and sitter for a full-length cabinet picture. But the space at your disposal will not permit of such a lens being used for the quarter-plate size. For that you will require one of about 8 in. focus. This lens, however, would do for the larger-sized groups.

**COPYRIGHT.**—Will you kindly answer the following:—I have a 1d. coloured picture some ten years, with no name or number on, and I have succeeded in finding out the last publisher, and I am informed it is out of print, and they are unable to give me any information. Could you favour me by letting me know how I may find out if the design is copyright or not? If copyright, should it not bear name or number? As I wish to

reproduce it for postcards any information will be a great help.—REPRODUCTION.

The copyright in a picture lasts for the life of the artist and for seven years after his death. The only way to find out whether there is any copyright in the picture is to ascertain who is the artist, and whether he is living, and if not, how long he has been dead. It is not at all necessary that a copyright picture should bear the word "Copyright," nor need it bear a number.

**CHARGES FOR PHOTOGRAPHY.**—I would thank you to give me your opinion whether the following charge is a moderate price otherwise for a professional photographer who considers he knows his work and can do it:—Taking two 12 by 10 negatives, two positions, of a flour mill, and supplying a print each of same, 15s.; two negatives (one each of lakehouse and biscuit factory, and supplying print each, 10s.; two half-plate size buildings from two separate negatives, 5s.; total, 30s. Your opinion will oblige.—W. J. B.

Very moderate indeed for first-rate work.

**J. LOCKWOOD.**—Get a book of instructions issued by Jonathan Fallowfield, 146, Charing Cross Road, London, W.C.

**A. D. (Le Llex Frame).**—Shellac is "laque," "gomme laque," "résine laque." Japanner's gold size is a solution of copal and other resins in boiled linseed oil and turpentine. We do not know its French name.

**POSTCARD.**—I. Get a copy of the "Picture Postcard" (The Postcard Publishing Co., Imperial Building—Ludgate Hill, E.C.). Usually half-plate prints.

**F. F.**—Try W. Griggs, 20A, Old Town, Clapham; Wertherman & Co., Enfield; Waterlow and Sons, Ltd., London Wall; Morgan and Kidd, Richmond.

**RETOUCHING AND PLATINOTYPES.**—We have never met personally with the trouble, but have heard of it. We should say that probably some damp was locked in the film, owing to the semi-impermeable coating of the medium, and when the paper was brought into contact was locally absorbed. If the medium was capable of absorbing or in any way condensing moisture the same result would follow, but this does not seem likely. Careful drying the negative would probably obviate the trouble, but we warn you against bringing platinotype paper into contact with a hot negative. We do not see how the medium *per se* would affect the paper, but retouching will sometimes give black spots possibly due to the lead or the tackiness causing dirt to adhere.

**COLOUR PHOTOGRAPHY.**—Will you kindly inform me, with reference to B.J.A., for 1907 (1) page 648, what fixing agent is used for Worel's process? (2) Page 849. What is the angle of the "prism of small angle"?—E. Y. E. N.

(1) Benzine. A special fixing bath is made by Dr. J. H. Smith and Co., of Zurich (British agents, Oliver S. Dawson, 254A, High Holborn, London, W.C.). (2) The angle of the small prism is absolutely dependent on the width of the black line, or, rather its shadow, and must be such that the spectrum just fills the black shadow without overlap. In the B.J. for November 1906, p. 905, M. Cheron advises a prism of 12 degrees.

W. G. W. (Lancaster).—O. Sichel and Co.

\* \* \* **NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

## The British Journal of Photography

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## SUMMARY.

Time development.—An animated evening at the Croydon Camera Club was spent in hearing and discussing a paper on this subject by Mr. H. W. Bennett. (P. 985.)

Photography by electric wire.—The name "electro-photography" is suggested for the description of the processes such as have been before the public for the last few weeks. We give a short account of the latest intelligence as to the discoveries of Professor Korn and M. Belin. (Pp. 982 and 984.)

We refer again to the advantages of calculating in terms of extra-focal distances. For many purposes the use of extra-focal distances simplifies ordinary optical computations. (P. 982.)

Among other patents of the week are those for making invisible photographs which become spontaneously visible, metalline prints, and focussing view-finders. (P. 992.)

The first portion of a paper on timing the speed of shutters by M. J. de Graaf Hunter, of the National Physical Laboratory, appears on page 987.

The Southampton Camera Club has held a very successful exhibition this week at the Philharmonic Hall. The exhibition, which closes to-morrow, Saturday, is reviewed on page 990.

We continue to hear reports of the peripatetic fraudulent canvassers, and of the means effectually taken, with the aid of the local Press, to drive them from their prey. (P. 998.)

A case in the courts last week showed the profit which the makers of cheap enlargements expect to make. (P. 995.)

The tidiness of the studio is a matter which many professional photographers disregard—to the disadvantage of their businesses. (P. 983.)

## EX CATHEDRA.

### The Metric System.

At the ordinary meeting of the Society of Arts last week there was a grand discussion on the question of the metric system, which was introduced by Sir Chas. Watson in a paper entitled "Some Objections to the Compulsory Introduction of the Metric System." The old arguments as to the basis of the metric system being wrong by about one-five-thousandth, etc., were advanced, and, justly we think, shown as of no practical value in depreciation of the system, which gives us the much simpler division or multiplication by ten, than that which adherents of the duodecimal system support. It is perfectly immaterial whether the unit on which a given system be founded is correct or incorrect, as long as one can reproduce at will the accepted unit, and this is certainly the case with the standard metre, which can be at once re-established, were all the standard metres lost, through Michelson's measurements of the wave length of certain sodium and cadmium rays. The argument that English manufacturers would reap a benefit by the adoption of the metric system was met by the lecturer by a series of statistics that went to prove that the number of the inhabitants of Great Britain and dependencies and the U.S.A. who practically use our English system was greater than those who use the metric system; therefore, on the principle of might makes right, the rest of the world should adopt our system. Great Britain's dependencies include the Hottentots of South Africa, the Bantees, pigmies, etc., of Central Africa, and the aborigines of Australia.

### Photo-graphers and the Metric System.

Putting on one side, however, these facts, there is not the slightest doubt as to the great advantages of the adoption by photographers of the metric system of weights and measures, as regards formulæ. It is now almost an impossibility to tell what is meant in a formula, whether avoirdupois or the old apothecaries weight, or can one so readily compare formulæ when written in the English style as when in the metric. Many formulæ are now given, which, when reduced to percentages or parts per thousand, are so much alike as to be in practice the same, yet such is the glorious muddle of our system that a formula of old and tried worth has only to be juggled with by some writer, and it is at once hailed with acclamation and labelled with his name, although varying from what may have become a standard by minute fractions when reduced to percentages. It is hopeless to expect to force this or that system on to any large body of men, and it is only example which can induce them to adopt a system which is infinitely easier than their own, but which has the only demerits of being new.



### An Astronomical Trust.

The idea of a Trust in astronomical work, in the face of the prosecution of the Standard Oil Company in the United States, naturally at first sight gives one an uncomfortable feeling if science is to be cornered too; yet a Trust is actually proposed by Professor Pickering, of Harvard, his idea being not the accumulation of enormous fortunes—the one result of commercial Trusts—but the saving in expense, and greater output by which the colossal fortunes are made; but in this case these would be represented by accumulation of valuable information and detail, which is impossible under the present system. The basis of the proposed astronomical Trust is the foundation of a first-class observatory, equipped with, amongst other things, a 7-ft. aperture reflecting telescope, which should do nothing else but photograph the sky, whilst the plates or copies of them should be handed over to various workers all over the world for further use. Practically, Professor Pickering's idea is the founding of an observatory which should be devoted to the use of expert photographers, who should make negatives and positives, whilst astronomers should measure and discuss them. The hardest problem, Professor Pickering admits, would be to find an active committee with no taint of selfish dress—an article not unknown even amongst astronomers—who would be content to sink all ideas of gain of personal glory for the sake of the glory of science itself.

\* \* \*

### The Front Principal Focus of a Lens.

We have shown how the rules relating to the extra-focal distances enable us to set up the apparatus for copying with the aid of the infinity mark alone. This infinity mark practically stands for, though it may not be in the place of, the back principal focus of the lens, and we dispense with the front principal focus by relying on focussing to secure a proper distance from lens to object. If, however, it is preferred to measure the second extra-focal distance, it is a simple matter to determine the front principal focus. Reverse the lens in its flange so that the hood is towards the focussing screen. Focus on a distant object and measure from focussing screen to lens hood or any convenient part of the lens that will serve as a datum. When the lens is in its normal position the dimension obtained in the test is added to the calculated extra-focal distance, and the total is then set out from the datum point fixed upon. There is no difficulty with the majority of cameras in reversing the lens on its flange, and in the few cases where this cannot be done a very little ingenuity will find an alternative. A temporary cardboard front into which the lens mount is screwed can be utilised in place of the proper front if the reversal of the lens is hindered by the presence of a "behind-lens" shutter. This simple method of finding the front principal focus is due to Mr. Dallmeyer, who utilised it in his method of determining focal length published in this journal on February 24, 1899.

\* \* \*

### The Measurement of Conjugates.

Recent correspondence on the subject of focussing scales has drawn attention to the fact that many workers still consider the nodes of the lens to be the points from which all conjugate distances should be calculated, measured, or set out. In a note on page 898 we pointed out some of the disadvantages attending this system, but as so few seem to be aware that there is any better system some further notes may be of use. As before stated, calculations are much simplified by measuring all distances from the principal foci of the lens, instead of from the nodes, for the rules connecting the extra-focal distances

are much simpler than those relating to nodal distances. First, the product of the two extra-focal distances is always equal to the square of the focal length, and is therefore a constant quantity for any particular lens. This means that the distances always vary in inverse proportion, so that when one distance is doubled or trebled, the other is halved or divided by three. This rule greatly facilitates the construction of focussing scales. Again, the extra-focal distance of the image is always equal to the focal length multiplied by the scale on which the subject is being enlarged or reduced. Thus, if we are enlarging twice (say  $\frac{1}{2}$  plate to 1-1 plate) the extra-focal distance of the image is two focal lengths, while if we are reducing to one-third full size, the distance is one-third of a focal length. If the enlargement or reduction is being made in a camera, in the one case the camera is racked out for two focal lengths beyond the infinity mark, and in the other for a third of a focal length beyond the same mark. The camera can then be bodily moved to and from the object until focus is secured. In daylight enlarging the camera takes the place of a lantern, and its extension represents the distance of the object, not that of the image. Under rule 1 the extra-focal extension will then be inversely proportional to the extra-focal distance of the image. In this case we rack out the camera for half a focal length beyond the infinity mark if we wish to enlarge twice, while we rack out three focal lengths beyond the infinity mark to reduce on a scale of one-third full size. Focus is then secured by adjusting the image screen. These methods of adjustment may easily give more accurate results than those based on nodal distances, for the exact position of the nodes is seldom known, and so the apparatus cannot be set up exactly by measurement alone. A final adjustment to secure focus is nearly always necessary, and generally this final touch upsets the scale of the image.

\* \* \*

### The Infinity Mark.

It is manifest that if the camera has been properly adjusted infinity mark, and we know the focal length, we can readily make any adjustment of the apparatus for copying on any definite scale without worrying over the so-called "law of conjugate foci." This law, though expressed by a fairly easy mathematical formula, is complex compared with the simple relationship of the extra-focal distances, and it cannot be applied correctly unless we know the exact position of the nodes of the lens, which are often nowhere near the assumed position. The infinity mark used must, however, be the true one, and not the so-called infinity mark of the average focussing scale. As we have before explained, the farthest distance shown on a focussing scale is usually the hyperfocal distance for the largest stop. It is often marked "infinity," but it is generally a considerable part of an inch beyond the true infinity mark, which is not on the scale at all. The true mark can be found within an accuracy of 1-500 in. by focussing sharply on any suitable object that is at a distance of more than 500 times the square of the focal length, and it is always advisable to ascertain it, as knowledge of its true position is at times invaluable. One can then, when copying to scale, always set out one conjugate exactly, and find the other by trial, while conversely one can at any time easily measure the extension beyond the infinity mark, and so ascertain the scale on which one is copying.

\* \* \*

### Seeing by Wire.

Following closely upon the announcements of Professor Korn's wonderful improvements in the electric transmission of photographs there comes a report of yet another and even more ambitious attempt to solve the gre-

problem of electrically transmitting images over a distance, the inventor hailing from France. M. Belin, of Nancy, whose portrait we give elsewhere, claims to have perfected a method, after ten years of work, whereby he is able to reproduce the image formed on the focussing screen of a camera at any distance from the transmitting station, and this over a single telegraph or telephone wire. He distinctly states, in some correspondence we have had with him, that he need not develop or print the image at the receiving station, that his apparatus is always ready for work, and that at the receiving end he can produce at will, and by the simple manipulation of a switch, either a positive or a negative record. Moreover, his system will produce photo-etched plates in a shorter time and more economically than has been possible hitherto. The inventor has been kind enough to promise us very shortly a photograph of the apparatus and some specimen results, and pending the receipt of these it would serve no purpose to comment further on the matter, save to say that if M. Belin is able to dispense at the transmitting station of the necessity of having a fixed record in the shape of a transparency such as all other systems of teleelectroscopy require, he has brought us appreciably nearer to the realisation of that hitherto utopian idea of electrically rendering visible at a distance living, animated scenes.

#### The Real Telephotography.

The advances of Professor Korn and M. Belin, which, from the accounts in this and previous issues of the *BRITISH JOURNAL*, are seen to be nearing the practical stage, have made a new word necessary. "Telephotography," or drawing from a distance, would certainly be that word, had not been appropriated for the use of a particular arrangement of lenses. "Photo-telegraphy" only suggests telegraphic communication by light; we want the inverse meaning conveyed into the word, viz.: photography along an electric circuit, and hence we are thrown back on such combinations as "Electro-telephotography," or "Telephoto-telephotography." Can anybody suggest a better name for the subject than the last?

#### THE APPEARANCE OF THE STUDIO, AND ITS EFFECT ON SITTERS.

Last week we referred to the reception-room as being, from a business point of view, the most important part of the establishment and to the effect that first impressions frequently have on prospective customers. Next to the reception-room is, or should be, the studio in which the portraits are taken. It is often the case that the excellent impression of the establishment and of the work produced which is created in the reception-room is considerably discounted when the sitter enters the studio where the portrait is to be taken. The former may be a picture of neatness, with everything in the best of order, while in the latter things are just the reverse. Here the sitter, if of an observant nature—and most persons are so, more or less—may have some misgivings as to whether pictures such as are shown in the reception-room are possible of production in such a place and amid such surroundings. Confidence in this case will at once be shaken and this may have its effect on the expression of the sitter. It is true that people who frequently have their portraits taken have become somewhat accustomed to this kind of thing, but that is not so with those who but seldom patronise photographers. With those, first impressions often go a long way. Even with the more accustomed ones, if they were introduced into a studio where all was unusually "spick and span," they could

not but be favourably impressed, and have additional confidence in the work to be done.

During the past year we have visited many photographic establishments in London, as well as in different parts of the country, and we must say that in the majority of them the studio has been the most slovenly and untidy place on the premises that sitters are likely to see. Our remarks on this point are not confined to what may be termed middle or lower-class businesses, but apply to some that may be classed much beyond those. One of the prominent things that has attracted our attention has been dirty and stained blinds and curtains. We all admit the difficulty there is in keeping the glass roofs of studios waterproof, and also that the water which gets through stains the curtains or blinds beneath, but the sitters, of course, do not realise this, and not unnaturally conclude that the place is neglected, as such a state of things would not be tolerated for a single day in their own homes. The blinds would be sent to the laundry, and why should not the blinds of a studio be dealt with in the same way when they become dirty? Everyone is fully aware that blinds on rollers do not run so well after being washed as they did when new; but now roller blinds, for the roof, are an exception rather than the rule. They have generally been superseded by short curtains running horizontally on wires or rods, and hang loose and baggy; therefore they will hang just as well after being washed as they did when first new. There is no reason why there should not be a duplicate set, so that a change could be made as soon as those in use became stained. The cost would not be great, as the material now generally used is very inexpensive. In this way, unsightly blinds could easily be avoided, and a more cleanly appearance given to the studio generally.

Another thing that has forcibly struck us in most studios is the general slovenly and untidy state of the place, conveying rather the idea of a lumber room than a studio in which artistic pictures are produced. Often it is loaded up with out-of-date backgrounds, which are damaged and out of use, as well as dilapidated accessories that cannot be moved without some portion falling off. These, even when new, are not, by reason of their sombre colours, very elegant things, but they are far less so when they are in a dilapidated or dirty condition. More than once we have been told that they helped to fill up and make the place look better furnished. We took a different view of the subject, and not a favourable one—an empty space is preferable to one blocked up with shabby-looking or dirty rubbish, for rubbish it is if the things are never used.

Faded, worn, and sometimes dirty carpets and rugs are frequently a great eyesore. It is quite true that the things may, and do, look all right in the finished pictures; but when sitters are invited to pose on them they cannot but fail to notice their state, which is very different from what they would endure in their own houses. Grass mats we have seen in use that were in a most deplorable condition, the greater part of the grass having disappeared long ago. All this sort of thing in a studio tends to misgivings as to the quality of the work.

There is another thing we have frequently noticed that seems to be much neglected by many photographers, namely, the appearance of the apparatus. Frequently the camera stands are devoid of polish, and the cameras in a similar condition, while the lenses, through long use, are conspicuous by an absence of lacquer, and very likely the hoods are more or less out of shape. Now apparatus in this state may, indeed does, produce as good results as it did when first new, but sitters may not have the same confidence in it as if it had a newer and



brighter appearance. A coat of French polish on the camera and stands, and the relacquering of the lenses, would make the apparatus look equal to new, and its appearance would not pass unnoticed by sitters. The unsightly matters we have called attention to are, probably, not so palpable to the photographer who is daily

working in the studio as they are to customers, particularly on the first visit. With them, the impression created by the well-appointed reception-room, and the excellent work exhibited therein, may be largely dissipated when they enter a studio of the character so frequently met with.

## TELECTRO - PHOTOGRAPHY.

In our issues for July 7 and 14 last year, a full description, with illustrations, was given of Professor Korn's process of sending photographs by wire. He has, however, since then made some important advances in his apparatus, which have resulted in considerable improvements in the results attained, as will be seen by the illustrations herewith.

tion of the galvanometer does not take place exactly with the same speed as the changes in illumination, and a quick change of illumination is felt in the galvanometer before the recovery of the receiving cell, so that details are recorded which would not otherwise be seen.

The practical application of this is that the troublesome



H.I.M. Kaiser Wilhelm.

Professor Korn.

H.H. The Crown Prince of Germany.

REPRODUCTIONS OF TELEGRAPHED PHOTOGRAPHS SENT BY PROFESSOR A. M. KORN FROM MUNICH TO NURNBERG.

The advance is, we believe, due to the fact that by a simple arrangement Professor Korn has been able to overcome the sluggish inertia of the selenium cells, for in a paper read before the Académie des Sciences (Comptes Rendus, December 3, 1907) he describes his method of effecting. In effect it is as follows:—Two selenium cells are placed in series in the circuit between two batteries of accumulators, and between the cells and batteries is placed a bridge carrying a galvanometer, such as is used in photo-telegraphy, and arranged in such a way that the receiving cell is illuminated by a source of light which follows the deviations of the galvanometer. One suggestion to effect this is to place a lens between the galvanometer and the receiving cell, and using also a shutter graduated in such a manner that the intensity of the light falling on the receiving cell shall not be proportional to the deviations of the galvanometer, but to a certain function of the same, and which is found by experiment.

This compensator has a second advantage in that the devia-

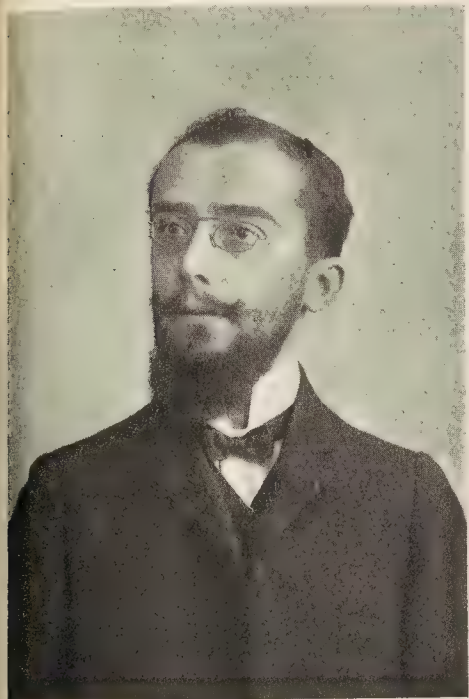
property of selenium of showing an after effect or inertia when illuminated is overcome by inserting another selenium cell as a compensator in the receiving apparatus. This does not do away with the lag in the transmitter, but as it is of the opposite direction, the two inertias are compensated or balanced.

A further improvement has been made in the galvanometer. The old sluggish needle has been replaced by a more agile swinging galvanometer, and thus the time of transmission shortened and the pictures are sharper.

The great improvement in the results will be at once seen by comparison of the reproductions of Professor Korn herewith with that published on p. 525 of the B.J., July 7, 1906.

Excellent as are the results now obtained by the above method and fruitful as they are of promise, not only as regards the mere fact of the possibility of thus transmitting pictures by wire but also in the possibility of adaptation to illustrated journalism they are surpassed by the announcement that M. Ed. Belin, of Nancy, has transmitted images by wire. We have italicised

the phrase "images by wire," because this differentiates M. Belin's achievement from Professor Korn's. The latter transmits a photographic image and receives it on to a sensitive surface, which is subsequently developed. M. Belin, on the other hand, transmits an image formed in a camera and repro-



M. Edouard Belin, Nancy.

duces the same without the interposition of a sensitive plate or sensitive paper. The inventor wisely withholds full details of all the necessary arrangements have been made, and then promises to give us further information, with illustrations. M. Belin says:—"Actually, as has been announced in the

papers, my final apparatus has been made, and as soon as the adjustments are finished—that is to say, very soon, perhaps in a few days, the first trials will be made in France, on a line four times longer than that hitherto used.

"My first experiments were made with an apparatus called 'Simplex'—that was two years ago. It was the outcome of the conclusive results then obtained that induced me to undertake the construction of the definite apparatus.

"The problem which I set myself is more difficult than that which has been solved by Professor Korn: it was to reproduce direct the image obtained in the camera—to photograph—in fact, by electrical means without plate or photographic paper.

"After having tried for ten years to overcome all the obstacles that I had to surmount, I have now attained my end, and I am on the point of making it public.

"As finished, this apparatus is very simple, and always ready to act, and the image of the actual object which the lens at the point of departure sees, is registered at the receiving end, on any simple sheet of paper, either as a positive or negative, at will, by the simple command of a converter of the current.

"My studies have resulted, in fact, not in a unique apparatus, but on a collection of processes, which recall and comprise almost all the applications of photography, and of which I cite the three principal ones.

1. "The act of reproducing the image of the camera by purely physical means, without any sensitive preparation, and without a dark-room.

2. "That of making photo-etched plates with a very short delay, and under conditions considerably more economical than at present.

3. "That of reproducing at a distance the image seen by the lens, and that by the simple interposition of a telephone or telegraph wire, whatever may be the distance."

Speculation as to the methods adopted can only be wild and useless, but great as has been the advance made by Professor Korn, there is no doubt that M. Belin's is equally as great, if not greater. The two will make us independent to a great extent of time and distance, for by their aid we shall be able to transmit pictures and scenes by the ordinary telegraph wire, though, possibly, at first only by overhead wires, for obviously to effect this through underground or submarine cables will require a somewhat longer time, in consequence of the high capacity of the latter.

## IS TIME DEVELOPMENT DESIRABLE?

(Abstract of Lecture by Mr. H. W. Bennett, F.R.P.S., and discussion at the Croydon Camera Club).

ENTERING into the arena at the Croydon Camera Club, on the 14th of last month, the first words of the champion of the personal development in development were that he came to be crushed, and, metaphorically speaking, wiped out of existence. Indeed, he humorously added, he felt like Daniel in the lions' den. Without resting any doubt on Mr. Bennett's belief in his own dismal forebodings, which a cheerfully provocative countenance rather belied, it must be recorded that he was neither crushed nor eaten. As to the last contingency, there was really not enough to go around, amongst the many present. The lecturer led off with a direct challenge: Either, he said, the advocates of control in development were thorough-going idiots, or the reverse—a delightful inference, logically arising, as to the alternative mental powers of his opponents.

### "Time" Methods.

Time development methods, according to Mr. Bennett, are based on two assumptions—

(a) That all subjects will yield uniform negatives with uniform development.

(b) That no alteration in the composition of the developer will produce any other result than that given by the unmodified developer.

Those responsible for the introduction of time development were certainly not expert practical photographers, and consequently not conversant with the actual practice and methods of those who had to photograph under varying conditions, or acquainted with the very varied subjects and conditions of working that occur in the everyday practice of many photographers, out of which the best possible results must be obtained. The criticisms of methods he advocated were frequently little less than abuse; but such methods rested, or were based on results, and if these results differed from prevalent theories, so much the worse for the latter. It was not fair to condemn, without any knowledge of the many little points of practice not arising in experimental work.

### The Question of Contrast.

Turning to the question of contrasts, these, in some subjects, the lecturer went on to say, were very great. In many cases the differ-



ence of luminosity of the high lights and shadowed details were several hundred to one. Messrs. Hurter and Driffield assured from an inconclusive experiment that a photographer never had to deal with greater contrasts than 30 to 1. They restricted their experiments accordingly. Moreover, their first paper was contradicted in some important respects by their second. Since a photographer cannot give greater contrast in his prints than that represented by the white of the paper and the deepest black, or other colour of the printing process in use, he must necessarily compress the scale very considerably when dealing with subjects of excessive contrast, and extend, or lengthen, the scale, when called upon to photograph subjects of very short range. In addition, as the contrasts in a subject varied very considerably, according to the brilliancy of the light in which it was taken, the worker is again confronted with the problem of varying his results, as opposed to a simple mechanical rendering. In the majority of cases, the photographer has to represent his subjects by the maximum contrast that his printing process will give, irrespective of the actual contrasts in the subject itself. Hence the necessity of modifying development. Actual contrasts in ordinary work might be so great that with normal procedure the high lights might reverse and yet the shadows be lacking in detail, and how often did one fail to secure any clouds present and the landscape in one plate. Judging from the examples published in Mr. Watkins' manual, all the subjects there put forward showed very little contrast, and here the lecturer pointed out that Mr. Watkins' method of obtaining a factor from the first appearance of the high lights might, under certain conditions, lead the worker into grave error.

#### Modifications in Development.

Modifications in development to suit different subjects may be either of two forms, or a combination of both.

(a) Variation in time, or degree of development, the solution itself remaining unchanged.

(b) Variation in the composition of the solution.

Considerable modification in results, the lecturer said, may be secured by either method, though greater control was afforded by the latter rather than by the former. The possible modifications in the composition of the developer were: (a) Increase of bromide, giving weak shadow detail, and greater contrast throughout the print; and (b) increase of the alkali, giving stronger shadow detail and less contrast; (c) dilution of the developer, with or without increase of alkali, resulting in relatively stronger shadow detail, or the maximum strength of shadow detail, with a very soft scale of gradation. In this connection, the lecturer added in parenthesis, Messrs. Hurter and Driffield had laid a curse on alkaline developers, which they had subsequently removed in part. Personally he was a strong advocate of that alkaline developer known as pyro-ammonia; no other was so flexible in his hands. This closed the case for the "modern Daniel," the foregoing comprising the salient points brought forward, avowedly to found a discussion upon. The paper was illustrated by various curves of readings arising from modifications of the developer, but as Dr. Mees pointed out, the points in the curves were not given, and no checking was possible.

#### Discussion.

Mr. E. A. Salt, who opened the discussion, said he would only deal with one or two points which Mr. Bennett had raised, otherwise he might find himself in the novel position of openly agreeing with the chief lion of the den, Dr. Mees. The main point to consider—irrespective of the abstract merits and demerits of the two systems of development—was, which system was best adopted for the beginner, the occasional worker, and the expert. A negative had to be developed for the printing process in view. Personally, when dealing with a large batch of negatives, after the first two or three had been developed, he believed he could gauge matters more exactly than any time, or factorial, system could achieve. It would be different if he had to develop a few isolated negatives at intervals. Mr. Watkins' system was approximately correct, regardless of subject, if a diminished factor were taken from the first appearance of the half-tones. In every-day subjects it was obviously more convenient to note the appearance of the high lights, and probably sufficiently accurate. With time development, over-exposure—in the absence of partial reversal—produced a dense negative, slow to print; a much thinner negative of the same printing value could be

obtained by the initial addition of bromide. He was rather surprised to hear a weak, restrained developer recommended for subjects containing violent contrasts. Surely this would mean securing most of the halation probably present. In such a case he should prefer to apply a powerful non-bromided developer, such as metol or rodinal, as warm as the plate would stand without fogging, so development at an early stage, and intensify if necessary. There was nothing new in this; indeed, he doubted whether much could be said on a subject which brought to mind the now distant battle of the toning baths.

#### The Case "Against."

Dr. C. E. Kenneth Mees, alluding to the lecturer's observation that advocates of "time" and "factorial" development were not practical photographers, pointed out that it was frequently better to regard matters from an outside standpoint. Messrs. Hurter and Driffield's work lost no value because they were, so to speak, "outsiders." It was strongly believed time development would do all that was necessary. It fell to his lot to develop a large number of negatives each day. If only visual inspection was required he developed by inspection and then generally dropped the negatives in the waste-paper basket. On the other hand, if the negatives were wanted to be kept developed by time. He quite agreed with Messrs. Hurter and Driffield that alkaline developers were unreliable, and unsuitable for purely scientific work, owing to the impossibility of following the reaction in alkaline developers, and the great difficulty of reproducing the same developer a second time. With the ferrous-oxalate developer the same result could be obtained over and over again with certainty. It was capable of easy analysis, which was not the case with alkaline developers. With the latter there were unknown double reactions. The chemical action of the former had been thoroughly worked out, and Messrs. Hurter and Driffield were quite right in developing it for scientific work. A practical objection to its use was that it reduced "speed" by about one-half. It was quite true that Messrs. Hurter and Driffield had first placed "a curse" on alkaline developers, and afterwards adopted pyro-soda for "speed" determinations, but they never abandoned ferrous-oxalate for scientific purposes. In reference to the apparent discrepancy alleged by the lecturer in Messrs. Hurter and Driffield's work, fairness it must be remembered that their first paper was based on work done with very inaccurate instruments. Eight years further investigations naturally modified earlier conclusions. He (the speaker) and Dr. Sheppard, when they started their investigations with accurate apparatus, formed a preconceived opinion that Messrs. Hurter and Driffield were wrong in many of their deductions, but were forced by facts to agree with them in almost every particular. Mr. Bennett had laid stress on the fact that Messrs. Hurter and Driffield's measurements only applied to given limited light intensities. He (Dr. Mees) doubted whether this was so. Anyway his confirmatory experiments and conclusions embraced a ratio of contrasts of 1 to 4,000, which he hoped would be considered sufficient. In reference to variations of strength in the developer, increase of additions of alkali, etc., Dr. Mees pointed out that the characteristic shape of an exposure curve was very difficult to modify. Only the top, or over-exposed, portion could it be so modified, and the effect this extraordinary additions to the developer were necessary. With many of the lecturer's curves and arguments he was in accord—they were, indeed, obvious from Messrs. Hurter and Driffield's work. They had, for instance, shown the effect of the addition of bromide, and the increase of alkali in the developer. Mr. Bennett had stated elsewhere, no doubt with truth, that the "gum" work did not control the process, but the process controlled the "gum" worker. Similarly, he believed that when Mr. Bennett thought he was controlling pyro-ammonia, this rapidly altering developer was controlling a very fine architectural photographer. If Mr. Bennett would give him, or anyone else, definite instructions for a definite use of pyro-ammonia, it would be most useful. It would also be a large undertaking. The real crux of "time v. tentative" development was, whether the practical worker could not get better average results by developing for a definite time with a standard developer at a definite temperature (variations of temperature being allowed for), or by Mr. Watkins' system of factorial development, rather than by the old-fashioned method of tinkering with the developer and judging density by visual examination. In all ordinary work he used a Watkins exposure meter, and adopted the first course mentioned.

ned, with perfectly satisfactory results. The range of contrast in an ordinary landscape subject did not, as a rule, exceed 1 to 30, and an ortho plate and screen should easily secure a correct representation of clouds and landscape on the plate. In some interiors there were, of course, an enormous range of contrasts, and special methods applicable to these did not necessarily apply to the general results of photographic work. As to dilution of the developer, dilution gave no advantage, provided that the normal developer contained no bromide. Dilution of a non-bromided developer had no effect on the inertia point. If bromide is present, dilution did make difference.

### Varied Views.

Mr. J. M. Sellors thought that scientists were apt to look upon negative as the result not purely as a means to an end, like an ordinary mortal regarded it. He had given time development a fair trial, and did not consider it a satisfactory system. Whether he was imbued with imagination or not, yet he believed he could control results with the personal factor. Take the case of a subject with extreme contrasts, and there were many; here dilution of the developer, in his opinion, helped considerably towards a harmonious negative. He differed from Dr. Mees that with an ortho plate and adjusted filter, any clouds present could be invariably recorded on the plate—in some cases they were, in others this was not the case. Mr. F. W. Heeks said he had been converted to time development; it gave him what he wanted. The question of large contrasts had been raised. Much of his work consisted of marine subjects, and the dark sails of some fishing boats, against a luminous sky, might be considered in this category; yet in practice, with a fairly full exposure, he had found no difficulty in obtaining good, soft-printing negatives. The Vice-chairman, Mr. F. J. Terry, said he had not adopted time development for choice, but of necessity. He habitually used a panchromatic plate with adjusted filter, and quite agreed with Dr. Mees as to the retention of clouds. If present, he had never failed to secure them. Mr. R. Compton, referring to an observation of Mr. Bennett's, pointed out that although Mr. Watkins stated his system afforded the same relative contrasts, yet he also been careful to add this was not necessarily wanted, and might be varied according to requirements.

### The Reply.

Mr. Bennett, in reply, stated Mr. Watkins had said many things, but invariably strictly in accordance with each other. He cordially agreed with Mr. Sellors that the negative must be made to fit the printing process, and therefore to be considered only as a means to an end. From a "trade" point of view it was imperative not to use a single exposure if it could be helped, and, having this in view,

no time system could be trusted. He did not base the conclusions he had arrived at on conjecture; he had tried time systems, and they had failed him. If he could have got the same results by a simpler procedure than he had been compelled to adopt he would have welcomed it gladly. With accurate exposures upon fairly uniform subjects, no doubt the time system was satisfactory—like conditions, like results. Apart from these conditions, other means must be adopted to secure uniformity. He did not propose imitating Dr. Mees' method of dealing with negatives visually judged by relegating them to the waste-paper basket. In dealing with a flat subject a strong negative must be obtained, or *vice versa*. He pitied a poor, unfortunate operator who gravely told his employer that a flat and unprintable negative was a correct and scientific Hurter and Driffield translation in monochrome of the original scene. The operator might find things "flat" subsequently in another sense. Of course, he believed strongly in correct exposure, not in modifying methods to counteract avoidable errors in a contrary direction. He also agreed with Mr. Sellors' remark that it was not always possible to secure clouds and landscape on an ortho plate with filter in use. He used to employ orthochromatic plates exclusively, but had returned to "ordinary" brands, owing to certain advantages they possessed. Dr. Mees had said that some of his results and conclusions were obvious from Messrs. Hurter and Driffield's work. If this was so, why, then, did "time" advocates object so strongly to the principles he enunciated? Most of them were in direct opposition. (Dr. Mees here pointed out that their earlier papers were very little known. The lecturer dissented.) No doubt time development for beginners was very useful, but the advanced worker should discard such fetters. As to ferrous-oxalate, this might be a useful developer from a scientific point of view, but did not appeal to the ordinary photographer. It was true that with pyro-ammonia one never knew its exact constitution at any given moment, but what of that? It certainly did not oxidise so rapidly as pyro-soda. In some cases he had known development to proceed regularly with the former, without any further additions of the accelerator. In his (Mr. Bennett's) opinion, when Mr. Watkins recommended variable factors, he, in effect, admitted all he was advocating. Dr. Mees had himself admitted that exceptional measures might be taken for exceptional cases. So much being granted, he felt justified in assuming that the same principles, *mutatis mutandis*, applied throughout. He did not agree with Dr. Mees' dictum that a scientific investigator could have a broad grasp of any subject, unless he equally had a grasp of all details necessary for its application in practice. He extremely regretted that the lateness of the hour, and the desirability of his catching the last train home, compelled him to leave some of the points raised unanswered. At the instance of Dr. Mees a cordial vote of thanks to the lecturer was adopted.

## A NEW METHOD OF MEASURING THE TIMES AND EFFICIENCIES OF PHOTOGRAPHIC SHUTTERS.

A Paper read before the Optical Society, and to whose official organ, the "Optician," we are indebted for the illustrations.

THE work on which the following paper depends was undertaken at the National Physical Laboratory, to provide a test for photographic shutters. The resulting apparatus has been used to measure the times of exposure given by several different types of shutters, and these actual times have ranged from one four-hundredth of a second to two seconds.

There seems to be no reason why much shorter times than one-fourth of a second should not be measured by the same means; but the shutters under observation in no case gave a more rapid exposure with the lens of the apparatus. When the time is longer than two seconds, or even one second, one can actually time the shutter with a stop watch, with quite sufficient accuracy.

The optical principles on which the method depend are first briefly explained. An electric lamp with a long straight filament is set up in a vertical position. By means of a lens, an image of the filament is formed. A shutter is put over the aperture of the lens, and if this shutter is set and released, the image of the filament

is formed, and exists for just the time during which the shutter is opened. We thus have to determine the time for which the image exists.

For this purpose a disc is mounted on a shaft, so as to be free to rotate. It is put in such a position that the image of the filament is formed on it. A radial slot is cut in this disc. The light from the point of the image which is formed at the slot passes through the slot, and is visible from behind the disc.

Now let the disc be turned through an angle. If the image is still existing, the portion opposite the new position of the slot is now visible from behind the disc. In fact, as the disc is turned, different portions of the image become visible. Now, suppose that by means of the shutter the image is only formed for a short period, and let the disc be rotated uniformly, assuming for a moment that it is crossed by the image, when the image is formed. Until the image is formed nothing is visible from behind the disc. As soon as the image is formed the portion opposite to the slot at once becomes



visible from behind the disc, and the other portions of the image are exposed in turn until the shutter closes, and the image ceases to exist.

It will be easily seen that the different portions of the image are exposed, if the time for which the image is formed is lengthened or shortened. In fact, while the image exists, it is exposed at a definite rate by the slot in the rotating disc. That is the same thing as saying that a particular length of image is exposed when the image exists for a given time. From a measurement of the length of image we can infer the length of time for which the image exists. In this way we reduce the timing of the shutter to the measuring of the length of a strip of light.

In practice, a disc having a number of slots is used; this being necessary to ensure that the image should be exposed, as above described, whatever the position of the disc at the moment at which the image is formed.

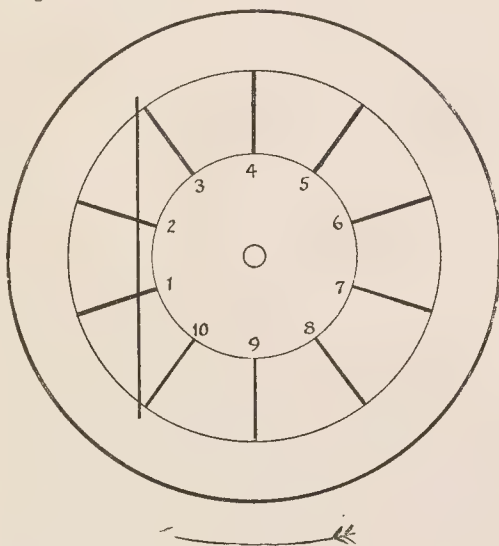


Fig. 1.

The essential features of the apparatus employed in carrying out the optical method just described, are:—

- (1) A lens of large aperture (say two inches) and short focal length (say five or six inches).
- (2) A source of light in the form of a long strip.
- (3) An opaque, circular disc, in which some radial slots are cut, mounted on a shaft, which can be rotated at any speed within certain wide limits.
- (4) A mechanical device for releasing the shutter under test at a definite phase of the position of the disc.

In the apparatus made at the National Physical Laboratory, an electric light—a "linolite"—with a long, straight filament is used as the source of light. An image of this is formed by the lens, which is put in a position so as to give unit, or somewhat greater, magnification. The circular disc is placed in the image plane, and only those portions of the image which cross one or other of the slots in the disc can be seen by an eye placed behind the disc.

There are ten equidistant radial slots in the disc, and the image must be long enough to always extend across at least two of these; that is, it must subtend at the centre of the disc an angle equal to twice the angle between two consecutive slots. When the disc is made to rotate different parts of the image become visible; in fact, if the disc turn with constant angular speed, a definite amount of image becomes visible in a given time. The slots all extend between circles of  $2\frac{1}{2}$ " and  $4\frac{1}{2}$ " radius, respectively.

Fig. 1 shows the position of the image relatively to the ten slots 1–10. When viewed from behind the disc, the amount of image shown, while the disc turns until the slots have the positions indicated

by the dotted lines, is shown in Fig. 2. To see this, it is but to put up a piece of ground glass, close behind the disc, on which the image may be formed. If we can observe the angle subtended at the centre of the disc by the amount of image exposed by any slot, and if we know the mean speed of the disc, we can infer the length of time taken by the disc in turning through this angle.

Now, suppose we rotate the disc at a known speed, and for a short time allow the light from the source to pass through the lens, we can find this time by measuring the angular length of image. Let  $\theta$  be this angle,  $n$  the number of revolutions of the disc in one second,  $t$  the time in seconds for which the image is formed, we have the relation—

$$\frac{\theta}{360} = nt \text{ or } t = \frac{\theta}{360n}$$

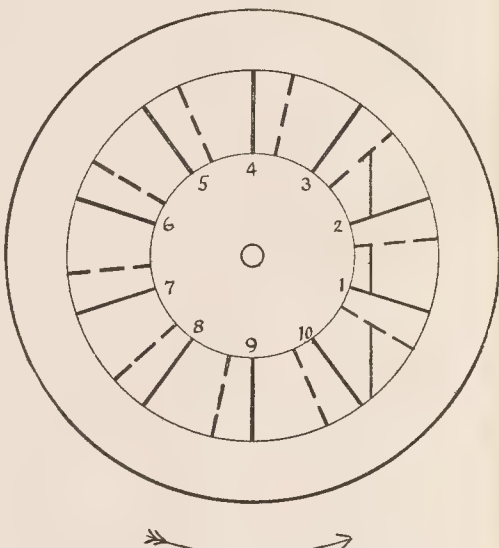


Fig. 2.

Now put up the shutter to be tested close in front of the lens. So long as the shutter uncovers any part of the lens, the complete image is formed; the lens having, if necessary, a stop placed in front of it to ensure this being the case. Thus, the time for which the image exists is the complete time of exposure given by the shutter over the lens aperture. This time is the " $t$ " of the formula written above, and so can be determined by measurements of  $\theta$  and  $n$ .

To measure the angle  $\theta$ , the positions of the two ends of the portion of image exposed by one slot of the disc must be observed, and we must avoid certain of the portions of the image. Thus, in Fig. 2 we may measure the portions exposed by slots 1 or 2; but that exposed by slot 10 is, obviously, not complete, as for the first part of the motion of slot 10 no exposure occurs. So it is a safe rule to always measure an inner portion of the image.

The image only exists for a short time—the time  $t$ —and it is, of course, impossible during this time to make observations of both ends. The time for which any part of the image is visible is simply the time for which persistence of impression on the retina continues. This is probably about one twenty-fifth of a second. All that can be ascertained in this time is whether an end of a portion of image lies on the cross-wire or not. So it is clear that more than one observation is required.

If, by hand, we set and release the shutter more than once, the appearance of the image is in each case different. Fig. 3 shows three such different appearances. The positions we wish to measure vary on each setting and release of the shutter, though the whole angle subtended at the centre of the disc by each inner portion

is every time the same, provided the shutter has a constant performance.

The several appearances shown in Fig. 3 differ from each other, because the shutter in each case was released at random, as far as the angular position or phase of the disc was concerned. If the shutter is always released when the disc reaches a definite position, or is in a definite phase, the appearance of the image on the ground glass will, in each case, be the same. It is arranged for mechanically, in a manner to be described, that this shall always be the case. By this means the observer can have as many repetitions of the portion of image he wishes to measure as are necessary. All is now quite straightforward.

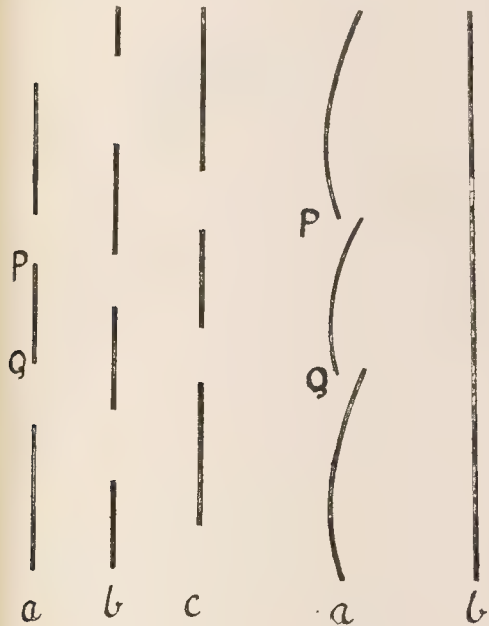


Fig. 3.

Fig. 4.

A piece of ground glass with a cross-wire, or line marked on it, is moved up and down in front of the image. It is adjusted after a few releases of the shutter to one end, P, of the image, P. (Fig. 3a), to be observed, and a reading on a suitably graduated scale is taken. The same is then done for the end Q, and the difference of the readings for P and Q gives the angular length of P Q; that is  $\theta$ . The speed of the shaft remains to be measured, and then  $t$  is known. The actual details for the measuring of  $\theta$  are shown in Fig. 7, and described later. The whole process may be gone through very rapidly after a little practice.

When the exposure given by the shutter is anything shorter than one-twenty-fifth of a second, all the portion of the image exposed by one slot on account of its persistence on the retina appears visible at the same time. This fact may be made use of to avoid measuring  $\theta$ , and affords an alternative method of finding the shorter times of a shutter. The speed of the disc is increased until the image is just complete—i.e., the portion exposed by one slot of the disc just joins up to the portion exposed by the adjacent slot. In this way the angle  $\theta$  is known to be the angle between two consecutive slots in the disc. All that remains to be determined is the speed at which the disc is turning. However, there is some difficulty in adjusting the speed to just the right amount; and, of course, a number of releases of the shutter are wanted, with an increase of speed of the disc between each. Further, one has to be very careful not to increase the speed too much.

Fig. 4b shows the correct appearance of the image; but it is clear that the appearance is substantially the same if we speed up the disc further than the desired amount. One can make certain of

not doing this by leaving a slight gap between the successive portions of image; when one is sure that the speed is not quite high enough. Or, it is possible, by continually moving the source of light, to make the image appear, as in Fig. 4a, instead of Fig. 4b. One can then be sure that the correct speed of rotation has been found. The shape of the curves in Fig. 4a depends on the kind of motion given to the source. If this is moved with simple harmonic motion, these curves are portions of sine curves plotted against a tangent scale of abscissas.

At best it is rather difficult to see certainly when the image becomes complete, or nearly so, since the break may come at any position, and the continued straining to see if the breaks are just present or have just disappeared is very tiring to the eyes. For a few observations the method is sometimes useful, for times shorter than one-twenty-fifth of a second.

The appliance, with mechanical release of shutter, has been found much superior in this and other respects. It has been used successfully for finding various times of exposure ranging from two seconds to one-four-hundredth of a second; the times being those given by one or other of several different types of shutters, including a focal plane shutter. It will be seen that the method does not depend on the period of persistence on the retina, and so is applicable to times shorter than one-twenty-fifth of a second.

As far as I have been able to ascertain, all shutters may be released by a small motion of some accessible part. In many cases there is a trigger, while in others a ratchet has to be released. In the mechanical device, above alluded to, for releasing the shutter at a definite phase of the revolving disc, a cam K (see Fig. 5) is mounted on the same shaft which carries the disc, but at the end

Fig. 5.

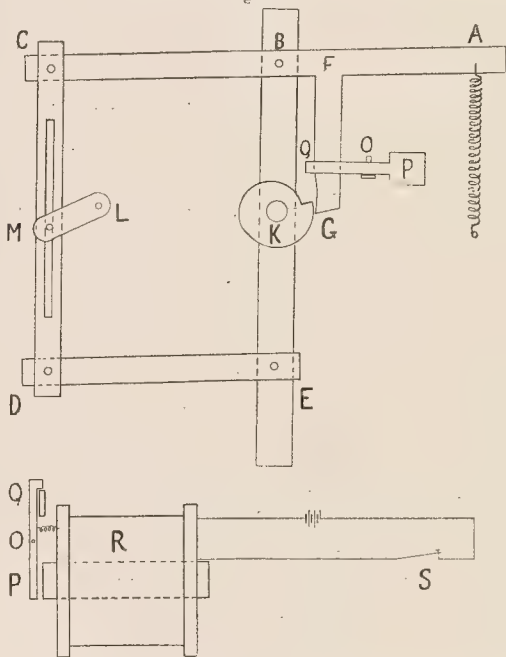


Fig. 6.

of the shaft remote from the disc. A system of bars, A B C D E B, is freely jointed at the corners B, C, D, E. Near B a bar F G is rigidly fixed to the bar A B C in a direction perpendicular to A B, and this bar F G works against the cam K. The bar B E is fixed to the bed plate of the whole apparatus. One end of a strong spring is attached to the bar A B at A, and this keeps F G in contact with the cam K.

J. DE GRAAF HUNTER.

(To be continued.)



## PATENT-LAW ABUSES.

IN view of prospective legislation on the subject, the paper read before the Society of Arts on "Patent Law Reform" by Mr. J. W. Gordon, of the Middle Temple, was of special interest, and attracted a numerous audience.

The first International Exhibition of 1851 had a marked effect in promoting the reform of the Patent Law. Advantage was then taken of the presence of numbers of Colonists to elaborate a system of Patent Law applicable, not to the United Kingdom only, but to the British Empire as a whole. To put the machinery in thorough working order Parliament passed the Patent Act of 1852, which furnished the high-water mark of English legislation on the subject. It was by no means final, and an opportunity for a grand development upon its lines occurred in 1883, when the next measure of reform was taken in hand; but that opportunity was missed, and the form of statute adopted by most of our self-governing Colonies and larger dependencies then put an end, for a time, at least, to all developments in the direction of drawing the Colonies to the Mother-country. The place of the destroyed system was now being taken, but very inadequately filled, in the International Convention.

The Act of 1902 had crowned and completed the work of 1883. There were two perfectly distinct reasons for which applicants sought patent grants. One applicant desired to practise his invention and create by it a profitable trade; another desired not to practise trade, but to control it. The second asked for an injunction to restrain the manufacture of which he complained. The effect of this was to be found in the well-known case of the Blackley Red Dye, in which the patentee of a brown dye stuff, which proved of no commercial value, successfully restrained the manufacture of a prosperous red dye, because it was conceivable that incidentally and momentarily in the manufacturing operation the red dye stuff passed through a brown phase. The commercial result was disastrous, for a large dependent dyeing industry passed bodily from Lancashire to Holland.

All the schemes which predaceous patentees had elaborated for obtaining control of trade turned upon the injunction, and the growth in recent years of granting injunctions without regard to incidental consequences had dethroned reason in our courts of law. The mischief had now gone so far that a remedy must be sought at the hands of the Legislature.

In the course of a conversation with a representative of "The Tribune" on the subject of his paper, Mr. J. W. Gordon said that any arrangement with the Colonies in the matter of patent-law reform would naturally be reciprocal, but the rights could only be inchoate, for a patent that might be perfectly good in one part of the Empire might touch an industry that was perfectly well known in another. With a proper reservation of these rights there was no reason why the old system worked out in 1852 should not be re-imposed.

The Germans imported from us the coal-tar products from which the aniline dyes were made, and were able to send us back the completed articles because, through the possession of controlling or blocking patents, they commanded the British markets. Injunctions at present governed the operation of the law, but an injunction was a thing that ought to be granted with great particularity. The governing considerations of future legislation should be that there must be no further mischief from injunctions, and that due consideration must be given to the effect of the reproduction of any statute passed in this country upon the legislation of the Colonies.

## LANCASHIRE AND CHESHIRE PHOTOGRAPHIC UNION.

THE first annual meeting of this union was held in the rooms of the Manchester A.P.S. on Saturday, 8th inst., with the president (Dr. C. Thurstan Holland, F.R.P.S.) in the chair.

The hon. secretary reported the rapid expansion of the union into 41 societies, with 74 delegates and a membership of thirty-three hundred associates, from which a staff of 89 lecturers, with 172 lectures or demonstrators, had been enrolled. The financial statement showed a balance to the credit of the union.

The officers elected for 1907 are: President—Dr. C. T. Holland, F.R.P.S. Vice-presidents—Rev. H. W. Dick; T. Lee Syms, F.R.P.S.; C. F. Inston, F.R.P.S.; S. L. Coulthurst; and Dr. A. Hamilton. Hon. secretary (print portfolio section)—Dr. A. T.

Lakin. Hon. secretary (lantern slide section)—T. Hudson. Hon. auditors—J. Hawkins and J. Smith. Hon. business secretary and treasurer—W. Tansley, 22, Chapel Place, Liverpool.

The jury of selection for union prints and lantern slides are Dr. C. T. Holland, F.R.P.S.; Rev. H. W. Dick; S. L. Coulthurst; C. F. Inston, F.R.P.S.; J. J. Rothwell; T. Lee Syms, F.R.P.S. and F. Whitaker.

The following were selected for judging societies' competitions and exhibitions—viz.: F. Anyon; A. A. Bellingham; Tulloch Cheyne; A. W. Cooper; S. L. Coulthurst; Dr. T. G. Crump, B.A.; Rev. H. W. Dick; Dr. J. W. Ellis, F.E.S.; T. Glazebrook; Dr. C. T. Holland, F.R.S.; C. F. Inston, F.R.P.S.; Dr. A. T. Lakin; J. Shaw; T. Lee Syms, F.R.P.S.; and J. W. Wade.

## Exhibitions.

## SOUTHAMPTON CAMERA CLUB.

THIS week the Southampton Camera Club is holding its sixth annual exhibition, and the collection of pictures gathered together in the Philharmonic Hall is sufficient evidence, if such were needed, of the steady progress of photographic art from year to year. This is apparent both in the open classes and in those confined to members of the club, and the judges expressed great satisfaction with the exhibition as a whole, the members' pictures showing a considerable improvement.

Southampton is this year the last of the three great Southern exhibitions held in conjunction with one another, the others being Southsea and Hove. Year by year these exhibitions obtain greater favour with the exhibiting workers, owing, in great measure, to the good management which directs them, and the general desire on the part of the local committees to keep ahead of the times. Indeed, it is not too much to say that exhibitors now look forward to these three exhibitions as a prominent feature in their calendar, and no provincial exhibition receives better support from them than is accorded to the Southern three.

Not only is the pictorial quality of the exhibits higher than in past years, but there are about 100 more frames on show than was the case a year ago. The number of pictures in the competitive section reaches 650, but the increase has not caused crowding of the frames, and every picture appears to have been hung to advantage.

Turning to the pictures, the first screen holds the work of the local members, and here the powers of the judges must have been severely taxed to decide which pictures should receive the awards at their disposal. Taking the names of the exhibitors in alphabetical order, we find that A. D. Bacchans shows three interesting technical studies, the best being "Jersey Green Lizard." T. L. Baker has a dainty yacht study in "Summer Calm," the reflections of the sail in the limpid water being very pleasing. Mrs. Baker shows two excellent flower studies, "Roses" being the better rendering. R. C. Batt has three frames, of which "Z'mutt" is generally preferred. Dr. A. E. Bodington shows "A Rainy Day—Florence" and "Hesitation," the latter a charming study of cats. O. P. Butler's one picture, "A Thames Backwater," has been considered good enough for an award, and the general opinion concurs with that of the judges, the atmosphere nicely relieving the somewhat formal composition. General Byam, C.B., gives a good interpretation of motion in his "Yacht Racing on the Solent," though the light mount is not in perfect harmony with the print. C. M. Cooper's natural history subjects are almost pictorial, whilst losing nothing in technical excellence. His best frame is entitled "Bird Studies," a series of eight prints representing different birds amidst natural surroundings. "The Cuckoo," by the same worker, calls for more than ordinary attention, the attitude of the bird being extremely lifelike. Cecil Daw is represented by six pictures of which "The Artist" is easily the most noteworthy. If the high light is somewhat strong, it is the only fault that can be found with this picture. The worker has caught a most natural expression and the lines of the composition are well arranged. "Homeward" is somewhat spoilt by the heavy sky, and the rendering of the tones is not altogether convincing, and "A Bit of Old Whitby" is somewhat too crowded and low in tone. H. Daw's "Alongside the Quay" is his best work, the composition and atmospheric effect being distinctly

good. H. Essex is a prominent prize-winner this year, and has scored deservedly with "A Woodland Prelude." This title is well borne out, the morning sun casting soft beams of light through the grey mist which hangs upon the wood. Other noticeable pictures by Mr. Essex are "Early Morning in a St. Malo Street," a study of "Cherries," and a well thought-out portrait entitled "Do you take Sugar?" the only defect in the last-named picture being the somewhat scattered lights. It is, however, in the lantern slides that Mr. Essex has achieved his greatest success, having received no fewer than four awards, although the rules will not permit him to take more than two—the Club Salver and "The Photographic News" Medal. "Lighting Up" is a good portrait by Geo. Fuidge. The model is portrayed lighting his pipe, but a little doubt exists as to the source of light, which for a picture of this class does not seem sufficiently concentrated. A. Gibbings has a good rendering of sunlight and shadow in "In Cloistered Shade," and also shows a Continental street scene entitled "In Old Savoy." A. E. Henley is one of the club's oldest workers, and this year he has again shown improvement upon his past work. His renderings of fruit and flower subjects are becoming quite well known. "Bon Chrétien Pears" is a splendid piece of technical work, though the judges have preferred "Yellow Plums," which has received an hon. mention.

In the open classes, Mr. Henley exhibits "White Hearts," which possesses greater pictorial excellence than those works already mentioned, but the rendering of the cherries is not quite what we look for from this worker. "A November Sunset" has been awarded one of the coveted salvers, and in this picture Mr. Henley has produced a delicate and pleasing rendering of sunlight reflected in the wet sand. E. J. Jarvis has received a medal for "Silent Witnesses of Former Splendour." Mr. Jarvis is a new exhibitor, but the award he has received this year should encourage him to attempt more ambitious work in the future. A. J. Kay is represented by two sets of lantern slides, which show artistic ability in a pronounced degree, but which lose somewhat by their coldness of tone, and he would do well to adopt the more modern "browns" in landscape slides. C. D. Kay has been awarded the "Amateur Photographer" Medal for "Sunlight," which has thus been nominated the best picture in the members' classes. It represents an old house upon which the shadow of a quaint tree has been thrown by the evening sun; the tones are pleasing, the composition leaves nothing to be desired, and the picture is a general favourite with the public as with the judges. Other pictures by the same exhibitor are "The Rev. Dr. Kay," a powerful portrait, and "Mr. S. G. Kimber," an excellent representation of the popular Southampton secretary. "A Portrait of My Mother" is unconventional, and if for that alone attracts considerable attention. Another member, W. R. Kay, exhibits no fewer than seventeen pictures; indeed we think it would be better if this worker were to confine himself to fewer frames and endeavour to have more equality in his results. He takes an award for "Lux in Tenebris," a good rendering of sunlight in a cathedral crypt, and an honourable mention for "Drifting." We also notice a series of portraits by Mr. Kay of prominent members of the Southampton Camera Club, of which that of the President, Mr. Burrough Hill, is perhaps the best. In the open classes Mr. Kay has four frames, including "The Tree that Grew by Itself," a picture which last year roused much criticism. Miss Bowden-Smith's best picture is "The Afterglow," though we think that a more suitable mount might have been chosen. G. F. E. Kenny has only one picture, "Cloisters—Muckross Abbey," which shows good quality, the rendering of sunlight on the old pillars being exceedingly pleasing. S. G. Kimber's name is well-known as an exhibitor, and once more he scores heavily with his architectural pictures. "A Rainy Day, York," shows, however, that architecture is not the only subject with which Mr. Kimber can deal successfully. The picture takes a well-deserved award, and, indeed, it is difficult to imagine how the judges could have overlooked it. Two of Mr. Kimber's cathedral pictures have received hon. mention, the best being "In the North Transept—York Cathedral," though "In Peterborough Cathedral" runs it very close. Mr. Kimber's further versatility is evidenced by the fact that "Innocence," a charming nude study, has also received a mention. The rendering of the flesh is particularly good, although the shadows are somewhat heavy. The same exhibitor also receives a mention on a slide, entitled "A Norman Crypt." "Pines," by H. H. Longman, has a weird effect. George Mason shows a technical architec-

tural picture in "The Cloisters—Fountains Abbey." "Roses" is a decorative arrangement by H. W. Miles, who also exhibits a tastefully mounted woodland scene entitled "Guardians of the Glade." Dr. H. Milner-White exhibits, not for competition, a series of interesting Egyptian studies. Some of these represent architectural remains, the sculpture being clearly defined, and the others representing native customs. R. E. Parson shows three pictures of varying interest, "Speed," perhaps, being the best. "A Tidal Harbour" is well rendered, but rather crowded. E. E. Rye exhibits some creditable landscapes, of which we prefer "Early Morn on the Common." R. Robinson has a capital architectural study in "A Sunlit Doorway," and his "Portsmouth Harbour" has a fine suggestion of sunset about it, but the shadows are too heavy. F. G. Ryder has been a prominent member of the Southampton Camera Club for some time, but this is the first time that he has come to the fore as an exhibitor. "An October Sunrise" is a fine rendering of sunlight and mist, and would have won in a stronger class than that in which it was exhibited. A similar picture entitled "The Hill through the Wood," is not far behind its companion. T. E. Smith's best picture, "Where Storms Blow Fiercest," is an uncommon specimen of English landscape, its most attractive feature being the luminous sky. Amongst T. M. Weaver's exhibits "Saxon Font, Wells Cathedral," is the most attractive, and must have fallen but little short of the judges' standard; indeed, it is probable that only the small number of awards at their disposal prevented his securing success. "Gooseberries" is a splendid piece of work, of not too severely technical a nature; and an original study, "The Cloister Door, Wells Cathedral," by the same worker, has distinctive merit. Mrs. Weaver secures a mention for her "Flower Study," which work is far in advance of her "A Summer Evening." Smith Whiting is a new exhibitor, but his work proves him no novice in natural history subjects. "Avocet on Nest" secures for him one of the club's salvers, and others of his pictures scarcely fall below this in merit. The rendering of plumage in "Starling" is exceptionally good, and "Hawfinch" and "Robin" are quite pictorial, whilst losing nothing in technical excellence.

Turning to the open classes, it is readily observed that few prominent exhibitors are unrepresented. Mrs. Arbutnot has three pictures, of which "Assissi," perhaps, reaches the highest standard of excellence. James C. Batkin exhibits "A Rift in the Fog," a picture which meets with nothing but praise on all hands. His other two frames will also repay studied inspection. Robert Burney has acquired a great reputation for fruit and flower studies, and this year his work is in no way behind what we have been accustomed to see. B. H. Bedell has two good things, "In Harbour" being perhaps the better. G. L. A. Blair's "Whilst London Sleeps" is well-known, but attracts attention by its bold conception and good execution. Dr. E. G. Boon exhibits four altogether charming pictures, the most attractive being "The Injured Butterfly."

Graystone Bird is a regular exhibitor at Southampton, and this year receives a special mention for his set of slides "Clouds on Snowdon." He also shows several frames, of which "Snowdon Veiled in Grey Mist" is the general favourite. G. A. Booth's set of slides, "Insects," has been considered favourably, and a salver in the technical section, and E. R. Bull obtains a mention in the same class for a set of "Architectural Details." Rev. H. R. Campion exhibits four frames of his highly pictorial architectural work, "Tombs of his Ancestors" being the best. This print is somewhat strong, but a nice sentiment has been weaved into the picture. J. W. Charlesworth shows two excellent sets of lantern slides. R. J. Church has five frames, "Evening in the Solent" being a delightful sunset picture, and James Clark is responsible for "A Study After Asti," a nude figure study in which the flesh tones are delightfully rendered. Wm. A. Clark is prominent this year with four frames and a set of lantern slides, all of which are of high pictorial merit. "Early Morning Sun, Gloucestershire," strikes a high note of excellence, although the modern gas-lamp in the old archway is somewhat unfortunate. W. T. Clegg's "Beam of Light" is a fine cathedral interior, though the source of the beam might be a little more evident. H. Colebrook is a new exhibitor at Southampton, but glancing at his work we hope that he has come to stay. "Old Shoreham" earns him an hon. mention and is unquestionably his best production, but the "Water Meadows" is well



composed and falls but little short of the picture noticed by the judges. H. J. Comley, whose name is well known among colour workers, exhibits two portraits and an excellent still-life study in three-colour work. Dan Dunlop is awarded a salver for "Pensive," a dainty figure study, and Mrs. R. Dunlop's "Child of the Ghetto." Herr Rudolf Dührkoop thoroughly deserves the salver he has been awarded for "The Violinist—Eberhardt," although any of his eight prints might have received the judges' notice.

In the Technical Section, Mr. Frewin takes an award for three large frames forming a series of "Stone Curlews," which is a very interesting set, showing these birds in every stage of development. Dr. Grindrod's portraits are exceedingly good, and C. J. Hankinson shows several pictorial studies. Aubrey Harris has been given a salver for "The Edge of the Wood," a strong, well-composed landscape, and W. A. J. Hensler, E. O. Hoppé, and E. T. Holding, all exhibit notable work in entirely different styles.

Dr. Hutchinson's colour slides are extremely well produced, and well deserve the mention the Judges have accorded them; the colouring of his "Butterflies" being remarkably true to life. Miss Brenda Johnson's work has been well received this year, and it only remains for us to notice favourably "Springtime," the landscape and nude figure forming a picture that is charming on account of its restraint and delightfully "open-air" feeling.

Colonel Johnstone, C.B., exhibits several pictures, of which we prefer "Buoys and Gulls." Fred Judge's "October" and "After the Storm," attract general notice, and the same worker receives a mention for his slide, "Departing Day." Colin Keay shows a picture of highly historical interest entitled "The last Salute," in which a cruiser is paying her last sad tribute as the body of the Great Queen is being borne to Portsmouth from her island home at Osborne.

Ellis Kelsey's slides are fine breezy renderings, and the "Rescue" thoroughly deserves the salver which it has been awarded. Harry Lindoe's "Old Durham" is the better of his two pictures, and we cannot help noticing, in passing, the fine straightforward portraiture of Fraulein Mandl and W. H. Mendelssohn.

Arthur Marshall is a great favourite at Southampton, and year by year almost the first thing one hears on opening day, is "What is Mr. Marshall showing this year?" The "Venetian Pearl" is quite one of the best pictures in the "show," and, generally speaking, we prefer it to "Precious Stones," which takes a salver. Both, however, are magnificent pictures. "The Appian Way," again, is a favourite with some, and, indeed, it is not too much to say that everyone of his eleven pictures has a strong following of admirers, who warmly contend that their favourite is the best. Mr. Marshall takes the special award as the strongest exhibitor at the three shows, Hove, Southsea, and Southampton, and in the decision the general public are at one with the Judges.

Other prominent exhibitors are the Misses Aitchison, A. J. Fuller, J. Dudley Johnston, Adolph Langflier, S. B. Lupton, Ward Muir, O. G. Pike, S. A. Pitcher, Dr. Rodman, H. Y. Simmons, L. J. Steele, and A. G. Thistleton, whilst T. Lee Syms exhibits two of his beautiful figure studies, gems indeed, wherein sunlight and light drapery, two exceedingly difficult elements to successfully combine in one picture, are controlled by a master hand.

J. M. Whitehead is quite in the front rank, and this year his work again shows a decided advance upon what has gone before. The mention he receives for "From the Cloudland," is only what he deserves, for that picture is a masterpiece of impressionistic and romantic landscape work.

The judges were Messrs. Reginald Craigie and H. Snowdon Ward, F.R.P.S., in the pictorial section, the technical work being judged by Mr. Martin Duncan, F.R.P.S., and we can only add that these gentlemen appear to have given general satisfaction, which in an exhibition of this standard must have been a difficult task. A loan collection, including, among other features, a splendid series of 77 portraits and figure studies, by Herr Rudolf Dührkoop, kindly lent by the Editor of the BRITISH JOURNAL OF PHOTOGRAPHY, completes a highly pictorial and interesting exhibition.

There are several trade stalls, and demonstrations of "Dry Mounting" have been arranged for by Mr. Martin, who also shows a good stock of "British Journal Almanacs," and other photographic literature.

## THE NORTH LONDON PHOTOGRAPHIC SOCIETY.

THE following are the awards at the first annual exhibition, given by the judges, Messrs. Reginald Craigie, Furley Lewis, and A. H. Blake, M.A. :—

### OPEN CLASSES

Class A.—Bronze plaque: No. 1, H. Youel Simmons; bronze plaque: No. 2, J. E. Latham; hon. mention, No. 18, Walter Selfe; hon. mention: No. 43, Ellis Kelsey; hon. mention: No. 56, G. H. Pearce. Class B.—Bronze plaque: No. 93, E. O. Hoppé; hon. mention: No. 94, E. O. Hoppé; hon. mention: No. 68, Miss Hild Stevenson. Class C.—Silver plaque: No. 127, C. Willé (best picture in the Open Classes); hon. mention: No. 114, W. A. Clark; hon. mention: No. 120, J. W. Johnson. Class D.—Bronze plaque: No. 142, J. H. Jackson. Class K.—Bronze plaque: W. J. Shelly; bronze medal: Frank Odams.

### MEMBERS' CLASSES.

Class E.—Bronze plaque: No. 209, C. H. Conolly; bronze plaque: No. 167, Gideon Clarke; hon. mention: No. 210, G. Hale; hon. mention: No. 169, Gideon Clarke; hon. mention: No. 212a, Charles Roberts. Class F.—Bronze plaque: No. 225, E. O. Hoppé; bronze plaque: No. 240, G. Hale; hon. mention: No. 238, P. W. Simons. Class G.—Bronze plaque: No. 247, C. Willé; hon. mention: No. 248, E. O. Hoppé. Class H.—Bronze plaque: No. 270, C. Willé; hon. mention: No. 262, W. E. Houghton. Class I.—Bronze plaque: No. 303, R. H. Lawton; hon. mention: No. 296, James Caw. Class J.—"Amateur Photographer" silver plaque No. 351, G. Hale; bronze medal: No. 333a, Charles Roberts; bronze medal: No. 330, R. H. Lawton.

The silver goblet presented by Mr. E. O. Hoppé for the best picture in the Members' Classes is awarded to C. H. Conolly.

## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for patents were made between November 26 and December 1 :—

VIEW FINDERS.—No. 26,855. Improvements in and relating to view finders for photographic cameras. Emma Nye, 27, Chancery Lane, London.

SHUTTERS.—No. 26,905. Improvements in or relating to focal plane shutters and other roller-blind shutters for photographic purposes. Arthur Lewis Adams, 26, Charing Cross Road, London.

LENS.—No. 27,370. Orthoscopic and anastigmatic photographic lens. George Lindsay Johnson, 55, Queen Anne Street, Cavendish Square, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

INVISIBLE PICTURES.—No. 23,109, 1905. It is possible to bleach photographic pictures, more particularly those obtained on silver bromide papers, by means of a reducing process in such manner that the picture of chloride of silver becomes invisible upon the paper, but reappears as soon as the apparently vacant paper is exposed to the light.

The picture is caused to fade by the action of chlorides, and some of these are particularly suitable. Chloride of mercury very speedily bleaches such silver bromide pictures, but the invisible picture must be developed, as it will not appear merely upon exposure to light. A number of other chlorides, such as ammonium chloride, magnesium chloride, and sodium chloride do not attack the black silver picture, but furnish an appropriate bleaching medium when copper salts are mixed with them. Even traces thereof render active a solution of sodium chloride, for example, which of itself would be completely inactive.

Pictures of this kind which lie invisibly upon the paper and

which are rendered visible by exposure only, may also be obtained by printing, and this by printing with a colour or ink which in the unexposed condition does not stand out from the support, but becomes visible only when it has been exposed to the light for some time. A colour of this kind may be produced, *inter alia*, merely by grinding chloride of silver with varnish.

Broadly, the following means are employed in the production of such pictures:—

Invisible pictures are formed by photographic means, from negatives which themselves exhibit an incomplete picture, the missing parts being provided by a mechanical printing process. A complete photographic picture is produced, bleached or faded and re-exposed under a negative or stencil which covers certain parts of the invisible picture and only permits a partial picture to remain. A partial picture is produced by mechanical means—for example, by printing from an appropriate block in invisible ink, the missing parts being then printed in from a second block in visible ink. The entire picture is printed—for example, by heliographic or light printing, in invisible ink, exposure being effected as above under a stencil or a negative.

The claims are: 1. A process for the manufacture of pictures and letterpress or inscriptions which become visible only upon exposure to light, characterised by the fact that photographic silver prints are bleached or faded or converted into an invisible silver chloride picture in a bath which in addition to containing various chlorides such as ammonium chloride, sodium chloride, magnesium chloride, and other inactive salts, also contains more or less copper salts. 2. A process for the manufacture of pictures and inscriptions becoming visible only upon exposure to light, characterised by the fact that by means of an ink sensitive to light—for example, chloride of silver ground with varnish—an impression is formed which only stands out upon the paper after exposure. 3. Changing pictures, in which the conversion of the picture is produced by the action of light, characterised by the combination of pictures appearing in the light and obtained by printing by means of ink sensitive to light or by bleaching silver pictures by chlorination, with visible pictures of any desired kind. 4. Process for the production of pictures in accordance with Claim 3, characterised by the fact that various parts of the picture which are wanting in the bleached or invisibly printed picture are supplied by a mechanical printing process in visible ink. 5. Process for the production of pictures in accordance with Claim 3, characterised by the fact that a bleached photographic picture, or a picture printed with invisible ink only becoming visible after exposure, is exposed beneath a negative or a stencil which covers certain parts. 6. A process for the production of pictures in accordance with Claim 5, characterised by the fact that negatives printed upon transparent paper are employed which at the same time remain upon the picture to serve as a protection from accidental exposure until it is desired to produce alteration in the picture. Haseltine, Lake and Co., for Josef Rieder, 16, Ungerstrasse, Munich, Germany.

COUNTING MECHANISM.—No. 25,839, 1905. This invention relates to a new or improved meter or counter applicable especially to photographic cameras, and is for the purpose of indicating the number of exposures made on plates or films so as to avoid the chance of a second exposure upon the same plate or film.

The claims are for: 1. An automatic counting apparatus for counting the openings of photographic shutters and attachable to photographic cameras in such a manner that whatever means is employed to wind or "set" the photographic shutter will displace the lever-arm of my apparatus to the limit of its stroke, and on the release of the camera shutter the said lever-arm is released and returns to its "home" position, causing a fresh number to be shown on the dial. The apparatus with ratchet wheel and lever with the spring attached thereto and working in the teeth of the said ratchet wheel with the detent spring or pawl and the power spring attached to the said lever and case, the dial and the spindle with its milled head or knob and the arrangement of the parts whereby a "setting" action is obtained when the lever is away from its "home" position, substantially described. 2. The stop caused by the thickening of

the base of the detent spring or pawl and the arrangement of the parts constituting a lock when the lever-arm is in its "home" position substantially as described. James Hillman, Rodwell Lodge, Basils Road, Stevenage, Hertford.

METALLOID PRINTING SURFACES.—No. 23,815, 1905. This invention is for the preparation of metalloid surfaces for photographic and mechanical printing by means of solution of gelatine and syrup or honey or fish-glue, in the following manner, viz.:—

1 part of gelatine,  
17-20 parts of water, and  
½-1 part of syrup or honey or fish-glue.

This solution is brought to a boiling point and filtered whilst hot, and in that condition is applied by dipping or flowing over to any suitable surface, as paper (in particular all Baryta papers), wood, ivory, metal plate, glass. The coating is allowed to cool, and then to dry by moderate heat, retaining a sufficient amount of stickiness to apply metal powders and bronzes by means of mechanical contrivance such as bronzing machines, thereby causing the said powders to adhere to the surface evenly and smoothly.

A second coating of gelatine is then applied, which is made up in the following proportions, namely:—

1 part of gelatine,  
20 parts of water

to which add a small quantity of chrom alum to harden the gelatine. This coating is applied to the metalloid surface by allowing it to flow over or by dipping it whilst still hot, and it is then allowed to dry. In the case of copper or brass bronzes or powders it is necessary to apply a coating of celluloid varnish to prevent the acid of the air from acting on the copper or brass basis, after which a further coat of the second gelatine coating is necessary. The material so prepared is now ready to receive carbon prints or printing-out (P.O.P.) or bromide emulsion for ordinary printing or enlarging upon by daylight or artificial light, and is treated in the usual manner as if printing on ordinary or plain papers. Charles Harald Thomson, 1, Brindley Street, New Cross, London, S.E.

COLOURING PHOTOGRAPHS.—No. 5,109, 1906. In place of the usual opaque sensitised paper, transparent sensitised paper, or transparent sensitised celluloid, is used, on which is printed the photograph by the ordinary method. The back or under side of the photograph is then painted in any desired way with oil colours, or with any other suitable medium. After colouring the photograph on the under side, the painted photograph is mounted—paint side downwards—on a white or coloured background, which background may be composed of paper or any other adaptable material.

The claims are: 1. The method of producing coloured photographs characterised by printing the image upon sensitised celluloid, then colouring and backing the same. 2. In coloured photographs the use of a single sheet of celluloid which serves both for the direct printing of the image and the colouring thereof. Albert Beaumont, 23, Bridge Street, Hawick, N.B.

FOCUSSED VIEW FINDER.—No. 5,354, 1905. This invention relates to photographic hand cameras, wherein the focussing of the camera is effected by the aid of a lens other than that for admitting light to the sensitised surface on which the photograph is taken. Various arrangements have been proposed for combining with a camera lens a focussing lens in such manner that both lenses are and remain structurally connected together and travel the same distance while being focussed.

The invention has for its object to avoid such and other disadvantages incidental to such constructions of twin lens cameras, and to enable the camera to be focussed by means relatively small in size and carried by a structure separate from that carrying the camera lens, and adapted to enable the entire view to be focussed, and which will enable the camera lens to be closed up while such means will remain in focus for infinity, enabling photographs for that focus to be taken on the simple outdrawing of the camera without any focussing, and will enable film cameras to be focussed as accurately as plate cameras having an ordinary ground glass screen.

To this end, the invention is characterised by the combination with an adjustable focus camera, of an adjustable focus



view-finder having a lens of focal length some convenient fraction of that of the lens of the camera, in such manner that the view-finder lens and the camera lens will be carried by different structures, and will be disconnected when the camera lens is closed within its focal length, and will be in focus when the camera is set for "infinity," and will, thereafter, be conjointly operated, in the ratio of their focal lengths, by means of a focussing spindle carrying pinions which gear with racks attached to the view-finder and camera structures, and have teeth the ratio of the number of which is equal to the ratio of the focal lengths of the two lenses, so that the general focussing of the camera will be effected by focussing the view-finder.

The claim is: In combination, an adjustable-focus camera, and adjustable-focus view-finder having a lens of a focal length some convenient fraction of that of the lens of the camera, the camera and view-finder lenses being independently mounted and carried by separate structures and adapted to be set in initial focus for "infinity," and racks and differential pinions and a spindle common thereto adapted to conjointly adjust the camera and the view-finder lenses for other foci in the ratio of the focal lengths of their respective lenses, as set forth. Clarence Claxton Blagdon Turner, of 28, Bath Road, Bedford Park, Chiswick, and Stanley Wyndham Jamieson, of 13, Wynn-stay Gardens, Kensington.

## New Apparatus, &c.

A New Distance-finder or Telemeter. Sold by A. E. Staley and Co., 19, Thavies Inn, Holborn Circus, E.C.

This convenient little device takes the form of a bronzed tube of about 5½ in. in length, with an eye-piece at one end, by means of which the grain of a ground glass is sharply focussed; then by a draw tube at the other end the object of which the distance is



required is sharply focussed on the ground glass, and the distance is then read off on the tube. We have tested this upon measured distances, and find it quite accurate, and the range extends from about 7½ ft. to infinity.

It is handy in shape by no means weighty, and will be found of considerable benefit by hand-camera workers. Its price in metal mounting is 10s. 6d., or, mounted in leather and helical draw tube, 21s.

**MERCURY VAPOUR LAMPS.**—Messrs. O. Sichel and Co. write us:—We should be glad if you would call the attention of your readers to the fact that these printing apparatus, and a portrait apparatus made from the same class of tubes, have been very successful, and we have supplied a number of well-known photographers who are using them with every success. A special feature of these mercury vapour outfits is that after the initial outlay (which is very moderate) the cost of the upkeep is very trifling, especially taking into consideration the fact that the electric company will supply the necessary current for these lamps at the power rate, which is calculated on a much lower basis than the lighting rate. During these dull days the photographers to whom we have supplied this light have found themselves entirely independent of the weather, and have been able to finish off orders which under ordinary circumstances would have been impossible, and have consequently improved their reputation. These mercury vapour apparatus are only suitable for continuous current, but in cases where only an alternating current can be obtained we have a new form of enclosed arc lamp with a similar arrangement which has also proved very successful. Any of these printing outfits can be seen at our showrooms, third floor, 52, Regent Street, W. We might also mention that we are supplying to some houses these mercury vapour tubes 45 in. long, capable of taking twenty-four half-plate printing frames, and the cost of an entire outfit with one of these tubes is only £10 10s. As we are very heavily pressed in this department we would be allowed to say that it is necessary for us to have some few days' notice for delivery.

## New Books.

"Photographischer Abseiss-Kalender, 1907." Published by Wilhelm Knapp. Halle a/S. Price 2s.

This is a calendar for next year in which on every page, which bears three days' dates and the times of the sun rising and sun setting, there is a half-tone reproduction of a landscape, and also some useful working formula. It is a fairly bold size (11 x 7), and the printing is excellent. The only point is that there is no index to the formulæ, so that one may have to search through the whole year to find exactly what one wants.

"Hazell's Annual" for 1907 has just been issued this week by Messrs. Hazell, Watson, and Viney, the proprietors of our contemporary, the "Amateur Photographer," and a compendious volume it is of 620 pages. "Current information codified" may be taken as a fair description of "Hazell's," and it is difficult to imagine any better reference volume to men and topics of the time than this volume, which has indeed proved its merits by regular appearance and appreciation for twenty-two years. We have turned to previous issues on many occasions when we desired to verify a piece of information, and therefore our encomiums of the present issue are not solely the result of examining the volume before us. Yet it is, we find, particularly well posted on points into which we looked, knowing what we might expect in such a volume. To cite only one example, under "Copyright" we find an abstract of the case of *Stackemann v. Paton*, the peculiar nature of which we were at pains to point out in our columns at the time. The price of "Hazell's" is 3s. 6d. net in cloth covers.

## New Materials.

The Holborn "Q.D." Postcards. Sold by Houghtons, Limited, High Holborn, W.C.

The special feature of these new gaslight postcards, which we were able to review favourably on their first introduction by the Falla-Grey Company, is that the necessary operations of development, washing, and fixing are quickly done, as they only require ten seconds' exposure at six inches from an incandescent gas burner, fifteen seconds' development in a five-grain amidol developer, rinsing one minute in a 20 per cent. hypo solution, and then washing for five minutes. The results obtained by this method are certainly extremely satisfactory, the whites being clean and the scale of gradation an unusually long one for this class of emulsion, with good blacks. For rapidly turning out in quantities they should be of considerable benefit.

The "Gem" Chloride Plates. Manufactured by the Gem Dry Plate Company, Limited, Willesden, N.W.

The new gaslight lantern plates have in our hands given satisfactory results, though inclining to brilliancy. The whites keep perfectly clean, and the blacks obtainable are very satisfactory. The special developer recommended is hydroquinone with caustic soda, and with this, as with a normal metol-hydroquinone excellent results are obtainable.

Christmas Cards. Manufactured by Chas. Tyler and England Bros., 79, Copenhagen Street, King's Cross, N.

The assortment of samples sent us of the above are quite sufficient to testify as to the good taste and excellence of workmanship, as they are distinguished by pleasing combination of colours and dainty effects, that are likely to be very popular. The styles and prices vary so much that all tastes and pockets are catered for.

A CORRECTION.—In the notice last week of the new Agia fixing salt, a superfluous "not" occurred in the early part of the paragraph. We regret the mistake, though we hope that the context was nevertheless clear. The contradiction involved by the clerical error should have been obvious to our readers.

For the Christmas trade Mr. H. W. Green, of Rotherham, has issued a series of calendar mounts in both paste-down and slip-in patterns. The mounts are known as the "Royal," and take post-card or cabinet photographs. The price is 3s. per dozen.

# Meetings of Societies.

## MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
11	Cardiff Photo. Society .....	"Exmoor." F. Murphy
11	Aberdeen Photo Society .....	"What Can be Done with a Hand Camera." C. P. Goetz
11	Loughton Photo Society .....	"Outdoor Figure Photography." E. H. K. Hillsworth
11	Tunbridge Wells Amat. Ph. A. ....	"Shake-pare at Home." H. Snowden Ward
11	Sutton Photographic Club .....	"A Popular Chat on Lenses." E. A. Salt
11	Aberdeen Photo. Art Club .....	"Slides by Carbon Process." W. Findlay
11	Southampton Camera Club .....	The Exhibition Slides and Presentation of Exhibition and Club Award.
11	Worthing Camera Club .....	"The Simplicity of the Kodak System." P. Phethean
11	Gravesend and Dis. Ph. Soc. ....	Photography as Applied to Decorative Work." E. D. Ingall
11	Lancaster Photo. Society .....	"Recent Advancement in Photography." Wellington & Ward
11	Preston Camera Club .....	Amateur Photographer (1906) Prize Slides
11	Bowes Park Photo. Society .....	"Development of Negatives." "Ozobrome" Dr. Lynam
11	Oxford Camera Club .....	Affiliation Slides.
11	Derby Photo. Society .....	"The photographic Lens."
11	Swansea Camera Club .....	"Sports and Pastime with the Goerz-Anschutz Folding Camera."
11	Peterborough Photo. Society .....	Social Evening.
11	Catford and Forest Hill Ph. S. ....	"Ozobrome (Carbon Prints Direct from Bromides or Gaslights)." Herbert A. R. Hey
11	Stafford Photo. Society .....	"Marine Photography." F. J. Mortimer
11	Blackburn Camera Club .....	"In Birdland with a Camera." Oliver G. Pike
11	Royal Photographic Society .....	"Platinochrome Paper." Demonstrated. A. Edwards
11	Leeds Photographic Society .....	"London Views." Slides
11	Hackney Photo. Society .....	"What Can be Done with a Hand Camera."
11	South Shields Photo. Society .....	"Stereoscopic Photography." "Pictures with the Goetz Lens."
11	Worlington Photo. Society .....	Photography Priz. Slides.
11	Altrincham Photo. Society .....	"Some Spanish Pictures and a Spanish Bull Fight." A. Marshall
11	Birmingham Photo. Society .....	Visit from the Photographic Section of the Faisley Philosophical Institution.
11	Sheffield Photo. Society .....	"The River Frome." W. F. Kuerer
11	Glasgow Southern Pho Assn. ....	"Carbon Printing." J. T. Carnaby, B.Sc.
11	Bristol Photographic Club .....	"Stand Development" and "Photography by Rule." H. J. Thomson
11	Blyth and District Cam. Club .....	"Enlarging and Printing on Bromide Paper." E. D. Taylor
11	Darlington Camera Club .....	Second Lantern Slide Competition.
11	Birmingham Photo. Society .....	An Exhibition of Excursion Prints.
11	Borough Polytechnic Ph. Soc. ....	"Scientific Experiments." The President
11	Croydon Camera Club .....	Criticism of Members' Slides.
11	Woodford Photo. Society .....	"Developers and Development." A. E. Worfolk
11	Edmonton and Dis. Ph. Soc. ....	Competition in "Light Photography."
11	West Surrey Photo. Society .....	"Enlarged Negatives on 'Rotograph' Negative Paper."
11	L. and P. Photo Society .....	"Platinochrome." Demonstrated. O. Sichel & Co.
11	North London Photo. Society .....	"Excursion Notes by an Excursion Secretary." Gideon Clark
11	Handsworth Photo. Society .....	1. "The Development of Iso-Plates." J. W. Baker. 2. "Enlargements from Lantern Plate Negatives." A. B. Cope. 3. "The Photography of Bright Subjects." P. Whitehouse
11	Richmond Camera Club .....	"Enlarging." Elementary. C. H. Davis
11	Liverpool Amateur Photo. Assn. ....	Lantern in Use for Members to Test Slides.
11	L.C.C. Staff Camera Club .....	Amateur Photographer Prize Slides.
11	Walsall Amat. Photo. Society .....	"Theory and Practice of Self-Toning Paper."
11	Hull Photographic Society .....	"The Principles of Composition in Pictorial Art." J. Somerscales, A.R.C.A.
11	Greenock Camera Club .....	"Sports and Pastimes with the Goerz-Anschutz Folding Camera."

## ROYAL PHOTOGRAPHIC SOCIETY.

MEETING held Tuesday, December 11, Mr. J.-C. S. Mummery, vice-president, in the chair. A lecture was given by Dr. W. J. S. Lockyer on "Thunderstorms and a Camera," in the course of which the lecturer exhibited many lantern slides showing various types of lightning flash, and gave accounts of the best means of obtaining photographic record of flashes.

CROYDON CAMERA CLUB.—The members on the 5th inst. paid a visit to Messrs. Wratten and Wainwright's dry-plate works. Mr. S. H. Wratten and Dr. Mees, in welcoming the members, respectively gave an outline of the manufacture of dry-plates, and the object and aims of the attached laboratory, the gist of which we publish next week.

NORTH LONDON PHOTOGRAPHIC SOCIETY.—Mr. E. O. Hoppé was announced to lecture at the last meeting of the Society, on "Motive and Sentiment," but was unfortunately too ill to attend; his friend Mr. C. Willé, however, very kindly read his lecture for him. There was a large attendance; among a number of well-known photographers present we noticed Mr. Furley Lewis. The lecturer pointed out that it was only a few photographers who endeavoured to catch the motive of the picture they saw before them. There should be only one motive in each picture, otherwise the interest was divided and the motive lost. It was necessary that the photographer should be able to see whether the charm of a view was in its arrangement or only in its colouring, otherwise he would not be able to get the result he desired. Many lantern slides of well-known photographs were thrown upon the screen, and the motive in each explained.

## Commercial & Legal Intelligence.

A HUDDERSFIELD CANVASSEER'S THEFT.—At the Huddersfield Borough Police Court, last week, Thomas Axon Lees, canvasser, Water Street, Huddersfield, was sent to gaol for a month for having stolen £10 14s. from the shop of William Phillip Pipe, trading as Mansfields, photographers, Cloth Hall Street, Huddersfield. The prisoner had been employed by the manager of the firm, and on Tuesday last, had sought to obtain a loan of 10s. from him. The money was missed the same evening from the place in which it had been secreted, and later the prisoner was arrested in Bradford with £8 in his possession.

PROFIT from Photographic Enlargements.—In the Shoreditch County Court, on the 5th inst., Mr. Alfred Mitchell, a photographic enlarger, sued Mr. Joseph Leopold Rosenschein, of Stamford Road, Dalston, a photographic enlarger, to recover £44 17s., the balance said to be due on the profits derived from running one of the defendant's branches. The plaintiff said that it was understood he was to have £2 a week. Out of the gross takings the working expenses were to be deducted, and from the balance a further 40 per cent. for cost of production and incidentals on behalf of Mr. Rosenschein. The balance was to be equally and incident as on behalf of Mr. Rosenschein. In eight and a half months the business done was £848, with working expenses £375. This left £503, out of which 40 per cent. had to be taken, leaving, roughly, £302, plaintiff's half being £151. Of this he had only received £106, and he now claimed for the balance. Counsel (to plaintiff): Your price for the enlargement was 16s. 11d. What was the actual cost to produce?—Three shillings, the frame and glass completed. The defendant, Mr. Rosenschein, was called, and said that the agreement was that the 40 per cent. was to be deducted from the gross takings, which would mean that the plaintiff actually owed him £22, which was counterclaimed for. He was certain that every picture cost them 12s. Proofs of the photographs, he added, cost 8d. each, and they only got 30 per cent. good ones. Glasses cost 6d. each, first cost, and 15 per cent. were broken in transit from Germany. Plaintiff's counsel: Where do the frames come from, and what do they cost?—From Germany, and cost 3s. each. I suggest you have bought some for 2s. 4d., others at 2s., whilst some even as low as 1s.—I don't think so low as 1s., but I might have done at 2s. Eventually Judge Smyly said that the plaintiff was bound by his agreement, and found for the defendant, whom he awarded £22 on his counterclaim.

WRONGFUL Dismissal.—Recently in the Official Referees' Court, London, Mr. Muir Mackenzie, Registrar, delivered judgment in the case of Plummer v The Brighton Palace Pier Company. The action, which was for damages for wrongful dismissal, and an account, was reported on p. 576 of the B.J.P., July 20, 1906, at Lewes Assizes, when the jury gave a verdict in favour of the plaintiff. The case now came before Mr. Mackenzie for assessment in damages. It was alleged that the contract, which was dated June 19, 1903, provided



that the plaintiff was to be the manager of certain photographic shops on the pier. Some of the clauses in the contract provided that certain expenses were to be deducted out of the receipts, and that plaintiff's remuneration was to be 50 per cent., and that he was to give the whole of his time to the business. In dismissing the plaintiff, the defendants gave him a fortnight's notice, and Mr. Mackenzie now decided that the contract was one of hire only, and not one in which the expenses could be deducted. Altogether he gave judgment in favour of the plaintiff for £250 12s. 1d.

**THEFTS from Photographers.**—Before Mr. Horace Smith, at the Westminster Police Court, Lewis Gale (27), of Ely Place, Clapham Road, and Robert William Macey, of Adeney Road, Fulham, were charged (on remand) with stealing a cash-box and its contents (about £8) from Messrs. Norton and Gregory, Limited, photographic printers, of Castle Lane, Westminster. The prisoners were each sentenced to three months' hard labour.

At the Clerkenwell County Court last week, Thomas Lee, painter, was charged with stealing at 10, Upper Street, Islington, a life-size photograph of the value of £2 10s., the property of Edward Sharp, a photographer. The prosecutor said that he was at the back of his shop when his attention was called to the fact that a picture had been taken—an enlargement. Prisoner was seen to be walking down the street with it. The prisoner said that he was very sorry. He had been drinking. He was sent to gaol for six weeks.

At Newton Abbot, last week, Arthur James Freeman, draper's assistant, about 30 years of age, was charged with stealing a three-quarter plate camera and accessories, value £6, the property of Thomas Cann, photographer, of Bovey Tracey, on November 15. Accused was committed for trial.

#### NEW COMPANIES.

**PHOTO REPRODUCTIONS.**—£1,000 (£1). To acquire the business of a photographer and photo-engraver carried on by S. W. B. Vines at South Parade, Nottingham, and the business of a collotype printer carried on at Sherwood Street, Nottingham, as the Electric Photo-Printing Company. No initial public issue. First directors (not less than two nor more than five): S. W. B. Vines, A. Hutchinson, W. H. Kirkland, and F. V. Barnes. 100, North Sherwood Street, Nottingham.

**FULTON SYNDICATE.**—November 24. £1,000 (£1). Photographers, engravers, etc. No initial public issue. Registered without articles. Worcester House, Walbrook, E.C.

**CAMERAS, LTD.**—Registered November 27. Capital £2,000, in £1 shares. Objects: To carry on the business of manufacturers of and wholesale and retail dealers in cameras, lenses, slides, shutters, and other photographic apparatus, etc. No initial public issue. Registered without articles of association.

## News and Notes.

**THE Proposed Photographic Exhibition at Dresden.**—A preliminary meeting to discuss the arrangements for this international exhibition was held at Dresden on November 29 under the chairmanship of Herr Finanzrat Beutler. The meeting was attended by about thirty gentlemen representing photographic interests in all parts of the German Empire. After considerable discussion it was decided that the year 1909 would be preferable to 1910 for the holding of the exhibition. The opinion was expressed that no means should be omitted to make the exhibition fully representative of photography in all lands, and that to this end the separate departments of photographic industry, science, and art as practised in various countries should be included in the scheme of the exhibition. It is proposed to issue invitations in reference to the exhibition early in 1907.

**STREET-BETTING Photographs.**—There were no less than thirty-six betting cases at the St. Helens Police Court one day last week. The Chief Constable said the number of street-betting men in the town was simply appalling. To get at the offenders the police had

to evade a cordon of watchers. Men, women, and children took part in the betting, surrounded by quite an army of scouts, and it was extremely difficult for the officers to get near them. On this occasion, however, they had got right into the camp and had taken photographs of the betting in progress.

**ROYAL INSTITUTION.**—The following are the lecture arrangements at the Royal Institution, before Easter:—Mr. W. Duddell, a Christmas course of six experimentally illustrated lectures on "Signalling to a Distance; from Primitive Man to Radio-telegraphy," adapted to a juvenile auditory. Professor Percy Gardner, two lectures on the sculpture of Aegina in relation to recent discovery; Professor A. C. Seward, two lectures on survivals from the past in the plant world; Professor W. Stirling, six lectures on the visual apparatus of man and animals; Dr. W. N. Shaw, two lectures on recent advances in the exploration of the atmosphere; Major P. A. MacMahon, two lectures on the standards of weights and measures; Professor W. W. Watts, two lectures on (1) the building of Britain; (2) recent light on ancient physiographies; Dr. W. Martin, two lectures on old Dutch painting and painters; Dr. C. W. Saleeby, two lectures on biology and progress; Sir Alexander Mackenzie, two lectures on latest phases of music (with musical illustrations); and Professor J. J. Thomson, six lectures on Röntgen, cathode, and positive rays.

A DEMONSTRATION of the chrono-megaphone was given at the Hotel Cecil, on the 6th inst., by Messrs. Gaumont and Co., of Cecil Court. This instrument is a combination of the cinematograph and the chronograph, and the perfect synchronism between the pictures and the sound is very marked. The greatly increased sound is obtained by using a motor, which pumps compressed air through the trumpets, so that the volume may be adjusted to the size of the hall. Several of the selections were extremely good; whilst others, doubtless from the nature of the hall, were characterised by the peculiar nasal metallic twang which we are familiar with. The films were hand-coloured, and doubtless the exhibition which is now being given daily at the Hippodrome will create considerable interest.

**MESSRS. J. H. DALLMEYER, LTD.,** announce that they are showing a choice selection of portraits taken with their well-known lenses by leading American and Canadian photographers. Pirie MacDonald, Dudley Hoyt, Notman, and many other celebrated workers are represented, and the whole collection is eminently "sane," while being most artistic in character. The framing is very tastefully done, and should afford some useful hints to would-be exhibitors. The Exhibition opens to-day, and the pictures will remain on view from ten till four till the end of January, admission free.

**THE Convention Social Evening.**—This function, so much enjoyed last winter, will be held for the second time in the gallery of the Royal Society of British Artists, Suffolk Street, Pall Mall, S.W., on Friday, January 11, 1907. The programme will consist of a reception by Mr. E. J. Humphrey, president, a selection of music under the direction of Mr. F. A. Bridge, and a "little dance," with Messrs. Alfred Ellis and Walter Potter as M.C.s. Mr. Bridge will supply tickets for members' friends, and application should be made to him at East Lodge, Dalston Lane, N.E.

**THE United Stereoscopic Society.**—In reference to the letter from M. Victor Selb, in our last issue, Mr. A. J. Snow, Secretary of the above Society, writes to us from 74, Lloyd Road, Walthamstow, as follows:—"During the next few months a series of demonstrations and competitions on criticism, toning, trimming, and mounting stereoscopic prints have been arranged amongst the members of the Society. I am also arranging a special set of our members' slides to send on a tour amongst the stereoscopic division of the International Photographic Exchange of America. This special set will then be circulated over a stereoscopic society forming in Australia and New Zealand, thus giving our English members an opportunity of corresponding and exchanging prints with stereoscopic workers in other countries. I shall be pleased to answer any inquiries respecting our Society from your readers interested in stereoscopy."

**USERS of "Challenge" cameras** should make a note of Messrs. Lizars' competition, which closes on January 10, 1907. As previously announced in our columns, the money prizes to be awarded amount to £200, which sum is divided into 87 different sums, so that competitors of all classes should be assured of a fair chance to win an award. The judges are Sir John Ure Primrose, Sir Francis Powell, and Mr. C. F. Inston.

## Correspondence.

\* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.  
 \* We do not undertake responsibility for the opinions expressed by our correspondents.

### THE POSTCARD TRADE.

To the Editors.

Gentlemen,—This is, without doubt, an age of cheapness. But the general public expect quality as well as quantity. The difficulty is, how to fulfil the two requirements. Can we anticipate photography becoming a necessity instead of a luxury? For there can be no denying it is a luxury at present. Has the price anything to do with this? If so, will the decrease in price increase the demand? I am prompted to these remarks by the frequent request by customers to be photographed for picture postcards. Now, the person has in mind the cheapness of postcards when making this request. They wish to be photographed, but wish to have it done cheaply. I am only a country professional, and the town and district not a very large one. I have worked it out, and find that if I have two sitters every day in the year this will mean twelve per week. These at 5s. per dozen will yield me £3, or at 3s. 6d. £2 2s. But I also find that in about three years I shall have photographed every man, woman, and child in the town—that is, assuming the place to keep at its present population. Is it possible that all these will come to me, or that if they do not that sufficient of the others will give me resittings to make up for the want of the others?

Then there is another side to this question. Can I conscientiously ask two and a half times as much for finished cabinets when the unmounted postcard is almost equal in size, and receives the same amount of work. In fact, the only difference is, the postcard is unmounted.

Again, in some places I hear 2s. per dozen is the price asked, "and excellent photographs they are," is the comment.

Up to the present I have discontinued the portrait postcard trade, the demand becoming more persistent, I am questioning if an all-round price of, say, 5s. per dozen and 2s. 6d. for the second dozen would help to make photography a necessity.

I should like to hear the opinion of some who are working the postcard trade, giving the best value—no second or third rate work.  
 —Yours truly,

PORTRAIT POSTCARD.

### THE R.P.S. AS AN ADDRESS.

To the Editors.

Gentlemen,—The address attached to my name as Secretary of the above Society, in the extremely valuable directory of societies in your "Almanac" for 1907 is a private address for private communications only. I would be glad if you would allow me to ask correspondents to address all club communications to the address given as "Club Headquarters," the Polytechnic, Bedford Park, W. I am, yours respectfully,

A. G. FIELD, Secretary Acton and  
 Chiswick Polytechnic Photographic Club.

December 10, 1906.

[The address in question is that of the Royal Photographic Society, 66, Russell Square.—Eds., B.J.]

### SULPHIDE TONING.

To the Editors.

Gentlemen,—In reply to Mr. Thorne Baker's letter on the above subject in your last issue, I would say that it seems to me quite impossible that sub-bromide of silver should be formed when bromide prints are bleached in pure ferricyanide solution. For neither in the matter bleached nor in the bleacher is the element bromine present.

I take it that when ferricyanide solutions free from admixed alkaline bromides are used as bleaching agents, the product formed is white silver-ferricyanide. For if the action is allowed to proceed to completion the prints are in these cases literally bleached—the images become invisible.

The solutions of ferricyanide I used in my experiments had a concentration of close on 4 per cent., and I found that prints had to lie in such solutions for several hours before the bleaching was com-

plete. As I stated in my paper, the tone obtained by sulphuretting prints thus completely bleached did not appeal to me, but *de gustibus non est disputandum*.

It may be of interest to note that a print thoroughly bleached in potass ferricyanide, behaves in quite a different manner from one treated with ferricyanide + alkaline bromide when the treated prints are exposed to bright sunlight. In the former case an image appears which is generally a rusty yellowish-brown; but this image is faint and does not nearly attain to the intensity of the original bromide print. In the latter case, on the other hand, the sub-bromide image is rapidly darkened to an intensity differing but slightly, if at all, from that of the original print. The tone of the picture thus obtained by mere bleaching in a bromide bleaching solution and then subsequent insolation might possibly suit some subjects or appeal to some tastes.

DOUGLAS CARNEGIE.

Newcastle-on-Tyne.

### 'PHOTOGRAPHIC ASSISTANTS' PROTECTIVE SOCIETY.

To the Editors.

Gentlemen,—Up to the time of writing, seventeen names have been sent to be placed on the list towards the above Society. The above number consists of five ladies and twelve gentlemen. Ten others have made inquiries as to whether their names will be published in the "Journal." All letters and names are quite confidential, and will not be published. If the Society does not become strong enough to support itself all letters will be destroyed. Will the ten kindly give me permission to append their names to the above numbers; also any suggestions will be welcomed. A great number have asked questions regarding the same. Those who have not received a reply will have one in due course.

Out of the seventeen who have definitely sent their names, only four have sent suggestions, which I give in the following order:—

1. That an Assistants' Society be formed with the object of assisting the P.P.A. in every possible way to brighten the career of assistants.

2. That a Society be formed to petition the P.P.A. to have a central studio and rooms for assistants to go direct to pass all examinations, as the present method of testimony of present and former employers is disliked by many, owing to their present employers not being members of the P.P.A., the assistants being in favour of the P.P.A.

3. A Society of Assistants be formed to work in accord with the P.P.A. That we ask the P.P.A. to publish at a reasonable price an "Assistants' Quarterly," giving the names of those who successfully pass examinations, and other information which will encourage assistants of all grades to take up the cause. The leaders of the P.P.A. could then write articles on professional photography and the assistants generally; this would give them more heart.

4. The only suggestion I can make is this: That the assistants form a Society, and publish a monthly review, giving all experiences of different things that occur in the different spheres of work. Also to give every assistance to the P.P.A. in furthering the good work they are trying to accomplish.

Now that a good number have ventured to tackle the problem, perhaps those who have hung back waiting to see the result will now send their names and any suggestions. One point which is very evident in the letters is that the P.P.A. is evidently well respected generally, and a great many are hanging back from it through no cause at all.—Yours faithfully,

19, Richmond Terrace, Romsey, Hants.

U. DOUSTR.

### THE CANVASSING FRAUDS.

To the Editors.

Gentlemen,—I beg to call your attention to the enclosed cutting from the "Central Somerset Gazette," Glastonbury, December 8, 1906. The "free portrait canvassers" have been working this district for some weeks past, giving an address at Weston-super-Mare as their headquarters.

I know of one case in Glastonbury where a gentleman allowed them to make two "free enlargements," which were ultimately brought home ready framed in German gilt, 50s. being the price asked—and well-nigh demanded—for the pair of frames. But in the meanwhile I had called the gentleman's attention to some recent issues of the B.J., with the result that the enlargements were removed from the frames and kept, and the frames refused. I



brought this to the notice of the representative of the local paper, and the enclosed cutting is the result.—Yours truly,

High Street, Street, Somerset, F. HIGDON.

[The paragraph referred to by our correspondent runs as follows:—"Complaints have reached us from some of our readers, who allege that they have been victimised by persons carrying on the 'free portrait swindle.' This is apparently the same gang whose operations have been exposed in other parts of the country, and we counsel our readers to be on their guard and to have no dealings with these plausible canvassers. If proposals are made to them to participate in backdoor transactions of this nature the best course for our readers to pursue will be that advocated by the 'Llangollen Advertiser,' who in a similar instance recommended its readers to close their pockets, open the kennel door, and let the house dog do the rest."—Eds., B.J.]

#### WASHING POSTCARDS.

To the Editors.

Gentlemen,—I observe from your issue of the 7th inst. that "A Country Postcard Printer" has not been succeeding to his satisfaction with the method of washing postcards described in my article on postcard printing ("B.J.P.," September 14, 1906). The question he raises is so obviously one of manual dexterity that there is bound to be wide differences with various workers, and my object was not to set a time limit, but to describe an efficient and quick method of washing. This I still think was done. I find from my workroom notebook that the total time of toning, fixing, and washing postcards in the manner I described averages three hours for two gross, with assistance in washing, to four hours single-handed. These times are very constant for a number of entries ranging over eighteen months. When writing the article I allocated, as I thought, a sufficient portion of this time to the washing, but there is no doubt that I gave too much time to the toning and too little to the washing. From actual experiment I find that washing after the manner I described occupies seventy to seventy-five minutes. *Per contra*, the time occupied in toning is very much less than I had imagined it to be, hence the net result remains the same.

Of course, it is impossible to lay down hard and fast rules in a matter of this kind, so entirely dependant on individual expertness. Your correspondent appears to be giving an excessive amount of time to draining if he only records two dozen per minute. It is when leaving the fixing bath and the first two or three washing waters that deliberate draining is necessary; after the first squeezing the surface "hypo" is largely eliminated. I would strongly recommend your correspondent to use the permanganate test, and be guided by its indications.

I have not tried "A Country Postcard Printer's" method of pinning each card to a cork, and I am afraid that at present I have not sufficient leisure to do so, but I incline to the opinion that with a little practice he would find the method I described quite as simple and certainly quite as quick as his own.—I am, gentlemen, yours faithfully,

G. T. HARRIS.

Sidmouth, December 9, 1906.

To the Editors.

Gentlemen,—Your correspondents who are in trouble over the washing of postcards may be interested in my method of handling batches of from 600 to 1,000 of toned P.O.P. cards. I use large domestic baths with a net stretched over a stout wire ring fitted about four inches from bottom. The water is running throughout the toning, and each card as toned is thrown under the tap, which rinses off all adhering solution.

I tone 50 to 70 at a time, and I turn over the cards in the baths thoroughly every ten minutes or so. When about 300 are in one bath I put a syphon on to bath No. 2, and so on. By the time I have filled bath No. 3 the cards in No. 1 are nearly ready to come out. I squeeze and place on special racks to dry, and flatten by pressure afterwards. On an average four hours is amply sufficient for handling and finishing 600 cards. I have had little trouble in obtaining permanency sufficient for commercial purposes. (I enclose card over fourteen months old.) In using combined baths, it is essential that two deep dishes should be used for quantities, passing cards rapidly from one to the other. Over-toning can then easily be checked.

It is only occasionally that I get a spoilt card in a batch since I worked on the above lines.—I am, yours faithfully, F. NEWELL.

Manningtree,

[The card enclosed certainly speaks well for this method.—Eds. B.J.]

## Answers to Correspondents.

- \* All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- \* Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- \* Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington-street, Strand, London, W.C.
- \* For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

#### PHOTOGRAPHS REGISTERED:—

Starr & Rignall, 108, Fitzroy Street, Cambridge. Three photographs of Dr. Stubbs Bishop of Truro.

P. Wynne, 518, Coventry Road, Small Heath, Birmingham. Photograph of the Birmingham Football Club, Season, 1906-7.

W. McCrae, 14, Berkeley Road, Dublin. Photograph of the Mater Misericordiae Hospital, Dublin.

C. C. Bedford, Carr Street, Ipswich. Two Combination Photographs Containing altogether 16 views.

OWING to great pressure on the "Answers to Correspondents" column this week a number of replies are unavoidably held over.

F. M.—You are evidently confusing several lenses. Those shown at the Royal Photographic Society—we believe they are still to be seen there—were taken with the Pulligny lens. The lens to which you apparently refer gives very similar results, but we have no experience of the anastigmats. Your best course is to write the agent, stating, more clearly than you have to us, whether you require a lens for artistic work or critical definition.

FLASHLIGHT, ETC.—A. Please publish a formula for flash powders suitable for dinners, at homes, etc. B. Is it possible to photograph a group on a theatrical stage without extra lighting, using rapid isochromatic plates and *f*/6.3 anastigmat lens? What would be the necessary exposure? Is a so-called green sensitive plate suitable?—OLD PRO.

A. As a rule nothing but pure magnesium is used, which is blown through a spirit flame. A simple formula is—

Potassium permanganate ..... 3 parts.

Magnesium powder ..... 4 parts.

Powder the permanganate, and then mix carefully with the magnesium without rubbing; 60 grains of this will give an exposure of one-tenth of a second. Considering the number of satisfactory commercial powders, it is hardly worth while mixing. B. It certainly is possible, and full details will be found in our issue for July 6, 1906, p. 529. The green sensitive plates are not so suitable as those described in the above article, or the newer panchromatic plates prepared with isocyanines.

GEO. ROSS.—We have no record of the addresses of the two companies. You could find out by application to the Registrar of Joint Stock Companies.

M. BARNARTT.—You could probably obtain them from Marion and Co., Soho Square, W., or Jonathan Fallowfield, Charing Cross Road, or a wholesale artists' colourman like Newman, Reeves, or Barnards.

BOOK ON COLLODION EMULSION.—Can you tell me through your columns where I can buy a first-class, up-to-date volume on making collodion emulsions for three-colour work, or give me

formulae for same, including sensitisers and developers? I have Hübl's work, but can find no information on the making-up of the emulsion.—A. M.

Baron von Hübl has written a special treatise on collodion emulsion, which has not been translated into English. "Collodion Emulsion," by H. O. Klein, published by Penrose and Co., would probably answer our querist's purpose.

**SAFE LIGHTS.**—Some two (perhaps three) years ago there was published a formula for staining the gelatine on plates to make them of use for light-filters for ordinary photographic work. The dyes recommended were aurantia, eosine blue, rhodamine, and tartrazin. I have looked through my bound numbers of the B.J. and Almanac, but cannot come across it. I tried it at the time, and stained two films, one a bright yellow and one a bright red. I have recently had the misfortune to break one of the lights of my darkroom lantern, and wish to replace it. Can you tell me where the information is to be found? I do not remember the strength of the solutions.—J. E. GUBBINS.

We are also unable to trace the particular formula, and probably it was given in some article or paper incidentally. There should be no difficulty, however, in making a red screen from the dyes mentioned, assuming that they are already in stock, and soaking the plates in—

Tartrazine .....	10 grains.
Rhodamine .....	5 grains.
Water .....	2 oz.

will give a good red filter. We prefer reducing the rhodamine to one-fifth of the above, and using a second screen dyed with methyl-violet; this gives an intense red which is very safe. See also "B.J. Almanac, 1907," p. 975.

**ACID BISULPHITE.**—In the "Almanac" for 1907, p. 789, occurs "acid bisulphite (com. liq.)," and on p. 757 "acid sulphite lye," which I presume means the same. The druggists here do not know it. Can you tell me what it is, and where it can probably be procured?—C. E. F. N.

The terms are synonymous, and refer to the commercial solution of acid sulphite of soda  $\text{NaHSO}_3$ , which is very largely used in dyeing, wood pulp manufacture, etc. There should therefore be no difficulty for any chemist to obtain it through his wholesale house. Care must be taken, however, to specify the lye and the degrees Beaumé, as the dry salt is not so stable. The lye can be obtained from the Lumière N.A. Co., 4, Bloomsbury Street, W.C.

**ANXIOUS.**—The whole thing depends upon whether you have any agreement, etc., and the only thing we can recommend you to do is to consult a local solicitor. It is impossible for us or anyone else to advise you without knowing all the facts as to the agreement, whether the person who sublet to you had any right, and so on.

**SULPHOCYANIDE TONING.**—1. Can you assist me in solving a toning difficulty? Gelatino-chloride P.O.P. prints, toned in bath in following proportions,

Gold chloride .....	1 gr.	} Mixed and used at once
Amm. sulphocyanide 10 gr.		
Water .....	7½ oz.	

instead of passing from red to purple, take a nasty yellow colour, and, if taken further, arrive at a bleached blue-grey. The lower the temperature of the bath the worse is the effect. 2. Does the use of electric light for printing purposes necessitate any modification of the toning-bath? I understand that electric light has a somewhat different effect upon the silver chloride from daylight. Would this influence the toning?—PRINTER.

The trouble is entirely due to the bath being used at once. When mixed with cold water, auric sulphocyanide,  $\text{Au}(\text{CNS})_3$ , is formed, and this acts in toning with the formation of silver sulphocyanide in which 3 of silver replace the gold. If the bath is allowed to ripen, then aurous sulphocyanide,  $\text{AuCNS}$ , is formed, and only 1 of silver has to replace the gold. The trouble may be got over by dissolving both salts in boiling water and allowing to cool, or by dissolving in a small quantity of water, boiling for five minutes, and then adding the rest of the water. The bath can then be used at once without the recurrence of the trouble. 2. No. The electric light, in consequence of its richness in violet

and ultra-violet rays, may affect the silver chloride more than the organic silver salt, and there may be therefore less contrast in the print, but as regards toning, there is no effect.

**PHOTOGRAPHING MACHINERY.**—I enclose a cutting from an advertisement of an engine. I will be very glad if you will reply to the following:—1. How is the outline of this photograph softened, or background darkened? 2. How should one set about photographing machinery for catalogue purposes (plates, developer, etc.)? 3. What is the best way to subdue reflections from polished surfaces? 4. Are there any books on "Photography of Machinery"?—A. WILSON.

1. The shading, if thought desirable, may be done with the air-brush, the machinery being photographed with a very light background. 2. Use ordinary plates and developer, such as you are accustomed to. 3. By coating them with the colour, given on p. 997 of the "British Journal of Photography Almanac," just issued. It would be best to coat the whole of the machine with the colour before photographing it. 4. No; there is no book devoted to the subject.

**DRYING NEGATIVES.**—I recently put a negative up to dry when the weather was very damp. After about thirty-six hours I looked at it and only the edges were dry. About that time the weather became brighter and dryer and the negative soon dried, but on examining it again I found that the part that had dried first was not so strong as the centre which had dried more quickly. This is, I believe, a well-known phenomenon. Can you tell me: (1) The cause; (2) the means to prevent; and (3) the remedy for this state of affairs.—H. J. L.

1. The cause of this phenomenon has never been accurately determined, though Liesegang proved many years ago that when a negative was dried by heat it became denser, and he ascribed this to a closer aggregation of the silver particles. 2. The means to prevent are either to dry in a draught or in a warm place such as a mantelshelf over a fire. Or the negative may be immersed in methylated spirit for five or ten minutes, and then it will dry very rapidly near a fire. 3. It is almost impossible to even the marks out when once they occur.

F. M. W.—We have never made any such offer. Something of the kind is offered by the Professional Photographers' Association. Better address the Secretary at 89, Albany Street, London, N.W.

**GLAZING POSTCARDS.**—I should be extremely obliged to you if you could inform me by what process the glazing of collotype postcards is done. 1. Are they done by gelatine, or by using a solution of shellac bleach and borax? I should be pleased if you would give me some details of a practical method. I have seen several cards glossed and have peeled off the film, but it appears too tough to be only gelatine, or otherwise it is thickly coated. Would it not be possible to coat these cards straight off the machine, as the ink is greasy, and it would be a job to get the gelatine solution to flow evenly without the use of plenty of spirit? 2. At the same time, could you give me the address of the Photographic Novelties Syndicate, Limited?—Geo. Ross.

1. Postcards are glazed by floating on the borax shellac varnish sometimes; but the film sent is obviously gelatine, and is probably obtained by squeegeeing the cards after printing and when the ink is dry on to sheets of glass, which have been previously waxed, and which are coated with a 5 or 7½ per cent. solution of gelatine containing a little chrome alum or formaline. If a 5 per cent. solution of gelatine is used, with about 5 per cent. of the total weight of gelatine or formaline added, this should answer the purpose. 2. We do not know the address.

**STUDIO RENT.**—I would be very much obliged if you could give me any information on the following, as I am entirely at sea in the matter. I have for some two years been renting a photographic business, the studio having been standing and used as such for a few years by the owner without having been called upon to pay rates for same. I had it rented from the owner for two years, and was told by him they could not claim rates upon a place used for that purpose, as a photographic studio was classed as a workshop, and during the time I had it I was not called upon to pay any rates whatever. This last summer, the owner of the studio wished to have the sole use of it for a cycle repairing shop, so I had to give it up. But a friend of mine got one erected on



the same piece of land on which the other studio stands (now used as a cycle shop), so that the two erections are standing side by side on land rented by the owner of cycle shop. I still have the photographic business rented of owner of cycle shop, and therefore pay no rent for the ground on which the studio stands. The owner of cycle shop pays that. Now, I have been called upon by the local authorities to pay rates assessed at a rental of £5. The photographic studio only cost altogether £17. I have agreed to pay my friend a rental for studio equivalent to a 10 per cent. on the cost of studio, which will come to about £1 15s. a year. What I would like to know is: Can I be compelled to pay rates on a photographic studio, and if so, can they claim on what they think—i.e., £5, or only on the actual rent I pay?—W. A.

It is an open question whether a studio is a workshop in the strict legal sense, as it has been held that it is, and also the other way, too. The usual custom is that the rates are assessed on the actual rent, and your only plan is to appeal to the local assessment committee against the assessment and state fully your rent.

**WASTE PIPES.**—I have been very troubled of late through the waste pipes in my printing room sinks becoming choked. Practically the whole of my printing is carbon, and the arrangement I have is three large earthenware sinks—one for the tissue, one for the temporary support, and one for the alum. I have also fixed a hot-water sink for the developing. The waste for these different sinks all runs into one large 2-inch waste pipe. I find that periodically this pipe becomes coated and choked up with a curious mixture that seems to be alum and gelatine, so that the work is stopped completely. I have tried cleaning the pipes with strong soda water, but this seems to have little effect, and should be glad if you could let me know of anything which would effectually clear them out.—DARK ROOM.

No doubt the compound is gelatine in some form, and the best thing to remove it is boiling water, allowed to act on it for some time, and then one of the domestic rubber force cups, which can be obtained from any ironmonger. After the work is done every day hot water should be run through the pipes for some time so as to clear them.

**ENLARGING LANTERN.**—I have made, upon popular models, an enlarging lantern with 11-in. condenser, and, as far as I can make out, is made properly, but upon lighting up and focussing for a disc of white light upon the screen I get a semi-black disc of the same size as the white disc would be, with a small halo of white light with reflection of gas mantle and reflector in centre. I have tried ground glass interposed between condenser and source of light, and moving light to and from condenser, all to no purpose. I cannot get a white disc of light at all. Do you think the fault lies in the plano-convex condenser, as looking through condenser you can see the gas mantle and reflector quite clearly, instead of the white bullseye of light, which I presume ought to be? Kindly advise me on the matter, as the lantern, etc., seems all right, and I do not know whether the fault lies with the condenser or my handiwork.—F. O. WATTS.

The black centre is due to the distance between the light and condenser being wrong—probably too near. With condensers of such large aperture the focus would be some distance away. The only thing is to shift the light to and fro till a perfectly even disc is obtained. The image of the mantle cannot be avoided, and some diffusing medium, such as the finest ground glass, must be used.

**WET COLLODION TROUBLE.**—Will you kindly inform me how to overcome streaks on half-tone negatives (wet process) caused by alcohol running down the plate in lines during exposure? The plates are well drained before put in the dark slide. I have tried evaporating the silver bath, but after being in use a day or so they appear again as bad as ever. I find putting alcohol in the developer no remedy. The strength of my bath is between 32 and 40 grs. to the ounce.—ALCOHOL.

We scarcely understand what you mean by "alcohol running down the plate." We presume you mean the bath draining down in streaks. That it is very prone to do if the collodion is very new or of a horny character. The best way of avoiding the trouble is to use a collodion that has been iodised for some time—say a few weeks—allow it to well set before the plate is put

into the bath, and then move it about while in the solution so as to remove the solvent in the collodion as much as possible. Then drain well before putting the plate in the slide. Your bath is unusually strong; from thirty to thirty-five grains to the ounce is ample.

**SENSITISING CARBON TISSUE.**—Are there any substances other than the chromates and bichromates that may be used for sensitising carbon tissue?—F. B.

No. Not to be of any use.

At the recent Milan Exhibition Messrs. L. and C. Hardtmuth were awarded against all comers the Grand Prix for their pencils.

**THE Scottish Portfolio.**—This favourite circulating exhibition again "on the road" round the Scottish societies. From the 2 prints submitted to him Mr. Alex. Keighley, Keighley, Yorks, selected 98 to form the portfolio, but he has been unable to select one as winner of The Macdougald Plaque (a specially designed plaque gifted by last year's president of the Scottish Federation) the best picture entered for the Portfolio. He has placed two prints (both figure studies) equal first—viz., "A Sleepy Story," by Murray, Barrhead; and "A Study in Gum," by A. W. Hill, Shot the energetic Portfolio secretary. In a lengthy criticism on the entries, Mr. Keighley, amongst much interesting matter, gives the following definition of a perfect negative:—" . . . . The relative tones (i.e., degrees of light and dark) are dependent on the time of exposure and the sensitive plate. By giving a subject, say, half a dozen different exposures on separate plates, as many different renderings of the same subject will result, one of which may be truer to nature than the rest. This, and this only, is the perfect negative; the rest, however "plucky," sharp, clear, etc., are wrong. It is a useful practice to compare the print with the original scene and to notice if the values are right." The Portfolio, in its tour round the societies, is accompanied by a magazine in which may be recorded the opinions and criticisms of those who view the exhibition. To the society situated remote from the populous centres this Portfolio will form a welcome feature in club life and give the members an educative glimpse of what other folks are doing, and the glimpse will be more satisfactory than many reproductions in the press, if they see the actual photographic print unaltered by any half-tones block.

**MR. SYD. SAWYER**, whose photographic work has long been known for its excellence, particularly in group and genre work, has now broken out in a new direction, and on Monday, the 17th inst., at the Scala Theatre, a new one-act humorous play will be presented by the Wyndham Dramatic Club as a prelude to the "Red Lamp."

**THE Eastman Kodak Company of New Jersey.**—The usual quarterly dividends of 1½ per cent. (being at the rate of 6 per cent. per annum) upon the outstanding preferred stock, and of 2½ per cent. (being at the rate of 10 per cent. per annum) upon the outstanding common stock, have been declared by the Eastman Kodak Company of New Jersey, payable on January 1, 1907, to stockholders of record on November 30, 1906.

"HOUGHTONS QUARTERLY" for November, just to hand, is a bright got-up number, with seasonable announcements and offers.

**\* \* NOTICE TO ADVERTISERS.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## SUMMARY.

Members of the Croydon Camera Club visited Messrs. Wratten and Wainwright's plate factory recently. The report of this interesting inspection appears on page 1004.

The Lumières have published particulars of new "sulphited" developers. (P. 1007.)

A quick-change movement for focussing-screen and dark-slide is among the patents of the week. (P. 1014.)

A number of points connected with the effective production of stereoscopic prints are discussed on page 1002. Stereoscopic workers are recommended to devote greater care to correct orthochromatism of their negatives.

The conclusion of the paper on measurement of shutter speeds appears this week. It will be followed in our next issue by the discussion. (P. 1009.)

A rocker for the dark room is recommended by a German worker, who publishes details of the one used by himself. (P. 1012.)

The London Camera Club.—Proposals for the immediate occupation of club premises are announced. (P. 1015.)

In the course of an article on page 1005, Mr. F. Dundas Todd outlines a system which professional photographers should apply, with modification which may be necessary, to their own businesses. (P. 1005.)

A case was heard in the Court of Appeal last week in which compensation for injury to a chemist under the Employers' Liability Act was withheld. The chemist, according to the ruling in the Appeal Court, was not a workman. (P. 1002.)

## EX CATHEDRA.

### Pyro-ammonia.

The evergreen subject of development was on the programme of the Croydon Camera Club last month, and Mr. H. W. Bennett once more seized the opportunity of praising pyro-ammonia, which at one time was a much favoured developer of our own. He is, however, reported to have said that it does not oxidise so rapidly as pyro-soda, and if the report is correct one must differ from this conclusion most emphatically. For the production of clean, unstained negatives pyro-ammonia is not to be beaten, but for the production of a greasy mess of oxidised pyro in the shortest possible time it is unequalled. We never met with a pyro-ammonia developer that could be used with any satisfaction for two plates in succession, while we often use pyro-soda for three or four, and have used it for six, with perfect success. As regards results, there is little fault to find with pyro-ammonia, and for making the best possible negative from a bad case of over-exposure it is unrivalled. Owing, most probably, to the volatile nature of the alkali, it is the ideal developer for over-exposure, and an exposure of thirty times the normal can be tackled with confidence if the citrate method of restraint is adopted. As regards convenience, the trouble of keeping the ammonia solution puts the developer altogether out of count beside pyro-soda and the modern developers. It was impossible to work it satisfactorily without the aid of an hydrometer to make up and test the ammonia solution, and unless great care was taken in this respect every plate developed had to be treated tentatively, development by time being impossible. It was a difficult matter to produce two negatives exactly alike, and a risky matter to attempt the development of a number of different negatives in one dish. The smell was also a serious objection to many people. Probably the reason why the developer held its own so long was its cleanliness so far as the negatives were concerned. The early pyro-soda developers produced abominably stained negatives in various shades of brown and green, and as soon as this defect was cured pyro-ammonia was doomed.

### Photography at the British Museum.

In a recent issue the "Newcastle Chronicle" reiterates a complaint against the authorities of the British Museum in respect of the new rules, whereby a fee of 2s. is charged for photographing. Our contemporary goes on to say that the new rule will be to close the Museum against all attempts to popularise it by offering the public faithful representations of the antiquities, but it should be remembered that there is another side to this question. At one time anyone could take a camera and photograph any object he liked without pay-



ment, and, as a consequence, cameras became more or less a nuisance in the Museum, whilst the pictures obtained were never seen by the public. During the photographic operations visitors could not examine the objects. Furthermore, the attendants' time was taken up in standing by watching them if they were removed from their usual places, which was frequently the case. The new rule will not much attract professionals who have commissions to execute for publishers, as they can legitimately charge the fees to those for whom they do the work. At the National Gallery amateurs are not permitted to photograph the pictures, a rule which the late Camera Club tried to make the object of an agitation, alleging, curiously enough, amongst other arguments, that amateurs could spend more time over the work than professionals, but apparently forgetting that all that time the public were deprived of the pictures. Professional photographers can obtain permission to photograph the pictures because then they are published, and the public can get copies of them. In one instance, we are told, a foreign firm obtained some extra facilities for doing the work because it undertook to issue a certain size of the reproductions to the public at quite a nominal figure. It seems to us that the recent rule at the British Museum is by no means a bad one. The fee may tend to deter amateurs from blocking up the objects with their cameras to the inconvenience of visitors, who will never see the results, while professionals can charge the fees to their clients, and the public will have the opportunity of seeing the reproduction. After all, the fees are not exorbitant.

\* \* \*

#### Employers' Liability.

A case of great importance where services of persons of scientific attainments in certain manufactures are necessary was before the Court of Appeal last week. In brief, it was as follows: A gentleman, a master of science, of Manchester, was in the employment of a firm of manufacturing chemists, and during the course of his work met with an accident to his leg, as a result of which he died from blood-poisoning. His widow entered an action in the county court, under the Workmen's Liability Act, for compensation for the loss of her husband. The defence was that the deceased was not engaged as a workman, but as a master of science in a totally different capacity. It appeared that he had to do a good deal of manual labour, such as turning on steam-cocks, taking samples, testing, and charging pans, about five-sixths of his time being thus employed, the remaining one-sixth being spent in the laboratory. He received a salary, which was paid monthly. The judge who heard the claim held that the fact of a man being a master of science was quite irrelevant, so long as he did manual labour, and accordingly he awarded the widow £300 as compensation. The defendants appealed against that decision, and the appeal was heard last week. It was allowed by a majority of the judges, and the case sent back to be re-heard.

\* \* \*

#### What is a Workman?

In delivering judgment, the Master of the Rolls said that the employers intended to avail themselves of the skill of the deceased in his capacity of master of science and not of a workman. He was not even employed under the conditions of an ordinary workman. He started work later and received a salary. The fact that he did manual labour would not alone turn him into a workman. In order to carry out the agreement it was necessary that he should do some amount of manual work, and in these circumstances he thought the appeal should be allowed. Lord Justice Cozens-Hardy agreed, but Lord Justice Farwell dissented, seeing nothing in the facts that the deceased's hours were

different to those of the other men, and that he received a salary instead of a weekly wage, sufficient to overcome the fact that he worked five-sixths of his time with his hands, and that in his absence his work would be done by an ordinary workman. On the finding of fact, he thought the deceased was a workman within the definition, and that the widow was entitled to the Act. Here it will be seen that the judge of the county court and one of the judges of the Court of Appeal are of the opinion that the deceased was a workman within the meaning of the Act, while the other two judges were of the opinion that he was not. Though there is no direct photographic interest in the above case, it must be remembered that in photographic manufactures there are usually one or more persons who are engaged solely on account of their chemical and scientific knowledge, yet they usually have to do more or less manual labour, and the above ruling may materially affect them in the event of their meeting with a serious accident when following their ordinary avocations. There seems to be a nice distinction made between salary and wages, and between an ordinary workman and one possessing considerable scientific knowledge, which it is difficult for a layman to understand.

#### SOME MATTERS CONCERNING STEREOSCOPY

A short time ago (September 28) we gave the rule for determining the correct separation between two stereoscopic prints, but since then we have come across so many conflicting but very positive statements with regard to the matter that it is evident the rule is not well known and is seldom observed. The most prevalent idea seems to be that the distance is a fixed one, not dependent on lens separation or eye separation or construction of stereoscope, and a curious feature is that this "fixed" distance varies with different authorities from about  $2\frac{1}{2}$  in. up to 3 in. The fact that there is no fixity about the distance should be apparent from the following considerations: A fundamental and indisputable rule of stereoscopy is that the prints must be viewed under the same angle of convergence as that at which they were taken. Suppose we apply this law in the case of very far-distant objects, then it is manifest that even with widely separated camera lenses the light transmitted through the one lens is virtually parallel to that transmitted through the other, or, in other words, that the angle of convergence is 0 degrees. It follows, then, that the results must be observed with parallel binocular vision, which means that if the stereoscope is fitted with simple lenses or no lenses at all the separation of the prints must be equal to that of the eyes. Persons with different visual separation will then, strictly speaking, require differently mounted prints, though, as a matter of fact, the eye separation varies so little with different individuals that this refined adjustment may generally be left out of account. We may, however, use a stereoscope fitted with prisms instead of lenses, and then a serious variation occurs. Assume the prisms to be perfect half-lenses, the centre of each half-lens being opposite the centre of the eye. If the prints, mounted with a separation equal to that of the eyes, are examined through this prismatic stereoscope, the visual axes are not parallel as they should be, but strongly convergent, and the fundamental law of equal convergence is violated. To preserve parallelism of the visual axes the separation of the prints must be increased by a distance equal to the width of one prism, and if this is done it will be found generally that the conventional "limit" of separation is considerably exceeded. Thus if the separation of the eyes is  $2\frac{1}{2}$  in., and the width of a prism is  $\frac{3}{4}$  in., the total correct separation of distant points in the prints is  $3\frac{1}{4}$  in. The separation for

near points is very much less, and, as very distant objects seldom show in stereoscopic views, the prints generally have to be adjusted for near objects. If the rule is applied in the case of very near objects, with lenses widely separated, it will be found that the print separation is very small; it may even be so small that the prints cannot be mounted side by side. It can easily be understood that the farther the lenses are separated the greater is the angle of convergence for near objects. When the resulting prints are examined, this angle of convergency can only be reproduced by mounting the prints close together, and it follows that the wider the separation of the lenses the less must be the separation of the prints. If the mounting separation is too great—and it nearly always is made too great in the rather exceptional case of a near object being photographed with widely separated lenses—exaggerated or distorted relief is produced.

It is often forgotten that the stereoscopic relief shown by two images made from two different standpoints is greatly aided by other non-stereoscopic conditions that suggest relief and solidity, and that the illusion may be partly or completely destroyed by neglecting those conditions. It is well known that a good photograph, if viewed with one eye from the proper perspective standpoint, will show a very marked appearance of relief and solidity. This "monocular relief," as it may be called, is due simply to very perfect perspective drawing as regards form, shade, and gradation, and, if the fact that the picture is on a plane surface is not forcibly impressed upon the observer by undue roughness or shine, the illusion may be most striking. Each print of a stereoscopic pair should show this appearance of monocular relief to perfection if the stereoscopic effect of the two prints is to be perfect, but very commonly it does not, because in very few photographs is the perspective quite correct. As regards outline, there is no fault to find, for the lens looks after that branch of perspective, but the aerial perspective is very frequently all wrong, owing to wrong exposure and wrong values. A common defect that we have noted in much stereoscopic work is under-exposure. This results in a want of differentiation in some of the deeper gradations, with the result that planes really at different distances are brought together into apparently one plane. In such a case foreground dark objects appear in the stereoscope like silhouettes, and lose all rotundity. Over-exposure may give a similar effect in the case of light objects, while if any reversal exist the aerial perspective is even inverted. If the objects are familiar ones, a very bad effect may be produced, for while the outline may show that one object is farther away than another, its shading and gradation may suggest that it is nearer—two conflicting effects that spoil the result altogether. Then, again, if the values are wrong, a similar conflict of impressions may exist. Assume the existence of two objects of different colours—say, red and blue, but of the same luminosity at one particular distance. If the red is removed to a greater distance it will appear lighter than the blue; while if the blue is farthest away it will appear lighter than the red. If, however, no attempt is made to secure correct values by orthochromatic methods, the red will appear darker than the blue even when much farther away, and, provided the true relationship of the two colours is known, a false effect of relative distance is produced. We fear that orthochromatic methods are greatly neglected in stereoscopic work, and that the extreme importance of true representation in all respects is not fully realised.

Many people have stated that a stereoscopic effect can be produced by examining a pair of precisely similar prints in the stereoscope, while many others have not only denied this, but have stated that no effect of relief at all can be

observed. In order to get at the facts of the matter, we have experimented a good deal in this direction, and find that the explanation of these varying opinions is a fairly simple one. If two similar prints, quite perfect in drawing and gradation, are trimmed exactly alike and mounted like a stereoscopic slide, the same relief is observed in the stereoscope as is visible in the case of one print examined from the proper standpoint with one eye. The effect is, perhaps, somewhat more realistic, owing to the use of the two eyes, for we are more accustomed to use both eyes together, but it is no greater. Moreover, people "blind to form"—and there are many such—fail to see the relief in either case. If, however, we trim the prints stereoscopically in accordance with the law of convergency, so as to introduce real stereoscopic relief between the plane of the mount and that of the prints, a somewhat striking effect may be produced. The mere fact that the subject is seen either in advance of or behind the mount at once suggests to the mind that the subject itself must be solid, or have rotundity and relief, and if there is no bad perspective or defect that militates against this impression, a positively startling effect may be observed. Many persons who can see no appearance of relief in a single photograph, or in two trimmed similarly, will at once see the effect in the "semi-stereoscopic" slide, though a few who are rather more absolutely "blind to form" will fail. Such semi-stereoscopic slides will be passed as fully stereoscopic by many people not in the secret, and this fact has not infrequently been taken advantage of by unscrupulous traders. Many curious and interesting experiments may be made on these lines, and we possess a number of experimental slides made up in this way that gives us nearly as much pleasure in examining as orthodox fully stereoscopic pairs. It is worth while specially looking out for prints suitable for the purpose, for an important lesson may thereby be learned. It will be found that, while one subject will make a most successful slide, probably the next dozen others that you try will not give the effect at all, solely owing to their erroneous perspective and gradation. It forms an admirable test for true photography, though a somewhat discouraging one when you try it. It may be noted that the best effects are generally obtained when the inner margins of the prints are most closely trimmed so that the subject appears to stand out in front of the mount. An extra gin should be taken off the inner margins, and the mounting separation should be 3in. or over, while the results should be examined in the stereoscope at the greatest distance possible. Half-tone prints will often give a good effect, and we may cite as an example of a good subject Mr. Cruwys Richard's "Adeline," which often appears as an advertisement illustration. With a suitable full-face figure a curious effect can be produced by inclining the figures towards each other, but trimming the edges parallel. If properly done, the lower part of the figure appears behind the frame, and the head in front of it, the effect being that of a person leaning towards you out of a window-opening. Hand-painted subjects will give equally striking results, provided the drawing, modelling, and gradation is true to nature.

**BURNLEY Camera Club.**—A change of secretaryship is announced, Mr. A. E. Cooper, of 51, Carter Street, Burnley, succeeding Mr. A. Jackson.

**THE Queen of Norway** has honoured the managing directors of Speight (Ltd.), the child photographers of New Bond Street, W., by accepting from them for Prince Olaf a copy of their work, entitled "Baby's Album." The volume was specially bound in grey jarrah roan, similar to the copy recently supplied for the Queen of Italy. Colonel Knollys, in acknowledging the gift, expressed the great pleasure it gave Queen Maud in accepting the album.



## A VISIT TO A DRY PLATE MANUFACTORY.

As briefly intimated last week, about forty members of the Croydon Camera Club, at the kind invitation of Messrs. Wratten and Wainwright, paid a visit to their works on the 5th inst.; every step in the manufacture of a dry plate from start to finish being explained and shown in actual operation under ordinary working conditions, except that the plates, regardless of waste of emulsion, were coated, dried, etc., under the full glare of the electric light. Light refreshments, both liquid and solid, of a most varied nature, were then partaken of in Dr. Mees' laboratory, the guests of the evening being well looked after by a number of charming young ladies daintily attired.

### The Arrangement of a Plate Works.

In welcoming all, Mr. S. H. Wratten, on behalf of the firm, said:—

I believe that the visit here of my fellow members will represent the first occasion on which a photographic plate works has been open to inspection, other than to those intimately concerned in the works. This might appear to be due to a natural conservatism, or a fear of exposing secret processes; but although these reasons certainly hold, there is, perhaps, a still stronger one why a plate works should tardily open its doors, viz., that of cleanliness. It is not possible to manufacture plates except under very strict rules as regards cleanliness, and although we shall not have the pleasure of your being here for more than a short time, yet owing to the dust which will unavoidably enter with you, it will not be possible to resume work until a full day has been given up to cleaning. When considering the best means by which we could utilise the time at your disposal, we thought that it would facilitate matters if I were to premise your entry to the practical manufacture by giving you a short description of what you will see, so that when you enter a department whatever is on view will be largely understood. We shall first visit the glass department, where the glass received from France, Belgium, and Lancashire, is cleaned and substratumed ready for coating.

### Cleaning the Glass.

Although glass cleaning is apparently a very easy task, yet it can only be satisfactorily done under certain conditions. There are some persons who cannot even handle a piece of glass without so affecting it as to make it practically impossible for it to be cleaned afterwards. This is a remarkable feature about glass, and one which we believe, if better known, would go far to explain many of the troubles which occur outside a plate works, and in branches of manufacture not connected with photography. The cleansing agent we use is a mixture of borax, whiting, and water, with occasionally a small quantity of spirit.

You will notice that the glass is sent to the works very efficiently packed, and although it has very rough handling at the Docks, we seldom have to complain of breakage. It takes five persons to clean and pack our glass ready for coating. There are three sinks for cleaning, one to put on the detergent, and two to wash it off, after which the plate has to be substratumed. The substratum is simply a mixture of chrom-gelatin solution and water, which helps the film to greater adherence to the glass. After being substratumed, the glass has to be dried and inspected, and is then packed ready for coating.

### Coating, Drying, and Packing.

We shall next follow the glass to the coating department, and here you will see that we have two machines in running. The one we propose to coat with to-night was invented by Dr. Smith, of Zurich. Its chief feature is the Mariott-Bottle,

which controls the feeding of the emulsion. So effectual is this apparatus that we can coat with an error which seldom exceeds 2 per cent. Perhaps it is needless to add here that our staff have had long experience with the machine, and the uniform results obtained are largely contributed to by systematic note-taking and checking. You will understand that both in starting and running the machine the laws of surface tension and resistance must be taken into account. I may state, *en passant*, that a plate-maker's life is spent in infringing natural laws, and finding out the error of his ways.

The temperature of the emulsion at the time of coating is a matter of judgment. It varies in accordance with the season, and is governed by the length of the setting-band; this is 23 feet long, to prevent too early setting. After coating, the plates are stacked three inches apart on the slant, and removed to the drying room, where they remain for not less than twelve hours, afterwards being removed to the packing department to be examined, and if necessary cut to the required size, before the backing and packing. Regarding the "backing," it will interest you to know that a demand for backed plates has shown up to now an increase of 400 per cent. over the same period in 1905.

The most interesting feature of the packing department is the machinery employed for cutting, four machines being in constant use, and one being kept for reserve. By far the best of these instruments is the electrically-driven Munro machine. The original design for this, we believe, emanated from a plate-maker. The capacity of this machine is very large; but the rate we now work it is designed to avoid "rush," and although the speed may appear fast to you, it is in reality somewhat slow to a practised operator. It may also be interesting to you to know that two members of the Croydon Camera Club are responsible for the design of our cutting-machines. The illumination of this room for all colour plates as a safe-light "green," excepting only the "Allochroom" for which a suitable "red" is used. For all other plates, an orange red colour is employed, which gives an abundance of light without risk of fogging. We shall next pass on to the safe-light and colour-screen making department. While we are proud to be able to show you filters and safelights fulfilling the actual requirements of practice, we have also made recently a set of orthochromatic filters, which are noteworthy for their perfection, viewed either from the point of colour, or of optical accuracy, the glass being optically worked to the accuracy of one wave length by Messrs. A. Hilger, Ltd.

### Light Filters.

As you are aware, this branch of our business has only been in existence for a little over two years, but the progress we have made during this period has justified our enterprise. At present we have to make screens and mounts of many designs, but we hope that shortly some lens-maker will recognise that since lenses were first designed another branch of photography has come into existence, necessitating the use of light filters in addition to the ordinary lens glasses, and that the present lens mount is now deficient, inasmuch as it has no provision for holding a light filter in position. When the optician grasps this fact, we feel sure that the present lens mount will, by a very simple alteration in design, be so made that a variety of screens may be carried by photographers, any of which may be attached to the lens instantly, with an assurance that, being in effect part of the lens system, the screen will be automatically held in a correct position. I do not appeal to the optician to also make the colour filters. These must of necessity be made to suit the plates if the best results are to be obtained. Coloured

glass for screens has proved an abject failure, being often worse than useless.

### A Works Laboratory.

The following outline of the Work's Laboratory was given by Dr. C. E. Kenneth Mees:—

In welcoming you to the portion of the works which is essentially my department, you will understand that for us, this is in the nature of a house-warming. We are, indeed, in the occupied in moving in, and hope to be occupied in this for the rest of our lives. If you were to see apparatus around you in a complete and final state, this would represent not healthy vitality, but a stagnant finality and for this reason, while much of the apparatus here is complex and complete, much other apparatus is experimental, and necessarily incomplete. There are three important purposes in a works laboratory—

1. It is usually occupied with the purification and preparation of substances to be employed in manufacture.
2. It is necessarily occupied in testing and checking the various products of the works before issuing them.
3. It should be occupied in direct scientific research connected with the manufacture.

The first purpose has but little application here. The substances employed in the manufacture of photographic plates can be obtained of a very high degree of purity, and their preparation in the laboratory is unnecessary. In the preparation room you will see some dyes for experimental purposes being prepared for use. The testing apparatus of this laboratory is naturally elaborate. A good deal has been published concerning these instruments, and there is no need for me to recapitulate it here. The exposing machine, consisting of a standard light and a sector wheel, you see in this room. From this the plates go to the developing thermostat in the dark room, and from that to the measuring photometer, which you find in the office. The gradation photometer, which was exhibited in the Royal Photographic Society's Exhibition this year, has not been yet satisfactorily completed.

A useful testing instrument, is the small Tallent spectroscope, which has been improved in several ways, notably by the addition of a small wedge of neutral tinted glass at the slit, which gives a diversity of exposures at one time.

In the enlarging room you will find a new instrument for testing the optical flatness of filters, which takes, by means of a battery of lenses, a number of small photographs of a brightly

illuminated cross reflected from various parts of the filter; these photographs by their identity or diversity, showing whether the filter will be satisfactory or not. The purpose for which this laboratory essentially exists is that research may be done, and the main work here is the organising and carrying out of new research work.

### Works Research.

Laboratory research work usually falls into three divisions:—

1. The testing of new processes and products coming from other sources. Considerable attention, for instance, is devoted to getting information of any new dye or new printing process which may be introduced.
2. The working out of suitable testing apparatus. You see above your heads, for instance, a very long box which has been recently devised for the purpose of testing plates as to their suitability for astronomical work.
3. Work with a view to investigating and simplifying the actual manufacture and process.

Our dark room up here, for instance, is equipped with an emulsion thermostat, plate-coating machine, and drying cupboard, so that we can make and finish some two dozen whole plates of an experimental emulsion without in any way interfering with the manufacturing machines and arrangements.

We have, during the last year, worked out in this laboratory the "Wratten Panchromatic," and the new "Verichrome," and "Allochrome" plates. We have also made two sets of orthochromatic filters, the first published at the Croydon Camera Club, and the second, the Filter Yellow K filters, and also a set of tri-chromatic filters. We have in actual progress and sufficiently far advanced to be mentioned, work on optically perfect filters and dark room safelights, and on plates for special purposes, besides the experimental work, on colour plates, which is a matter of routine in this laboratory. In conclusion, I would call your attention to the following pieces of apparatus which have not before been published. A 6ft. diffraction grating spectroscope, which gives a spectrum 8in. in length in the visible portion of the spectrum; the large apparatus overhead for testing astronomical plates, apparatus for X-ray photography at the other end of the room, and the filter testing apparatus.

At the instance of the President, Mr. W. H. Smith, a most hearty vote of thanks was tendered Messrs. Wratten and Wainwright, for the unique evening spent, as interesting as it was instructive.

## A SYSTEM OF STUDIO RECORDS.

(From the "Photo-Beacon.")

At a recent meeting of the Suburban League of Professional Photographers the principal subject for discussion was the very important one of studio records, the methods of keeping tab on all orders and of filing and storing negatives. The average photographer has had little opportunity of seeing the systems followed by all alert business houses these days, but he may rest assured that in one and all of them experts have complete yet simple plans whereby the head of a department can keep in touch with every detail by studying a form report each morning.

In tackling this knotty problem, we started out to learn the system followed by the photographer at whose gallery we met. We analysed the whole procedure, from the moment a prospective customer enters the studio until the last print of the order is delivered and the negatives filed away. Then discussion was started on alternative methods. It was my business to play the part of a listener, to note down what was said, and to endeavour, if possible, to catch the best points suggested, then blend the good features into one inclusive system. I found that each man had devoted special attention to one feature of studio routine, and it was very interesting to listen to two men thrashing out the strong and weak points

of each other's methods. After three hours' solid discussion, it was agreed the following system ought to be about right for 95 per cent. of all the galleries in this country.

The first entry is ordinarily made when the customer makes a deposit—part payment, it was agreed, was a better term to use. The general opinion was that after the sitting was the best time for this phase of the transaction, unless the sitter voluntarily offered the money earlier. Most of those present made the first entry in an ordinary day-book, thus:—

JUNE 12, 1906.

Paid out		Price.	Paid.
dols.		dols.	dols.
	John Smith, 64, Main Street, 1 doz. cabs. ....	5.00	2.00
	Miss J. Jones, Altona, 6 cabs, duplicates. ....	2.00	2.00
	The Mercantile Co., 12 (8 by 10). Amount due ..		8.00
1.53	The Gas & Coke Co. ....		
	Miss M. Smith, 24 Walnut, 1 doz. half cabs. ....		
.25	Wrapping paper ....	4 00	
25.32	J. Anderson, Berlin, 6 (8 by 10) house ..		
	The Photo Supply Co., May account ..		
27.20	Totals for day ..	14 00	13.00

This shows the day's business, and by carrying the totals



to a separate page one can readily keep tab on the business for each month and the year.

One member preferred to write all orders on a duplicating register, such as is in use in many general stores using the following form:—

**C. W. LONGDON.  
PHOTOGRAPHER,  
70 STATE STREET.**

No. 80703 Chicago 4/14 1906  
M. F. L. Dundas Todd  
Address 808 Security Bldg.  
Style and Size 12 Style C. Platinum  
Price 1.00 Paid 5.00  
Due 5.00 Delivered \_\_\_\_\_

Please bring this Check when calling for Pictures.  
Always bring your Proofs.  
Extra charge for finishing from more than one negative.

The slip given the customer is his receipt, the duplicate is placed on a file, and from it all necessary entries are made in the register books, including the cash transactions.

In a small studio the photographer has no difficulty in telling the sitter's name when he examines his negatives the day after the exposure is made, but in a busy gallery, where there may be from a dozen to fifty sitters every day, some method of record must be adopted. In such a gallery the sitter usually presents to the operator a card on which is written the particulars of the sitting. It also has the serial number, which must be written on the negative. The usual practice is for the operator, after the exposure is made, to slip an edge of the card into the holder, and it is then the duty of the dark-room man to write this number on the edge of the plate before developing, so that it will be permanent. A hard, round-pointed lead pencil will do all right; failing that, the head of an ordinary match; in fact, anything with which a firm impression can be given without tearing the film. The number is best placed in the centre of one edge, as if on the corner it may be obliterated when handling the negatives. When several exposures are made on the same subject, all plates are marked with the same number. If orders are made from more than one negative, each is then distinguished by the addition of the letters A, B, C, etc.

We will suppose the negatives made and ready for the printer. Those that are considered to be worth proving should be placed in what is known as a "waiting order bag," which is simply a 7 by 9 envelope of strong paper, in which they will be protected from dirt and scratches and at the time be all kept together. On the flap of this envelope is written the number of the sitting, and if the packages are all set on end, with the flaps up, and all facing one way, it takes only a few seconds to find the set of negatives wanted. In this form they are sent to the printing room to be proved, then returned to the envelope.

Proofs being made, marked on back with number, delivered and returned, we now come to the most intricate part of the photographic business, and here is where I have pleasure in presenting a system which is decidedly original, and, I think, by far the simplest I have yet come across.

I am led to understand that it is the invention of a Chicago reception-room lady, who gradually evolved it out of the

fulness of her experience. I have watched its working in practice, comparing it with systems based on the card principle that are so useful in general lines, and I think it is far better than the latter, because in fact it is a card system with the addition of the proofs, thus providing in less than a minute all the information the photographer or the customer wants to know.

The photographer takes a sheet of thick manilla paper, 4 in. by 12 in., and doubles it in the middle so that it becomes a four-page folder, 4 in. by 6 in. On the first page of this folder he prints the following form:—

No. \_\_\_\_\_  
Name. \_\_\_\_\_  
Style. \_\_\_\_\_ No. Negs. \_\_\_\_\_  
No. Prints Ordered. \_\_\_\_\_  
Proofs Ret. \_\_\_\_\_ Prom. \_\_\_\_\_  
Remarks \_\_\_\_\_

Short \_\_\_\_\_

Duplicates \_\_\_\_\_

Short \_\_\_\_\_

It is much condensed here, to save space; the other pages are left blank. On the inside he pastes each proof from which an order is given by one edge, and on each proof is marked the number of the order, together with notes to retoucher and printer; in fact, he frequently outlines the limits of vignetting or trimming.

This folder goes first to the retoucher, being placed inside the "waiting bag," already referred to, which now contains only the negatives from which orders are to be finished, all others having been discarded. At the same time there is placed an envelope in the incomplete drawer, referred to in next paragraph, so as to keep track of the prints, as in even the best regulated studios a negative is apt to get sidetracked once in a while. From the retoucher the negatives go to the printer. After each toning the finished prints are sorted out, and those of each order are placed in a large envelope marked with the sitter's name—in fact, the same kind that is used for the "waiting bag"—and sent to the reception-room. Here they are arranged alphabetically in two separate drawers, one for unfinished orders, the other for finished. If a customer calls for an incomplete order the reception-room lady delivers the prints on hand, marking on the envelope the number delivered and date, then returns the envelope to the drawer. She thus can know in a few seconds exactly how each order stands. After next toning-day the printer carries the entire contents of the incomplete drawer to the finishing-room, places the prints in the envelopes, and checks his "short" notes with those on the envelopes. The incomplete orders are

returned in one pile, finished orders in another, the latter being accompanied by the order folder. For the reception of these folders he has small boxes, which hold 100, and each is filed away as the order is completed. It will be seen that each folder is now a part of a very perfect card system—because it can be found in a minute, and when found it has all the information the customer wants to know. The presence of the prints avoids the necessity of making a trip to the printing-room to get a set of negatives from which the customer may select one for a recorder. It need scarcely be added that duplicate orders go through the same routine.

If any balance is left unpaid when full order is delivered the amount is placed in an ordinary card system ledger. In a small business an ordinary notebook will be enough.

The system outlined above is really a combination of the best parts of those followed by three different men. It was pointed out that in a large business there could be added with advantage a print record book, so that stricter tab could be kept on the orders after they were sent to the printing-room, so as to prevent any negative being accidentally set aside and forgotten. In this book is entered the name of each

customer under the date on which the negatives go to the printing-room. After each toning and before the prints are placed in the envelopes already referred to, the proprietor gets the printer to call off the prints on hand for each order, and the number is entered opposite the sitter's name. By this part of the system any neglect is readily found out.

One reader informs me that he finds numbering by date to be the best method he has yet tried. For example, all sittings made on June 12, 1906, will bear the number 61206. His negatives are returned to the original plate box and the boxes are stacked on edges in the original cases. In case of a reorder he pulls out the box bearing the proper date, and at once shows the customer the negative.

In most studios the odd-sized plates are rather a trouble, as, if numbered with the series given the cabinets, they leave blanks in sets of the latter. It seems to me that the date system would work very well with such odd sizes.

I am prepared to furnish any or all of the essentials for this business system, particulars of which will be found in the advertising pages.

F. DUNDAS TODD.

## ON THE USE OF SULPHUROUS COMPOUNDS AS DEVELOPING AGENTS.

(A communication to the Société Française de Photographie.)

The basic developers now used in photography are generally in the form of salts, such as the hydrochlorate or sulphate, and rarely is the base itself used as in the case of paramidophenol.

The employment of the base itself has the advantage of obviating the formation of alkaline chlorides or sulphates when an alkali is used as one of the ingredients in the developer. The chlorides and sulphates thus formed in the solutions in considerable quantities diminish considerably the energy of the developer.

The reason why the bases are so rarely employed is because they oxidise so rapidly when exposed to the air. We have endeavoured to obviate this defect by forming stable compounds of these bases with sulphurous acid. This acid would combine with the alkali contained in the developing solution, and forms sodium sulphite, which, as is well known, is used in all developers.

We have been able to obtain compounds of sulphurous acid with the bases of paramidophenol, methyl-paramidophenol, and paraphenylene diamine.

These compounds were prepared either by the action of gaseous sulphurous acid on the free bases suspended in water at 177 deg. Fahr., or by crystallising from cold solutions of the bases in commercial 40 per cent. sodium bisulphite lye. In certain cases, that of methyl-paramidophenol for example, the compound may be prepared by heating at 177 deg. Fahr., a salt, the sulphate of methyl-paramidophenol with a solution of anhydrous sodium sulphite with about one-fourth of its volume of sodium bisulphite.

The principal properties of these compounds are as follows:—

### The Compound with Paramidophenol.

White crystals having a faint smell of sulphurous acid, which do not turn brown when exposed to the air as quickly as paramidophenol. Very slightly soluble in cold water, about 0.05 per cent. at 60 deg. Fahr., more soluble in hot. The crystals dissolve easily in a warm solution of sulphurous acid, and are deposited on cooling in small white scales, which fuse

at 365 deg. Fahr., the same as paramidophenol with abundant evolution of sulphurous acid.

The amount of sulphurous acid, as sulphurous acid, after oxidation with bromide was—

	Found	Calculated for
H <sub>2</sub> SO <sub>4</sub> %	8	(C <sub>6</sub> H <sub>4</sub> OHNH <sub>2</sub> ) <sub>2</sub> H <sub>2</sub> SO <sub>3</sub> 24

It is not then a sulphite of paramidophenol, but without doubt an addition compound which practically corresponds to the formula—



### The Compound with Methyl-Paramidophenol

Methyl-paramidophenol, the sulphate of which is known as metol, fixes sulphurous acid more readily than paramidophenol. The combination is stable and has no smell of sulphurous acid. It is more soluble in cold water, 3.5 per cent. at 60 deg. Fahr., and this enables it to be used direct as a developer in the presence of sodium sulphite, and without the use of an alkali.

It forms small white crystals, which do not alter in the air and which melt at the same temperature as methyl-paramidophenol, 190 deg. Fahr., giving off sulphurous acid. It can be easily crystallised in a saturated solution of sulphurous acid with about one-fourth of its volume of saturated solution of sodium sulphite. Examined as the former compound it would seem to be an addition compound having the formula approximately—



To test its stability in air, the quantity of sulphurous acid was estimated at intervals, it being kept in a half-filled bottle lightly corked. The following results were obtained.

	H <sub>2</sub> SO <sub>4</sub> Per Cent.
Initial strength ...	12.98
After two days ...	12.6
After six days ...	12.5
After six weeks ...	11.5
After three months ...	11.5



This proves that the compound is relatively stable and practically can be used without special precautions.

### The Compound with Paraphenylene.

We have also obtained this compound in the form of small white crystals, having a faint odour of sulphurous acid, very soluble in cold water, 19.5 per cent. at 60 deg. Fahr., which are stable in air, and melt at 279 deg. Fahr. (paraphenylene melts at 297 deg. Fahr.), and evolve sulphurous acid. The formula is approximately  $9(C_6H_4NH_2NH_2) + H_2SO_3$ .

These compounds have developing powers comparable to those of the free bases from which they are derived. The solubility of the methyl-paramidophenol compound enables it to be used as a developer with only the addition of sodium sulphite. They are all sufficiently stable that they can be practically kept without alteration, especially in the solid state, which is not the case with the free bases. The use of these compounds as photographic developers is patented.

A. AND L. LUMIERE.

A. SEYEWETZ.

## THE SWAN NEW PROCESS ET QUIBUSDAM ALIIS.

THE article which appeared in "The Times" of August 28 on the new process of Sir Joseph Swan and his son, Mr. Cameron Swan, has not received, I think, the attention it merits. As it makes also certain claims for the new process, I should like, in no hostile spirit however, to show that, ingenious and original as the method as described undoubtedly is, yet it has important limitations which will not bring about the revolution in the "printing, paper-making and book-binding industries" as stated in "The Times," for the very reason that the revolution, as regards printing at least, has been accomplished. Any one who remembers, as I can, the conditions of printing 30 or 40 years ago, both as to machinery and paper in relation to process work, will see a vast difference. In one thing only I think we have retrograded, viz., the introduction and extensive use of the so-called "art papers" very aptly termed by "The Times" writer "lath and plaster." The difficulty of printing even with the present wonderfully improved mechanism, fine half-tone blocks produced by the screen grain method, has rendered it necessary to resort to the heavily-loaded and calendered stuff misnamed "art paper." In this respect the Swan new process may effect an important reform and enable fine screen grain work to be printed on ordinary good paper.

The idea of the Swan process is certainly to some extent original, and the method of carrying it out as described in the patent is very ingenious; but it can hardly be expected as regards half-tone to equal and certainly not to surpass the technical beauty and effect of a good print from a good intaglio plate where that beauty and effect consist not only in the velvety surface produced by the pile of the ink pulled out of the hollows, but—especially where damp paper has been used—the slight emboss produced by the "fronting" and blankets of the copper-plate press. And here I may remark on the curious fact that the antipathy for water evinced by printing ink—antipathy constituting one of the important factors in lithographic printing—is altogether absent when wetted paper is used either for plate or typographic printing. Printing ink takes most kindly to damp paper, and when the paper dries there results that delightful surface so pleasing and restful to the eye which the present horrible and heavy "lath and plaster" compound so woefully lacks. There is also to be noted the solidity of impression given by damp paper; an absence of mealiness. Fine examples of this may be seen in some of the early productions of the printing press. The wetting trough and board were for a long period and within living memory an essential part of a letter-press printer's plant. I am inclined to think it might be restored with some advantage to the legibility of book-work and quality of surface of the paper. But oh! what would be the appearance of half-tone illustrations produced by the screen grain? Something horrible to see! Here the Swan process would have, I think, an advantage very marked if damp paper could be used.

To return now to that process of printing from intaglio plates after the lithographic manner, it cannot, as I have said, equal the result obtained by the copper-plate press, not only for the reason given, but where "wiping" is done by the skilled hand of the artist workman—i.e., one not merely an artisan working mechanically, but with appreciative brain and instinct guiding his deft hand, the result is unapproachable by any method at present known. It is the acme of the printing art. In lithographic printing the ink is squeezed flat on the paper with a tendency in heavy inking and pressure to "spue" in the solids and thicken-lines. In this respect I consider the Swan process would show to great advantage, as the sunk parts of the plate will not get as heavy a squeeze as the level parts, and the

paper will pick up the ink from the hollows more approaching plate printing—"sed longo intervallo"—than in litho printing. Whether the solids will be "mealy" will depend, I should think, on the depth of the intaglio in those parts. If very deep the paper would probably not pick up the whole of the ink. I have not yet seen any examples of the work. I have no doubt it is good, as I feel sure neither "The Times," nor Sir Joseph Swan—an honoured veteran in photographic invention—nor his son, Mr. Cameron Swan, would put forward so prominently anything which is at all crude or unreliable. I take it for granted, therefore, that the new process is good and thoroughly practicable, its two special features being pure whites and rich blacks with gradations between those extremes. The process I have said is original in its conception, but this is to be modified to some extent by the fact that printing from an actual intaglio on stone producing exceedingly fine and delicate work has been long known. A ground of lamp black mixed with gum water is put on a litho stone, and when dry the subject is scratched in with a diamond point, and shows white against black. The works are then filled in with greasy material and the ground washed off. Printing is then done in the usual way, the ink taking to the greasy hollows and being rejected by the wet parts. Of course, the Swan process materially differs in the subject being automatically produced on metal and in half-tone screen grain as well as in lines.

As regards pure whites and rich blacks with gradation between those extremes, can these not be obtained also from suitable transfers taken from good intaglio plates and put down on stone, zinc or aluminium, either for the flat or rotary litho press? With the exception of any special advantage for effect due to diminished squeeze on the extreme and medium depths it undoubtedly can, and with this further advantage of very cheap duplication for long numbers by putting down several transfers. I have, myself, no craze for large quantities, and have had all my business life a preference for the little and good—"the few and fit." I prefer good results from hand-press work, either copper-plate, litho, or type-press, to any amount of millions reeled off by machine à la "Daily Mirror," or lesser quantities and better quality, as "The Sphere," etc., etc., results showing little of the human element. So no doubt I should prefer a good Swan print direct from the original plate to one produced from a transfer however good, reeled off from a machine however perfect. But from the commercial point of view the Swan plate, printing only one at a time, would have no chance against multiplication by transfers. Then if it comes to the question of the best means of obtaining a half-tone intaglio plate which can give good, practical transfers, I say without fear, justified by experience, that my Dallastint natural grain will be more suitable than any product of the screen grain. A very material point in favour of the Dallastint natural grain is that it can be made so fine as to carry microscopical detail, and will bear an immense enlargement without showing disagreeable texture. I have recently had and shown to the editor of this journal a bromide enlargement made from a print from an Intaglio plate 1 produced in 1869. The size of the original print is 4in. x 3in. The enlargement is 20in. x 16in.—i.e., more than 26 times the area of the original. The texture of the enlargement is anything but coarse. It can be described truthfully and without the least exaggeration as "fine." I am satisfied the grain of this subject, as well as that of the portrait of Adam Solomon, which I engraved in 1867 for the BRITISH JOURNAL ALMANAC of 1868, where it forms the frontispiece, could be enlarged to quad demy size, poster, or even larger, without

showing unpleasant texture or creating difficulties in printing. The same may be said also of the "Kenilworth Banqueting Hall," which I engraved in 1863, and, accompanied by a paper I wrote, was brought in that year before the British Association at the meeting at Nottingham. I printed some thousands from the plate (which I still possess), and the prints formed the frontispiece to the 1868 volume of the "Photographic News," the editor of which, the late G. Wharton Simpson, pronounced it the greatest advance which had been made in photo-engraving. Copies of the volume can be seen at the British Museum, the Patent Office Library, and the Library of the Royal

Photographic Society. I hope I am not blowing my own trumpet unduly when I say that example of my process shows qualities of a high order which the present method of photogravure does not possess and cannot possess without expensive handwork.

Now what would be the appearance of the screen grain in such an enlargement as I have described? Examples were to be seen on many hoardings advertising "Mellin's Food." They were hideously coarse and exaggerated unless seen from a very long distance. The Swan process, being a screen grain method, would not be suited for enlargement.

DUNCAN C. DALLAS.

## A NEW METHOD OF MEASURING THE TIMES AND EFFICIENCIES OF PHOTOGRAPHIC SHUTTERS.

(Continued.)

The cam is of such a shape that when the shaft has turned to a certain position, the arm F G drops over the abrupt angle of the cam, owing to the tension of the spring attached to A. This causes the bar C D to move upwards, sufficiently nearly in a straight line in a direction along its whole length.

The bar C D has a long slot cut in it, and a bolt passing through this at M clamps the bar L M in any convenient position. It will be seen that the point L of the bar L M has adjustments in any desired directions in the plane B C D E, by compounding a motion of M along the slot, and a twist of the whole bar L M about M. A screw passes through the bar L M at L in a direction normal to the plane B C D E, and gives an adjustment in this direction. By these adjustments the end of this screw is brought into gear with the shutter release, and the upward motion of the rod C D then serves to release the shutter. This motion can be regulated to suit the particular shutter under test.

With the mechanism so far described the release of the shutter would take place at each revolution of the shaft. This was found to be very inconvenient when high speeds of shutter were being dealt with, as there was not sufficient time, after setting the shutter, to get ready to observe the image. To evade this, a little catch, P Q (Figs. 5 and 6) was made to hold back the bar F G, except when release was wanted. P Q is pivoted at O, and the end P is placed opposite the core of an electromagnet R. A little spring keeps it up against the bar F G, except when the electromagnet is in action, that is, when the key switch S is down.

The electromagnet is put at such a distance that it exerts a force sufficient to overcome the little spring alone, but not this spring and the friction force between Q and F G. Thus it is only when the cam has lifted F G clear of Q that the catch Q is drawn aside by the electromagnet. This takes place when the portion opposite to the sharp angle of the cam K is in contact with F G, so that the arm F G is free to follow the cam when the angle turns round to G.

By the means just described the shutter may be set, and the release can be made by pressing down the switch S, as soon as the observer is ready to make a setting for the end of the visible image.

Several ways have been thought of, and tried, for holding the shutter in position. It seems best to actually fasten the shutter down by screws to a wooden support with an aperture in it. This support is attached to the lens holder, and the shutter is brought as close as possible to the lens.

It has been found convenient in practice to work with two images. A second source may be arranged for by putting up a second lamp, or two reflected images of one lamp may be used. This double source, however formed, is made such that the images formed by the lens are about one inch apart. Each image is observed from behind the rotating disc. One is formed on a strip of ground glass, and the other is used for "end" settings."

Fig. 7 shows the arrangement. The lines A B, A' B' represent the two images. A' B' is received on the strip of ground glass G G. Part of the image A B is observed on a small piece of ground glass, fixed at the end of a short tube, shown in Fig. 7 as a circle C. The tube is mounted in a slide E, which moves up and down the bar H K. The ground glass on C has a line marked on it pointing to S, and the slide D E fixed to C, ensures this line passing through S. On

E is fixed a pointer P, and the angular position of the line on C is read by means of P on a properly graduated scale. The graduations give the position in decimals of a complete revolution.

Thus if the bar is set so that the line in C corresponds successively with the two ends of the visible image, the difference of the two readings gives the decimal of 360 deg. subtended at S by the visible image—i.e., it gives the fraction  $\theta/360$ , which came in the original formula,  $t = \theta/360n$ . It only remains to divide this by  $n$ , the number of revolutions per second of the disc, to find  $t$ , the time of shutter exposure.

In considering the quantity  $\theta/360$ , it is clear that  $\theta$  cannot be measured in the way described if it exceed  $360^\circ/m$ , where  $m$  is the number of slots in the disc. On the other hand, greater percentage accuracy of setting can be made, when  $\theta$  is as large as convenient. It is best to arrange the speed of the disc so that  $\theta$  is about two-thirds of the angle between consecutive slots of the disc.

The use of the second image A' B' is to enable the observer at once to form an idea as to whether the speed of rotation is suitable to the time of the shutter. He can also see about where the ends of the image are. The shutters dealt with were often widely different in actual performance from nominal performance, and the time engraved on the shutter did not give much idea as to what was a suitable speed for rotating the disc.

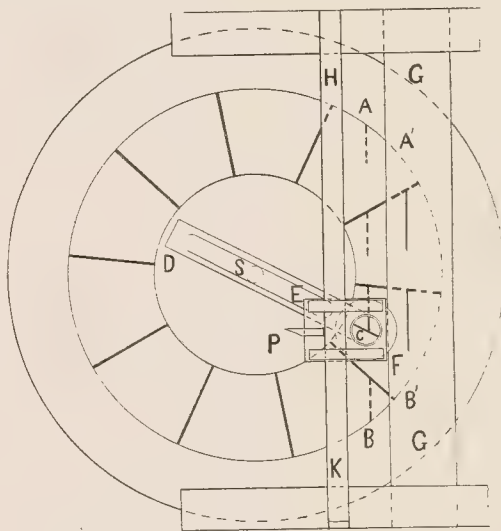


Fig. 7.

Remembering that times of exposure to be measured vary between wide limits (say two seconds to one-fourth-hundredth of a second), it will be seen that it is very necessary to have a ready means of altering greatly the speed of the disc. At first this was attempted by driving the disc by an electric motor and altering the volts on the



motor by means of a variable resistance. In this way the speed could be varied considerably, but not nearly enough. To meet the case it was necessary to have a pair of coned pulleys, giving speed ratios of 10 to 1 and 1 to 10 at the two ends. They were not connected by the ordinary crossed belt, but by a method devised by the author.

A rubber ball, merely resting between the two cones, transmits the motion from one to the other. The ball can rapidly be moved from end to end of the cones, giving the desired speed change. With this arrangement the cones can be used down to extremely small radii, where it would be impossible to have a belt drive. Fig. 8 shows the appearance of the system.

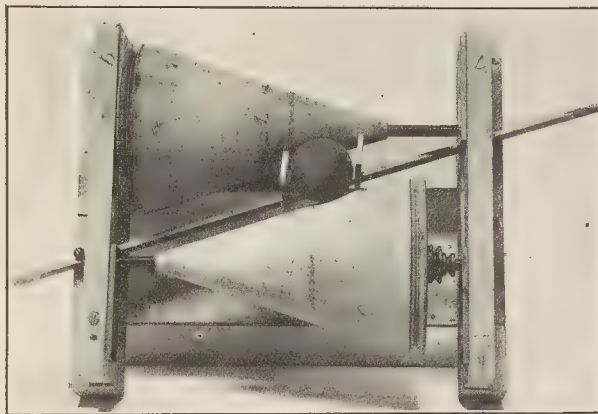


Fig. 8.

This, then, completes the apparatus. The general appearance is shown in Fig. 9. It will be well to consider to what inaccuracy the method is liable. The distance between consecutive slots, where the image A B is formed, is about 5 cm., and observations are made on a length of 3.5 cm. It is quite easy to make a setting within 1 mm. at either end, so that we have an error of .2 cm. in 10/3 cm., i.e., a 6 per cent. error. The finite width of the slots of the disc perhaps introduce a similar amount. In taking the speed of rotation an error of several per cent. may be expected, and variation of speed of the motor introduces still further error. On the whole, the author is confident that there can in no case be an error of more than 20 per cent. of the quantity measured. A great many readings have been taken, and repetitions quite justify this as an outside estimate of possible error.

In a few cases a shutter has on different occasions given results differing by more than 20 per cent., but this has only occurred when the shutter has been acting in a variable manner. Of course, it cannot be expected that a shutter should have precisely the same performance from day to day, and after further wear.

As indicated in the title, tests for efficiency have been made with a number of shutters. What has actually been measured is the length of time during which the shutter is open beyond a certain amount. In the cases of shutters which open from the centre, the method followed was to put up a stop as near the shutter as may be, and shaped like the aperture of the shutter. The shutter had then to open beyond this aperture before any image was formed. The ratio of the area of this aperture to the aperture when the shutter was full open, gave the amount of lens uncovered, when the stop was removed.

Stops were made to eclipse about  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$  of the aperture, and in each case these stops were of the shape of the shutter when open to an equal extent. After readings have been taken and reduced, with the various stops in the way, it is possible to draw an efficiency curve in which abscissas give time during which the shutter is open, and ordinates give the aperture beyond which the shutter was open for this time. The efficiency is given by the ratio of the mean abscissa to the greatest abscissa.

Measurements were made on a number of shutters to test the

accuracy of the method. Several of these were old, and the experiments must not be looked upon in any way as tests of the type of shutter, as no special care was taken to secure representative shutters. The object of the investigation was to test the method of measurement and the possibility of applying it to shutters of various forms.

Results are given which were obtained from four shutters. Of these the first two were diaphragm shutters, and the others roller blind and focal plane shutters, respectively.

In the case of shutter No. 1, the actual readings taken are reproduced so as to illustrate the method in which results are arrived at. These are given in Table I. Column I. gives the nominal times of the shutter; column II. gives the reading for one end of image, minus the reading for the other end—i.e., the angle subtended at the centre of the disc by the visible portion of the image, in decimals of a complete revolution; column III. gives a number of revolutions of the disc per second, usually measured over ten seconds; column IV. gives actual time of shutter, being  $II. \div III.$

Two independent sets of readings, A and B, were taken for comparison.

Nominal Times.	Readings.	Revs. per Sec.	Actual Time.
<b>A</b>			
$\frac{1}{10}$ .....	.142-.067 .....	.12 .....	.63
$\frac{1}{15}$ .....	.162-.066 .....	.19 .....	.45
$\frac{1}{20}$ .....	.145-.067 .....	.21 .....	.37
$\frac{1}{25}$ .....	.160-.068 .....	.34 .....	.27
$\frac{1}{30}$ .....	.132-.012 .....	2.0 .....	.020
$\frac{1}{40}$ .....	.172-.116 .....	3.6 .....	.0156
<b>B</b>			
$\frac{1}{10}$ .....	.124-.065 .....	.09 .....	.64
$\frac{1}{15}$ .....	.138-.066 .....	.17 .....	.42
$\frac{1}{20}$ .....	.142-.067 .....	.22 .....	.35
$\frac{1}{25}$ .....	.142-.068 .....	.35 .....	.21
$\frac{1}{30}$ .....	.114-.110 .....	3.0 .....	.0180
$\frac{1}{40}$ .....	.173-.113 .....	3.4 .....	.0173

Here there seems to be good agreement of results. The worst difference is in the case of the  $\frac{1}{25}$  additional nominal, where it is 25 per cent. of the mean value of the two results. This is, no doubt, partly due to the performance of the shutter not being quite constant. But the amount by which some of the times differ from the nominal times is far greater than the amount which might be attributed to inaccuracy of reading. Thus the nominal  $\frac{1}{50}$  is nearly correct, while the nominal  $\frac{1}{25}$  is really about  $\frac{1}{4}$ .

When arrangements were being made for testing efficiency one of the leaves of this shutter was broken. This was afterwards replaced by a new leaf, after which the following results were found for the two fastest times. Three stops were made of proper shape, and these were placed close to the iris diaphragm. The three stops eclipsed  $\frac{1}{4}$ ,  $\frac{1}{2}$ , and  $\frac{3}{4}$  of the aperture respectively. The results are in—

Nom. Time	Stop 3.	Stop 2.	Stop 1.	No Stop.
$\frac{1}{10}$ .....	.093 .....	.014 .....	.018 .....	.022
$\frac{1}{15}$ .....	.0102 .....	.014 .....	.017 .....	.021

The corresponding efficiency curves are shown in Figs. 10a, 10b, the efficiencies working out to be .64 at  $\frac{1}{50}$ th second, and .66 at  $\frac{1}{100}$ th second.

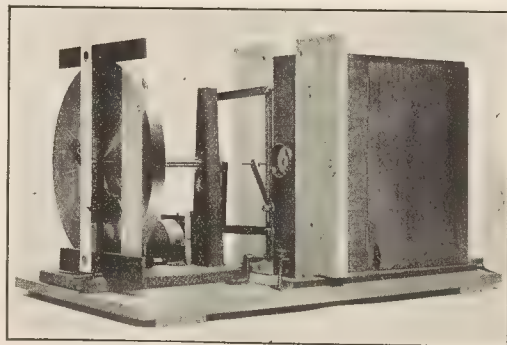


Fig. 9.

Shutter No. 2.

The following Table III. shows the results found for shutter

No. 2. Stops 1, 2, 3, were made of the proper shapes. Their areas were measured by planimeter, and were found to be .7, .47, .26 of full aperture, respectively. After one complete set of results (A) had been found, a second set (B) were taken for comparison, and two more sets (C and D) for full aperture taken at an entirely different time are shown for comparison with (A) and (B).

The A result for 1/10 with stop .47 is obviously due to either a misreading or a failure in the action of the shutter. The headings .7, .47, .26, 0 of the columns indicate the amount of aperture exposed for a period of time indicated in the table.

TABLE III.  
Shutter No. 2.

Amount of Apert. Exposed by Stop.	.70		.47		.26		0		
	A	B	A	B	A	B	A	C	D
1/10	.0026	.0026	.0039	.0025	.0041	.0045	.0054	.0038	.0046
1/20	.0030	.0032	.0041	.0043	.0043	.0048	.0053	.0037	.0054
1/30	.0040	.0029	.0041	.0050	.0061	.0050	.0067	.0066	.0056
1/40	.0150	.0040	.0043	.0048	.0072	.0065	.0081	.0078	.0073
1/50	.0100	.0103	.0235	.0103	.0118	.0114	.0195	.018	.020
1/60	.050	.037	.071	.042	.034	.039	.064	—	.06
1/80	.11	.09	.168	.102	.111	.140	.157	.13	.15
1	.21	.26	.224	.386	.247	.268	.296	—	—

TABLE IV.  
Means of Table III.

Aperture Exposed.	.70	.47	.26	0
1/10	.0026	.0037	.0043	.0046
1/20	.0031	.0042	.0048	.0056
1/30	.0035	.0046	.0056	.0063
1/40	.0045	.0046	.0069	.0077
1/50	.0102	.0103	.0130	.0192
1/60	.044	.067	.041	.062
1/80	.10	.135	.133	.146
1	.24	.28	.26	.30

In these results it will be noticed that from one second nominal to 1/100th nominal, the nominal times are longer than the actual times. Thus:—

1 sec. nominal is really $\frac{1}{10}$
$\frac{1}{10}$ " " " " " "
$\frac{1}{20}$ " " " " " "
$\frac{1}{30}$ " " " " " "
$\frac{1}{40}$ " " " " " "
$\frac{1}{50}$ " " " " " "
$\frac{1}{60}$ " " " " " "
$\frac{1}{80}$ " " " " " "
$\frac{1}{100}$ " " " " " "
less than $\frac{1}{100}$

The 1/25 nominal is only 1.7 times as long as the 1/300 nominal. The performance of the shutter when set at speeds of  $\frac{1}{4}$ ,  $\frac{1}{2}$ , 1 sec. nominal does not seem to remain constant, and so the results worked out with a view to finding efficiencies at these speeds are contradictory.

The efficiency results for the faster speeds down to 1/10th nominal work out at 1/300, 68; at 1/200, 65; at 1/100, 64; at 1/25, 61; at 1/10, 55; showing a steady decrease of efficiency.

#### Roller Blind Shutter (No. 3).

In this shutter the lens aperture is exposed by a wide gap in the blind. Suppose  $d$  is the width of this gap and  $a$  the diameter of the aperture to be exposed, then the complete time of exposure is the time in which the blind moves a distance  $d + a$ . It is clear, then, that this time depends partly on the size of the lens aperture.

With this shutter two sets (I. II.) of readings were taken with the shutter working across an aperture of  $1\frac{1}{8}$  inches. Results are shown in Table V.

TABLE V.			
Nom. Times.	I.	II.	Mean.
1/10	.066	.050	.063
1/20	.045	.046	.047
1/30	.037	.042	.040
1/40	.0325	.036	.034
1/50	.031	.032	.032

It will be seen that the agreement in the two sets of readings is fairly close.

In this shutter no correct statement of the time of exposure given can be made without at the same time the size of the lens aperture with which it is to be used. As before, if  $d$  is the width of the gap and  $a$  the diameter of the lens aperture, the shutter has to move through a distance  $d + a$ , while the lens is partially or wholly uncovered. It is clear that if  $a$  is altered the time of exposure is also altered. The most natural statement seems to be the time of the shutter in exposing a point. As  $d$  is large compared with  $a$ , we can assume some mean velocity  $v$  of the shutter without making much

error. Then the time  $t$  with aperture of diameter  $a$  is given in terms of  $T$ , the time over a point by relation

$$t = \frac{d+a}{d} T.$$

#### Focal Plane Shutter (No. 4).

In testing this, the shutter was placed close to the lens, and the time of exposure given by the shutter with slit of width  $d$  when passing over an aperture of width  $a$  was found. This is the same thing as the time for slit of width  $d + a$  to pass over a point, if we assume uniform velocity over this small width. From this was inferred the time taken by a slit of width 1 cm. to pass a point.

Six sets of readings were taken: two (A, B) for a point near edge of the plate which would first be exposed; two (C, D), for a point near centre of the plate; and two (E, F) for a point near the edge of the plate, which would last be exposed. From the results it is possible to notice the changing speed of the shutter as it crosses the plate.

The results are in Table VI.

TABLE VI.

Setting.	A	B	C	D	E	F
1.	.0132	.0126	.0113	.0107	.0084	.0088
2.	.0130	.0105	.0084	.0078	.0061	.0075
3.	.0035	.0037	.0019	.0019	.0053	.0061
4.	.0082	.0084	.0056	.0066	.0049	.0051
5.	.0078	.0077	.0047	.0062	.0045	.0044

Column I. gives the setting of the shutter which was used, and the remaining columns give corresponding times. Pairs of readings A, B, C, D, E, F, were taken for comparison, to see that the differences found for different positions was larger than that due to inaccuracy of reading. Comparing A with B, C with D, E with F, we see that in general the agreement is fairly close, and that the difference between the various pairs is a real one. This is put in a more convenient form in Table VII., where means of A and B, C and D, E and F, are given; also, the nominal times of the shutter.

TABLE VII.

Setting.	I. Edge First Exposed.	II. Middle.	III. Edge Last Exposed.	Nominal Times.
1.	.0129	.0110	.0086	$\frac{1}{10}$
2.	.0113	.0071	.0068	$\frac{1}{20}$
3.	.0031	.0064	.0057	$\frac{1}{30}$
4.	.0083	.0061	.0050	$\frac{1}{40}$
5.	.0078	.0050	.0045	$\frac{1}{50}$

It is clear that in position I. the shutter has not attained its full speed at any of the settings; and with the spring at its weakest setting No. 1, the full speed is not reached even by position II. This is also the case to a less extent with the other settings, but it is not supposed that the figures given have sufficient accuracy to distinguish certainly between .0050 and .0045, though the uniform run of the figures rather supports this view.

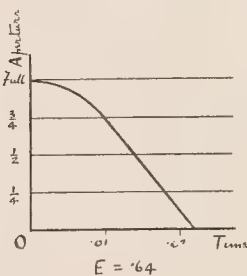


Fig. 10A.

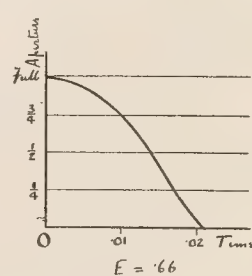


Fig. 10B.

Between Columns I. and II. the difference is quite beyond the difference possible through error of reading, etc.

Some visual methods have been used for shutter tests, in which a lens has been employed to form an image of the various subjects observed. In two of these the shutter to be tested has been held close up to the eye. A little consideration will show that this cannot give a correct result except in certain cases. If the shutter is one which opens from the centre and then closes towards the centre, the



method may be correctly employed if the eye is placed so that it can see the object to be observed as soon as the shutter is very slightly open.

But a roller blind shutter is not correctly dealt with in this way. For, if the eye is placed at the centre of the aperture, it is only when the shutter has uncovered half the aperture that the eye can see the object to be observed; and after the shutter, when closing, has covered half of the aperture, nothing can be seen.

In other words, the time which could be measured by this means would be the time for which a single point (placed where the eye is) receives light through the shutter. On the assumption of any law of velocity of the shutter blind it would be possible to deduce the time over a lens of given aperture.

In other papers on shutter testing results have been published which show that the shutters considered differ very widely in nominal and actual performance. And the same feature is very noticeable in the shutters with which the author has had to deal. In the following table (VIII.) the results of a large number of his tests on different shutters are collected. The entries made represent the ratio of actual time to nominal time. Each horizontal row refers

to one shutter. The headings of the columns give a small range of time in which the nominal time of the shutter is included. In the case of two of the shutters which have a certain nominal time in common, one shutter gives an exposure of forty-three times the length of exposure given by the other. But the table explains itself.

TABLE VIII.—SHOWING RATIO OF ACTUAL TIMES TO NOMINAL TIMES.

Nominal Time.	1	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{8}$	$\frac{1}{16}$	$\frac{1}{32}$	$\frac{1}{64}$	$\frac{1}{128}$	$\frac{1}{256}$	$\frac{1}{512}$	$\frac{1}{1024}$	$\frac{1}{2048}$	$\frac{1}{4096}$	$\frac{1}{8192}$	$\frac{1}{16384}$	$\frac{1}{32768}$	$\frac{1}{65536}$	$\frac{1}{131072}$	$\frac{1}{262144}$	$\frac{1}{524288}$	$\frac{1}{1048576}$	$\frac{1}{2097152}$	$\frac{1}{4194304}$	$\frac{1}{8388608}$	$\frac{1}{16777216}$	$\frac{1}{33554432}$	$\frac{1}{67108864}$	$\frac{1}{134217728}$	$\frac{1}{268435456}$	$\frac{1}{536870912}$	$\frac{1}{1073741824}$	$\frac{1}{2147483648}$	$\frac{1}{4294967296}$	$\frac{1}{8589934592}$	$\frac{1}{17179869184}$	$\frac{1}{34359738368}$	$\frac{1}{68719476736}$	$\frac{1}{137438953472}$	$\frac{1}{274877906944}$	$\frac{1}{549755813888}$	$\frac{1}{1099511627776}$	$\frac{1}{2199023255552}$	$\frac{1}{4398046511104}$	$\frac{1}{8796093022208}$	$\frac{1}{17592186044416}$	$\frac{1}{35184372088832}$	$\frac{1}{70368744177664}$	$\frac{1}{140737488355328}$	$\frac{1}{281474976710656}$	$\frac{1}{562949953421312}$	$\frac{1}{1125899906842624}$	$\frac{1}{2251799813685248}$	$\frac{1}{4503599627370496}$	$\frac{1}{9007199254740992}$	$\frac{1}{18014398509481984}$	$\frac{1}{36028797018963968}$	$\frac{1}{72057594037927936}$	$\frac{1}{144115188075855872}$	$\frac{1}{288230376151711744}$	$\frac{1}{576460752303423488}$	$\frac{1}{1152921504606846976}$	$\frac{1}{2305843009213693952}$	$\frac{1}{4611686018427387904}$	$\frac{1}{9223372036854775808}$	$\frac{1}{18446744073709551616}$	$\frac{1}{36893488147419103232}$	$\frac{1}{73786976294838206464}$	$\frac{1}{147573952589676412928}$	$\frac{1}{295147905179352825856}$	$\frac{1}{590295810358705651712}$	$\frac{1}{1180591620717411303424}$	$\frac{1}{2361183241434822606848}$	$\frac{1}{4722366482869645213696}$	$\frac{1}{9444732965739290427392}$	$\frac{1}{18889465931478580854784}$	$\frac{1}{37778931862957161709568}$	$\frac{1}{75557863725914323419136}$	$\frac{1}{151115727451828646838272}$	$\frac{1}{302231454903657293676544}$	$\frac{1}{604462909807314587353088}$	$\frac{1}{1208925819614629174706176}$	$\frac{1}{2417851639229258349412352}$	$\frac{1}{4835703278458516698824704}$	$\frac{1}{9671406556917033397649408}$	$\frac{1}{19342813113834066795298816}$	$\frac{1}{38685626227668133590597632}$	$\frac{1}{77371252455336267181195264}$	$\frac{1}{154742504910672534362390528}$	$\frac{1}{309485009821345068724781056}$	$\frac{1}{618970019642690137449562112}$	$\frac{1}{1237940039285380274899124224}$	$\frac{1}{2475880078570760549798248448}$	$\frac{1}{4951760157141521099596496896}$	$\frac{1}{9903520314283042199192993792}$	$\frac{1}{19807040628566084398385987584}$	$\frac{1}{39614081257132168796771975168}$	$\frac{1}{79228162514264337593543950336}$	$\frac{1}{158456325028528675187087900672}$	$\frac{1}{316912650057057350374175801344}$	$\frac{1}{633825300114114700748351602688}$	$\frac{1}{1267650600228229401496703205376}$	$\frac{1}{2535301200456458802993406410752}$	$\frac{1}{5070602400912917605986812821504}$	$\frac{1}{10141204801825835211973625643008}$	$\frac{1}{20282409603651670423947251286016}$	$\frac{1}{40564819207303340847894502572032}$	$\frac{1}{81129638414606681695789005144064}$	$\frac{1}{162259276829213363391578010288128}$	$\frac{1}{324518553658426726783156020576256}$	$\frac{1}{649037107316853453566312041152512}$	$\frac{1}{1298074214633706907132624082305024}$	$\frac{1}{2596148429267413814265248164610048}$	$\frac{1}{5192296858534827628530496329220096}$	$\frac{1}{10384593717069655257060992658440192}$	$\frac{1}{20769187434139310514121985316880384}$	$\frac{1}{41538374868278621028243970633760768}$	$\frac{1}{83076749736557242056487941267521536}$	$\frac{1}{166153499473114484112975882535043072}$	$\frac{1}{332306998946228968225951765070086144}$	$\frac{1}{664613997892457936451903530140172288}$	$\frac{1}{1329227995784915872903807060280344576}$	$\frac{1}{2658455991569831745807614120560689152}$	$\frac{1}{5316911983139663491615228241121378304}$	$\frac{1}{10633823966279326983230456482242756608}$	$\frac{1}{21267647932558653966460912964485513216}$	$\frac{1}{42535295865117307932921825928971026432}$	$\frac{1}{85070591730234615865843651857942052864}$	$\frac{1}{170141183460469231731687303715884105728}$	$\frac{1}{340282366920938463463374607431768211456}$	$\frac{1}{680564733841876926926749214863536422912}$	$\frac{1}{1361129467683753853853498429727072845824}$	$\frac{1}{2722258935367507707706996859454145691648}$	$\frac{1}{5444517870735015415413993718908291383296}$	$\frac{1}{10889035741470030830827987437816582766592}$	$\frac{1}{21778071482940061661655974875633165533184}$	$\frac{1}{43556142965880123323311949751266331066368}$	$\frac{1}{87112285931760246646623899502532662132736}$	$\frac{1}{174224571863520493293247799005065324265472}$	$\frac{1}{348449143727040986586495598010130648530944}$	$\frac{1}{696898287454081973172991196020261297061888}$	$\frac{1}{1393796574908163946345982392040522594123776}$	$\frac{1}{2787593149816327892691964784081045188247552}$	$\frac{1}{5575186299632655785383929568162090376495104}$	$\frac{1}{11150372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37114373395836055367340864637790190801098222508621955072}$	$\frac{1}{421249166674228746791672110734681729275580381602196445017243910144}$	$\frac{1}{842498333348457493583344221469363458551160763204392890034487820288}$	$\frac{1}{1684996666696914987166688442938726917102321526408785780068975640576}$	$\frac{1}{3369993333393829974333376885877453834204643052817571560137951281152}$	$\frac{1}{6739986666787659948666753771754907668409286105635143120275902562304}$	$\frac{1}{13479973333575319897333507543509815336818572211270286240551805124608}$	$\frac{1}{26959946667150639794667015087019630673637144422540572481103610249216}$	$\frac{1}{53919893334301279589334030174039261347274288845081144962207220498432}$	$\frac{1}{107839786668602559178668060348078522694548577690162289924414440996864}$	$\frac{1}{215679573337205118357336120696157045389097155380324579848828881993728}$	$\frac{1}{431359146674410236714672241392314090778194310760649159697657763987456}$	$\frac{1}{862718293348820473429344482784628181556388621521298319395315527974912}$	$\frac{1}{1725436586697640946858688965569256363112777243042596638790631055949824}$	$\frac{1}{3450873173395281893717377931138512726225554486085193277581262111899648}$	$\frac{1}{6901746346790563787434755862277025452451108972170386555162524223799296}$	$\frac{1}{13803492693581127574869511724554050904902217944340773110325048447598592}$	$\frac{1}{27606985387162255149739023449108101809804435888681546220650096895197184}$	$\frac{1}{55213970774324510299478046898216203619608871777363092441300193790394368}$	$\frac{1}{110427941548649020598956093796432407239217743554726184882600387580788736}$	$\frac{1}{220855883097298041197912187592864814478435487109452369765$
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by diminished or increased water supply, and by a brake fitted to the motor.

The construction of the actual rocker is shown in Figs. 1 to 3.

The two pillars, C and D, are fastened to the base A, Fig. 1, by screws. C is provided at the top with a hinge H, which is also fastened to the actual rocking board B. D prevents B from tipping over. The see-saw movement is produced by the eccentric E and conveyed to B by the roller R. The hinge is always beyond the middle of B, so that the roller always rests on the eccentric. The lift is about one-third of an inch at the end of B. The eccentric is fastened to a rod W, at the other end of which is the pulley wheel Z, which carries the driving belt.

Fig. 2 is the section through the rocker at right angles to Fig. 1. The whole arrangement is shown in Fig. 3.

The turbine stands in an ordinary developing dish, fitted with a waste pipe. At one end of the turbine axle is fitted a fan, so that the arrangement can be used for drying plates, papers, etc. When the revolutions are high the action of this is considerable. The fan is provided with a guard.

The transmission of the power to the plate rocker is obvious from the sketch. An ordinary rubber band is used which has the advantage of being easily changed, and working easily and noiselessly. Whoever has used this arrangement will never be without it.

It is a pity that something of the same kind cannot be obtained commercially, for everyone cannot make such an apparatus for himself.

Fritz Goos.

#### ADVERTISE.

In the "Association Annual," a publication issued by the Photographers' Association of America, Mr. Pirie MacDonald writes in the following characteristic vein:—

If it were possible to lay down a rule by which photographers could advertise, it would stultify itself, it would be foolish for everyone to pursue the same course, and any effect we might produce would be nullified by the work of the next man. Because "What is one man's meat is another man's poison" we are forced to devise methods which suit the particular case. However, there are three points which will bear discussion:—

Advertise what?

Photographs, of course; but just how? This is where the method must be found for the particular case. Photographs as such, photographs as a luxury, photographs as a necessity, photographs as art or photographs as utilitarian, because they are not doing their duty to their families if they are not properly photographed, or because they should use photographs in their business: prices, quality, or the personality of the artist: just which of these or the nine hundred and ninety other phases is best fitted to the particular case you will have to determine yourself, but: that your community is susceptible to advertising, you need never question.

Advertise where?

Whether to advertise to the subject, and try to interest him direct, or whether to advertise to his friends and breed a want for his photographs, whether to try to reach either of the classes direct by card, circular, booklet, or a demonstrator, or through general advertising mediums are all problems that the particular man and his environment must govern.

Advertise when?

When business is bad? When business is good? When we are short of money? When we have plenty of money? In spring, summer, autumn, or winter?

The answer is, "advertise all the time."

A farmer who takes crop after crop from his land and gives nothing back is called a fool: businesses are prone to go to seed because we are taking every penny out and putting nothing back. We should spend 10 per cent. of our gross receipts in advertising and then apply ourselves to it, as to any business proposition, and find a way of wisely spending it all.

So "advertise all the time."

THE Cowes Camera Club will hold its first exhibition on January 23 and 24 in the Victoria Hall, Cowes. Mr. S. J. Kimber will be the judge.

#### MR. J. T. SANDELL.—AN APPEAL.

The following contributions have been received in continued response to the appeal of Messrs. Thos. K. Grant and J. B. B. Wellington:—

	£	s.	d.
Sheffield Photographic Society (per W. J. Wright) .....	0	6	0
Lady member of Edinburgh Photographic Society (per J. S. McCulloch) .....	0	5	0
F. H. Davis .....	0	10	6
Amount already acknowledged .....	142	10	6
	£143	2	0

## Photo-Mechanical Notes.

### Polishing Half-tone Screens.

A suggestion of Gustav R. Meyer, in the "Inland Printer," is as follows:—"Purchase 10 cents. worth of optical rouge at a jeweller's supply house. Put it into a bottle with about four ounces of alcohol. Take several pieces of cotton the size of your hand, shake up the rouge solution and apply a liberal quantity of it to each piece of cotton, let them dry, and the polishing pads are ready for use. Keep them in a box when not in use, to avoid grit and dust. These pads will do service a year. If silver nitrate should get on the screen, remove it with a piece of blotting-paper. Moisten the blotter if the silver has crystallised, and re-polish with pad."

### Half-tones on Metal Rollers.

According to the published specification (No. 11,071, 1906), the following process has been patented by J. W. Ippers, 101, Beekman Street, New York, U.S.A.:—"Making a half-tone photograph of a graduated picture or design, through a half-tone screen; making a gelatine plate on an elastic base; exposing the gelatine plate to light, through the half-tone photograph; developing the exposed gelatine plate, by bathing it in water, and thereby swelling into relief those areas of the plate which were under the dark areas of the half-tone photograph, while leaving in depression those areas of the plate which were under the translucent areas of the half-tone photograph, during the exposure; drying the developed gelatine plate in air; applying glycerine solution to the relief areas of the gelatine plate; applying ink to the depressed areas of the gelatine plate; transferring ink from the depressed areas of the inked gelatine plate to the periphery of a metal roller, by pressing the periphery directly and powerfully upon the gelatine plate; and etching away the uninked areas of the periphery."

Reference is made in the specification to previous Letters Patent. Nos. 266 of 1881, 15,022 of 1894 24,303 of 1895, 16,944 of 1899, and 8,457 of 1901.

The following photo-mechanical patent was applied for December 13:—

HALF-TONE BLOCKS.—No. 27,529. Improved manufacture of half-tone printing blocks. William Bell and Harry Bryce Bell, 19, Holborn Viaduct, London.

THE Proposed Camera Club in the West End.—The committee who have had this matter in hand since May last are now able to report that it is proposed to open the club early in January, provided about 100 town members join promptly. The premises are situate at 14 and 15, Conduit Street, Regent Street, and are already fitted for the purposes of a camera club; the accommodation occupies the whole of one floor, approached by a lift, and comprises lounge hall, club room, dark rooms, enlarging room, fitted with an enlarger with 11in. condenser, daylight work room, studio (32ft. by 12ft.), supplied with a 15in. by 12in. studio camera, with Goerz and Dallmeyer lenses, and open air printing accommodation. Should it be necessary at any future time, there will be room to extend the club premises. Those wishing to join without entrance fee, or desiring further particulars, are requested to apply at once to Mr. Henry W. Fairholme, Blenheim Mansions, Queen Anne's Gate, S.W.; or to Dr. A. R. F. Evershed, 19, Harley Street, W.



## Patent News.

*Process patents—applications and specifications—are treated in "Photo Mechanical Notes."*

The following applications for Patents were made between December 3 to 8:—

**DAYLIGHT DEVELOPMENT.**—No. 27,484. Improved daylight development apparatus for photographic plates. Carl Friedrich Aurich, 6, Bream's Buildings, Chancery Lane, London.

**DISHES.**—No. 27,944. Improvements in photographic developing dishes. Victor James Atterton, 173, Fleet Street, London.

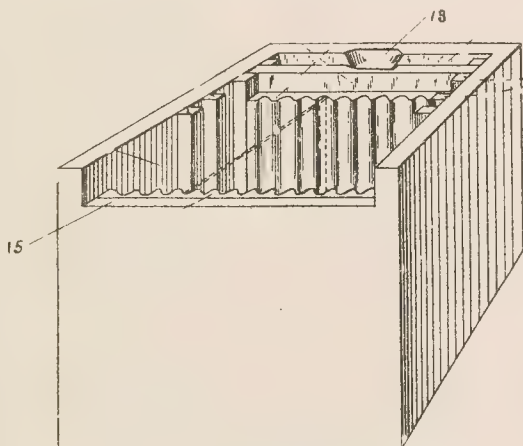
**PRINTING FRAMES.**—No. 27,998. Improvements in photographic printing frames. Lionel Thomas Joy Haweis, 37, Chancery Lane, London.

**ENLARGING FRAME.**—No. 28,000. Improved photographic stand and equipment for use in bromide printing, for enlarging, reducing, and copying photographs, and for lighting and modelling flowers, fruit, and other small still life studies. Arthur James Lambert and Charles Henry Land, 8, Quality Court, Chancery Lane, London.

### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**WASHING TANK FOR PLATES.**—No. 10,153. 1906. The invention consists essentially of a box divided into two compartments—viz., a compartment for the liquid and one to hold a number of plates—by a partition so arranged that an opening extends along the bottom of it, and forms a communication between the two compartments, whereby liquid received in the one compartment flows, before passing out of the vessel, under the partition into and upward in the second compartment, thoroughly and uniformly washing the plates retained therein in a position parallel to the direction of the flow of the liquid.



In the figure water is admitted at 13, flows under the partition, and escapes by the wide aperture 15, which is at a lower level than the inlet 13. H. C. Hide, for Martin R. Jacobus, Ridgefield, New Jersey, U.S.A.

**FOCUSsing FINDER-CAMERA.**—No. 28,575. 1905. The invention consists of an additional detachable camera, consisting of a sliding body in the form of boxes, telescoping tubes, or the like, to fit loosely one inside the other. To the front end of one of the sliding parts is fitted a recess to receive the front lens board.

To the rear end of the outer box is fitted a recess to receive

a base, which consists of two rods, working inside two lengths of small metallic tubing, and at the rear end is also a focussing glass or screen.

The inside rods are fixed to a suitable piece of brass in the centre. Parallel with the edge is provided an elongated slot which permits a bolt to travel along to any desired point, when fixed by a brass strap to the front of the camera.

The two lengths of small tubing are fixed at their outer ends to a right-angled piece of brass, which is provided with a number of holes or slots to fit fixing screws, provided at the rear of the camera.

The claim is: "A detachable focussing device for photographic cameras, comprising a telescopic body, with a suitable lens and ground glass screen, so arranged that the image in the said instrument is focussed simultaneously with the image of the object to be photographed in the camera." James Preston Cribb, 127, Chichester Road, North End, Portsmouth.

**DARK SLIDE CARRIER.**—No. 24,813. 1905. This invention is a framework of either wood or metal, A, Fig. 1, made to fit into the interior (back) of the camera (but loosely, so as to permit of its free oscillation) and a baseboard F, upon which it should

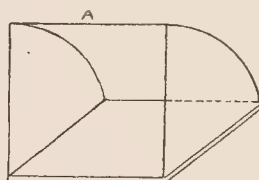


Fig. 1.

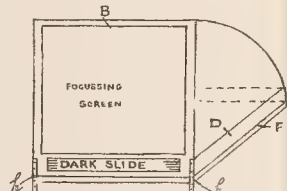


Fig. 2.

rest. The frame-work is fitted with strips of wood or metal on its inner sides to "carry" the dark-slide in a horizontal position, and is so furnished with ledges that no light can get at the plate if the shutter of the dark-slide is withdrawn before the dark-slide is raised into position for exposure.

The other section at right angles carries the screen B, Fig. 2, of ground glass.

The entire framework thus formed is hinged at H at the bottom

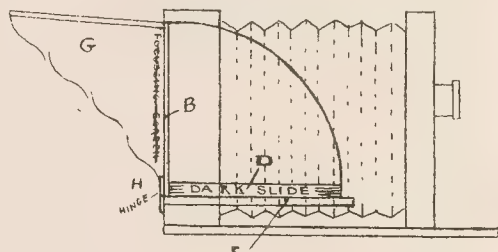


Fig. 3.

edge, to the back of the camera, Fig. 3, in such a manner that when the plate-holder D is inserted (in the horizontal position) the screen is vertical, and in correct position for the examination of the image projected upon it, as shown in Fig. 3.

The operation of the apparatus begins when the plate-holder and the focussing screen are in these respective positions. The screen in its vertical position, having been used to locate and focus the image, may now be pulled forward and downward, thus bringing the plate-holder up from the horizontal into the position previously occupied by the focussing screen, and ready for "exposure," as shown in Fig. 4.

To secure the plate from being "light-struck" in its passage to this last-named position, if the shutter of the dark-slide be withdrawn whilst in the horizontal position, a covering of leather or other suitable material impervious to light is drawn and fixed over the opening thus momentarily caused, and, in addition, a

light tight framed cover, G, which is used for the purpose of a "focussing cloth," is brought down over the focussing screen, thus securing for the sensitive plate (now in position for exposure) immunity from stray rays of light. But if the shutter be not

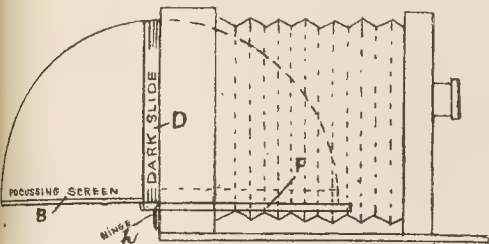


Fig. 4.

withdrawn until it is in the upright position ready for exposure no such covering is necessary. Walter Tully, 76, Benedict Street, Glastonbury.

**ENLARGER.**—No. 24,101. The invention relates to the negative carrier of the enlarger, and consists in the provision of means for moving the carrier in all directions. Gaston Clement and George Gilmer, 140, Faubourg St. Martin, Paris, France; and 1, 2, and 3, Holborn Circus, London, E.C.

## New Books.

**Penrose's Pictorial Annual.**—The Process Year Book for 1906-7." London: Penrose and Co. 5s.

It is meant in no disparagement when we state that this yearly visitor carries out its principal title more efficiently and, if we may use the term, more sumptuously than it does its sub-title. Literary matter, such, plays in this volume a less important part than the illustrations. Many will not be disposed to quarrel with it on this score, any slight disappointment will be amply compensated by the wealth and beauty of the illustrations in colour, half-tone and photogravure. The illustrations certainly form, as in previous volumes, a good index as to the present status of photo-mechanical work.

Amongst the most notable of the articles are "What we Think of Direct Photography in Colours," by Alcide du Haaron; "The Direct Copying of Plans by Photo-Zincography," by R. B. Fishenden; "Direct Three-Colour Work on Dry Plates," by A. J. Bull; "Photography and the Stage," by Jas. E. Gould; and "Indirect Colour Reproduction," by Sydney A. Pitcher.

It is almost unnecessary to state that the printing and general set-up of the work are excellent, and our congratulations are extended to the editor, Mr. William Gamble, and to all these, not omitting the printers, Messrs. Percy Lund and Co., who have contributed this comprehensive demonstration of process work.

The sales of pictures at the Southampton Exhibition amounted, we are informed, to £38 8s. 6d.

**MESSRS. GRIFFIN en Fête.**—The members of the "Gramme" Recreation Club (John J. Griffin and Sons, Ltd.) held their fourth grand chemian concert in the International Hall, at the Café Monaco, on Saturday last, with T. McKinnon Wood, Esq., M.P., in the chair. There was a good attendance, and a most excellent programme of vocal and instrumental music had been provided, under the direction of Mr. Wilson. The "Gramme" Orchestra, who rendered several selections during the evening, were congratulated upon the success of their first performance in public. Mrs. McKinnon Wood very kindly distributed the prizes gained by members of the club, which were as follows:—Swimming: 1st (shield and medal), H. Gemmell; 2nd (medal), T. Sampson; 3rd (medal), A. Foskett. Novices race (medal), W. Colls. Cricket: Batting championship, A. Budd (cup and medal); bowling championship, C. G. Shipton (cup and mounted medal); consolation prize, batting (bat with engraved shield).

## New Apparatus, &c.

**The Beck  $f/3$  Studio Lens.** Made by R. and J. Beck, Ltd., 68, Cornhill, London, E.C.

Messrs. R. and J. Beck have submitted to us one of their studio lenses, Series I., No. 2, of 6-in. focal length and full aperture of  $f/3$ . This is a non-symmetrical doubler, formed of two uncemented combinations. It covers a circle of about five inches diameter, and should give very good results on any plate under quarter-plate size. The definition in the centre of the plate is excellent, and at  $f/3$  the falling off in towards the margins is not nearly so great as we expected to find it. Astigmatism is small in amount, distortion is not apparent, and the field is only slightly concave towards the object. This should be a very useful instrument for carte size portraiture. A comparison between this lens and an old Petzval lens of the same focal length shows a most marked superiority in the marginal definition. The new lens at  $f/3$  is far superior to the old at  $f/4$  in this respect, while in the centre of the image the definition is nearly, if not quite, as good. We need hardly point out that for fine central definition a Petzval portrait lens of the old type cannot well be beaten, and that few modern lenses come up to the same standard. In many cases perfect central definition has to be sacrificed to secure suitable marginal corrections.

**The "Holostigmat" Convertible Lens, Series 1A.** Made by Watson and Sons, 313, Holborn, London, W.C.

This new lens is an anastigmat of remarkable rapidity, the full apertures being  $f/4.6$  and  $f/4.8$ . The series includes "holo-symmetrical" and "hemi-symmetrical" lenses, or, in other words, doublets formed of two combinations of equal focal length and of combinations of unequal focal length. The one submitted to us is of the former type, the single combinations being each of 12in. focal length, and the doublet 7½ins. Each component is a triple cemented combination with only two reflecting surfaces, hence the fog due to double reflection is reduced to a minimum. It is claimed that the aperture is constant, which note we are very pleased to see, as purchasers are so seldom informed on this matter. The particular lens we have examined, No. 8 of the series, is listed to cover a half-plate, but its angle being about 75 degrees, it will cover a larger plate when stopped down. Tested in a half-plate camera, the result at full aperture,  $f/4.6$ , somewhat surprised us, for the definition over the whole plate was excellent for such an aperture, being perfect in the centre and falling off only slightly towards the margins. The field was very slightly curved, and the corrections, as regards aberration, of a very high order, even near the margins. At the more generally used,  $f/8$  aperture there was still less aberration, and at  $f/11$  the plate seemed to be covered quite perfectly to the margins. There appears to be a slight alteration of focal length when the stop is closed down from  $f/4.6$  to  $f/5.6$ , but from that aperture downwards the focus seems constant. It must be understood that these comments apply to critical tests of the lens, and its behaviour under them shows it to be an instrument of a very high degree of perfection.

The single combinations also work excellently at full aperture of  $f/8.5$ , and can be used either behind or in front of the stop. In the latter position the extension of the camera, from flange to focussing screen, is only 9½ inches, or 2½ inches less than the focal length—another practical advantage.

The mount has a scale of apertures for the complete doublet and one for the single combination, hence there is no trouble whatever in the adjustment of aperture. There can be no doubt that this is a very fine lens, and one that should be invaluable for focal-plane work and all branches of photography where the finest definition is required at a large aperture.

The lens is made with the separate combination of equal or of dissimilar focal length, the quarter-plate lens being obtainable as a 5½-inch focus, with the separate combinations, each 8½ inches focal length. The price of the lens in the first case is £8 12s. 6d.; in the second, £7 15s.; and similar facilities are offered by Messrs. Watson in the various sizes. The longest focus obtainable is 14½ inches, suitable for a 12 by 10 plate, and costing £42. The lenses of the longer focal length are of the same large aperture as the smaller ones.



## New Materials.

Wellington "Carbon-Surface" Bromide" Paper. Made by Wellington and Ward, Elstree, Herts.

We find it difficult to review new printing materials, the special claim of which, to the notice of our readers, is the surface-texture of finished print, and the new bromide paper introduced by Messrs. Wellington and Ward comes in this category. The prints obtained on the paper submitted to us are not exactly glossy nor are they matt. Their surface is that of an indescribable medium between the two, to which the term "carbon" may certainly be applied without misleading those who are familiar with what is usually understood by that term by practised users of the pigimentary process. That the addition should be made to the series of Wellington papers will be assuredly appreciated by users of the bands already on the market. The new paper is uniform in price with these, and it leaves Messrs. Wellington and Ward's customers with no ground for complaint that they are unprovided with all the varieties of printing material which a photographer, be he ever so exigent, can demand.

Ilford Gaslight Lantern Plates. Made by Ilford, Ltd., Ilford, E.

Although the lantern plates issued with the Ilford trade mark have been known for years past in the shape of the "Special" and "Alpha" brands—the latter an emulsion particularly favoured for warm tones—it is only now that the Ilford Company has brought upon the market a lantern plate possessing the two popular features of gaslight development and vigorous black tone. This has been done in the plate of which we have now to speak, and we can say at once that in acceding to the popular demand for a product with these conveniences the Ilford Company has not abated one iota of its zeal for the high quality of its manufactures. From the trial of the plates it would seem that the emulsion is on the lines of the gaslight paper, to which we were able to extend a favourable notice two weeks ago; and indeed it is a natural supposition that, having worked out a product of the character of the materials, any firm should wish to extend its application to glass as well as to paper. Whether this be so or not, the fact remains that, with the new gaslight plate, it is easy to obtain lantern slides possessing the vigour and purity of lights which characterise the paper of the same firm and class. We found very great latitude in exposure, inasmuch that it was possible to give twice and more the exposure and still to obtain excellent slides by removing the excessive density by a reducer. On this account the plates should particularly please beginners in slide-making, yet we believe also that the fine quality of the deposit will equally recommend them to connoisseurs.

## CATALOGUES AND TRADE NOTICES.

"HOUGHTONS' QUARTERLY."—The current issue of this publication of Messrs. Houghtons, Ltd., deals with the firm's recent introductions. The "Quarterly" is sent to all applicants individually or to the trade for distribution.

MESSRS. J. H. DALLMEYER, LTD., ask us to notify that the exhibition of American portraiture, now arranged at 25, Newman Street, is open Saturdays until 2 o'clock.

THE Latest Art Gallery.—Those who are interested in the modern painter's art will be pleased by a visit to the International Art Gallery, at 14, King William Street, Trafalgar Square. There is just a tinge of infringement in its title, which makes use of a phrase already well established by an annual show of first importance in London. However, since the exhibits include examples by leading men in France, Holland, and England, no one can grumble. The standard of merit is very high indeed in these works; but it nowhere reaches the highest point of any one man's reputation. It is refreshing to see how art progresses in other countries, and especially to see how our home scenes are interpreted by such talented workers as Houbroon and Witsen, for example. We always welcome the international spirit in art, photographic or otherwise, for we believe there is no better agency for advancement.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
21.....	West London Photo. Society...	"Ozobrome." Demonstrated. O. J. Bartlett
21.....	Cardiff Photo. Society .....	"Holiday Reminiscences"
24.....	Stafford Photo. Society .....	"Photography 1906 Prize Slides."
25.....	Royal Photographic Society ..	No Meeting.
26.....	Worthing Camera Club .....	Camera Outing.

### THE PROFESSIONAL PHOTOGRAPHERS' ASSOCIATION.

A MEETING of the committee was held at the Royal Photographic Society, 66, Russell Square, on Friday, the 14th inst. Present: Messrs. F. A. Bridge, Alfred Ellis, S. H. Fry, Martin Jacolette, H. E. Hull, A. Mackie, Edgar Scannell, and Lang Sims. Mr. Martin Jacolette, president.

Seven photographers who had applied for membership since the last committee meeting were admitted.

The hon. treasurer reported that the number of members at the time of the publication of the "Handbook" in May last was 519. Since then 14 had resigned and 70 new members had been admitted, making the membership to date 757. He also reported that the number of members who had paid their subscriptions up to date was 523, and the balance in hand was £190. It was decided that £10 be invested in Consols.

The hon. secretary drew attention to a letter appearing in the correspondence columns of the *BRITISH JOURNAL OF PHOTOGRAPHY* from Mr. A. Doust, on the subject of "Enlargement Canvassing" showing that, as the committee had consistently advised the members, a local photographer could effectually expose the methods of free portrait and other fraudulent canvassers, and put a stop to the business without great difficulty or expense.

A letter was read from the hon. secretary of the Transvaal Professional Photographers' Association announcing the establishment of the association, and inquiring what steps to take to become affiliated to the home association. The rules of the new association were found to be based on those of the P.P.A., except that the subscription was £4 per annum, and it appears that assistants as well as employers were eligible for membership. The hon. secretary was instructed to write and congratulate the members of the Transvaal P.P.A. on their institution, and to express the pleasure the committee would have in constituting their association and corresponding associations, and in working in harmony with it in the interests of professional photography in both countries. The hon. secretary read a letter from a member on the subject of the necessity of properly specifying the property intended to be covered by fire insurance. It was suggested that attention should be directed to the point in the "General Information" column of the next "Handbook."

CROYDON CAMERA CLUB.—Mr. J. Bawcomb lectured last week on "Photo-micrography." He showed his apparatus set up, pointing out the necessity of having alignment through the system. If the object is transparent it may be illuminated by transmitted light, but, if opaque a reflector must be used to throw light on the upper surface, which necessitates much longer exposure. The eye-piece should be used on the microscope whenever possible, as without it there is a good deal of reflected light from the sides of the tube, even when properly blackened. A lining of black velvet will prevent this. Focussing is roughly performed on the ground glass, and finally, with a focussing glass applied to a clear spot, made by attaching a cover glass with Canada balsam, to the screen, the fine adjustment of the microscope being used. Mr. Bawcomb advised beginners not to attempt high powers, for several reasons. With high power vibration is the great trouble, and during the long exposure required perhaps four hours, a change of temperature may upset the adjustment, especially as with high powers the depth of focus is practically nil. Again, a photograph of the whole of an insect, or object, is generally speaking, of more interest than a small portion very highly magnified. For general work a 1-inch objective was recommended as most useful, together with an A and B eye-piece. An eye-piece of too high a power magnifies, but destroys definition. The objective must be achromatic, but need not be apochromatic, which increases their cost very greatly. English made objectives are as good

foreign, and are corrected for 10-inch tubes. The use of an orthochromatic plate and filter would to a great degree compensate for lenses that was not highly achromatic. Plates should be backed. One of the greatest difficulties is to get contrast, when objects are more or less transparent; therefore hydroquinone developer is advisable, and full development must be given. When an object is stained and the background clear it is necessary to use a gelatine screen of the same colour as the object, in order to hold back the background, which otherwise would pass too much light and swamp the object. The polariscope is also useful for giving contrast to transparent objects. Mr. Bawcomb exposed and developed a plate before the members, but though the result showed too much vibration under the conditions it was not bad for a magnification of 500 times. Dr. Reed, in reply to an inquiry from the lecturer, gave an interesting explanation of the fact that an erythrosin plate was preferable for work to a panchromatic. Taking the spectrum curves shown by the wedge spectroscope for the two plates, the highest points of the curve represent the maxima and the lowest, the minima of sensitiveness. The panchromatic has some half dozen maxima between the blue and the red, and the yellow filter will only cut off the blue; but the erythrosin (or commercial iso plate) has but two maxima, the blue and the yellow green. A filter, such as the yellow, will cut out practically all the blue, leaving the yellow rays only to form the image on the plate, practically monochromatic light, and consequently a sharper image.

LONDON AND PROVINCIAL PHOTOGRAPHIC ASSOCIATION.—Meeting held December 13. Mr. E. T. Wright in the chair. Mr. Oliver S. Dawson lectured upon "Colour Printing in an Ordinary Frame and the Dischner Natural Backgrounds." He said that colour photography was at present in the air with both amateur and professional photographers, many of the older professionals being tired of the older methods of things, and there were at present three methods of producing colour photographs. First, by colouring or painting a photographic negative; second, by the three-plate and three-printing process; and third, the purely photographic negative and one printing; and it was the latter to which he wished to draw attention. It was, he said, a method of producing a colour print direct from a coloured positive, the paper used being invented by Drs. J. H. Smith and W. Merckens. The process was known as the "bleach-out." Before exposing to light the paper was of a very dark colour, but the light turned it white. Upon being placed under a coloured positive, and printed, the paper assumed the same colour as the positive, and upon after printing only required fixing and drying. The paper had been greatly improved lately, inasmuch as the special solution formerly used upon blotting at the back of the paper at the back to bring out certain colours, was no longer required. The "Dischner" backgrounds were explained and results obtained by their use exhibited. A vote of thanks to Mr. Dawson brought the evening to a close.

## Commercial & Legal Intelligence.

TENANCY RIGHTS.—At the Leeds Assizes last week the case came before the Lord Chief Justice in which Werner Gothard, photographer, of Leeds and Barnsley, brought an action against the Royal Exchange Company, Leeds, Ltd., for breach of covenant. Mr. F. Randall Atkinson, K.C., and Mr. H. T. Waddy were for the plaintiff, and Mr. J. A. Compston represented the defendants. The plaintiff's case was that in June, 1902, he leased from the defendants a suite of rooms in the top floor of the Exchange Buildings, at the junction of Boar Lane and Park Row, and one of the terms of the lease was that he should have "a right of way during business hours through the main entrance hall and staircase by means of the passage and stairs." He was also to have the right to fix approved show-cases at main entrance. Some differences had arisen with regard to the show-cases, but since October, 1903, the entrance gates of the building had been closed at six o'clock on ordinary days and two o'clock on Saturdays. This, the plaintiff contended, made his tenancy of the rooms almost valueless, as he did the greater part of his business on Saturday afternoons and on summer evenings. Mr. Compston, in opening the case for the defendants, contended that

the phrase "business hours" meant the ordinary business hours of the tenants of the building; and that objection was taken to the show-cases submitted by the plaintiff on the ground that they were not artistic enough. Thomas H. Hussey, chairman of directors of the defendant company, and Henry R. Cousins, solicitor to the company, bore out counsel's opening statement with regard to the show-cases. J. Rosemont, photographer, of Bond Street, Leeds, said that persons in his business in the centre of Leeds would not, in his opinion, have many customers on Saturday afternoons and on week nights. He admitted, however, that he sometimes kept his premises open until five o'clock on Saturdays, and added that Bond Street was like a wilderness at certain times on Saturday afternoon. In summing up, his Lordship commented upon the conduct of the negotiations with the plaintiff by the defendants' solicitor, and said that the jury had to consider whether the plaintiff had been fairly dealt with. It seemed clear from the evidence, and from a commonsense view of the case, that a photographer would want to use his rooms at such hours as were most profitable, and at the commencement of his tenancy he did use the premises as he desired until the new arrangement was made with regard to closing the gates. He (the judge) could not see how the defendants' solicitor could have arrived at the conclusion that the plaintiff would not wish to use the rooms during the hours that photographers commonly used them. The jury, after an absence of about an hour, returned a verdict for the plaintiff, assessing the damages at £650. Stay of execution was granted, but his Lordship pointed out that plaintiff was entitled to an injunction against keeping the gate closed during reasonable hours, 9 a.m. to 8 p.m.

BREACH OF PROMISE OF MARRIAGE.—The manageress of a Leeds studio, Miss A. E. Fleck, was awarded £250 damages at the Leeds Assizes last week in an action brought against Mr. Werner Gothard, proprietor of the studio, for breach of promise of marriage.

PHOTOGRAPHER "Wanted."—At the Halifax Borough Court last Saturday, a middle-aged man, giving the name of William Williams, and describing himself as a photographer, of no fixed abode, was charged with having in April last obtained the sum of £2 by false pretences from Ernest William Nelson, of Leeds. The accused pleaded guilty. The Chief Constable (Mr. Richardson), however, said it would take time to prepare the charge they were going to prefer, and he asked for a remand. The prisoner was "wanted" by the police at Hereford, St. Helens, and other towns, in connection with frauds through a photographic paper. The remand was granted.

### NEW COMPANIES.

FERRIS FILMS, LTD.—Registered December 7. Capital £100,000, in £1 shares. Objects: To adopt an agreement with the D. U. B. Syndicate, Ltd.; to work the secret process for the manufacture of photographic films referred to therein; and to carry on the business of manufacturers of and dealers in photographic requisites of all kinds, etc. The signatories are: E. N. Adler, J. A. Belcroix, J. Bon, L. Urban, P. Casparis, E. M. S. Perowne, and C. S. Blackmore. No initial public issue. The first directors (to number not less than two nor more than five) are not named. Qualification, 200 shares. Remuneration, £400 per annum and 2 per cent. of the net profits, divisible.

BOLT COURT SCHOOL.—Mr. W. J. Smith has been appointed by the Council as second assistant to the principal.

OUR contemporary, "Black and White," is offering an India-tint print of the painting "Cornered," to direct annual subscribers.

MR. W. DOUGR writes: "Owing to the busy time and the holidays being near, I have decided to leave all suggestions until after Christmas, when I hope to give several suggestions, also extracts, from several letters. I am still open to receive any names and suggestions during the holidays."

DR. EDER announces, in the "Korrespondenz," that the German Patent Office has refused the application for a patent to Mr. C. G. Zander for his four-colour process, on the ground that the principles were previously published by Eder (Vorträge des Vereines zur Verbreitung Naturwissenschaftlicher Kenntnisse, in Vienna, 36 Jahrg., Heft. 9, p. 13), and by von Hübl (Die Dreifarben-photographie, Halle a. S. 1st ed., 1897, p. 77), in such a manner that any expert could carry them out.



## Correspondence.

- \**Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.*
- \**We do not undertake responsibility for the opinions expressed by our correspondents.*

### REGIMENTAL MOUNTS.

To the Editors.

Gentlemen,—As a subscriber to your valuable paper I am enlisting your help in a small matter. Could you inform me the makers of "Regimental Mounts," decorated with the colours and badges, etc., of the different regiments?

I have applied to the dealers who used to stock them, and other large wholesale houses as well, but merely get the reply, "We do not stock them now."—I remain, your regular subscriber,

BUSINESSLIKE.

[We do not know the mounts, but we shall be happy to pass on any communications to our correspondent.—Eds. B.J.P.]

### THE MISSING WORD.

To the Editors.

Gentlemen,—Your note on p. 983 of last week's issue emboldens me to suggest that the necessary and truly descriptive word may be compounded from the four roots—"tele," "icon," "electro," and "graph." Thus, teleconelectrograph. For the sake of euphony we may drop the final e of tele, and should then have the term telicon-electrograph, which, whilst somewhat of a mouthful, is sound philologically.

An alternative we may transpose these roots and use in the following order "tele," "electro," "iconograph," and submitting this to the same process of euphonic excision, we obtain teletriconograph.

As to which is the better or worse, and whether one or neither be satisfactory, must be left to others.

The terminal words of both can be defended, as "electrograph" is defined in the Standard Dictionary as: 1. The linear record of an electrometer. 2. An apparatus for tracing a design to the electro-etched for use in printing wall paper, calico, etc., and "iconograph" is "an image or likeness of anything produced by the graphic or plastic arts."

The first word, "telicon-electrograph," would possibly be the more descriptive, as it conveys the idea of a distant picture by the conjunction of "tele" and "icon," and this is the essential point, both in Professor Korn's and M. Belin's discoveries.

To attempt to differentiate between the two processes would, if M. Belin's statement that he uses no photograph be confirmed, necessitate the introduction of the term photo somewhere to describe Professor Korn's method, and I do not attempt this in any seriousness, for I do not want to be saddled with such an offspring as telephoticon-electrograph.—Yours faithfully,

A. GASCOIGNE.

London, E.C.

### MR. BENNETT AND TIME DEVELOPMENT.

To the Editors.

Gentlemen,—In the discussion following the lecture at the Croydon Camera Club, the case in opposition to Mr. Bennett's well-known views appears to have been ably represented. I have no intention therefore to enter into a discussion on the lecturer's arguments.

But his statement of the basis of time development appears to me to be so imperfect that I feel bound to disown it. Here is the quotation: "Time Development methods, according to Mr. Bennett, are based on two assumptions:—

"(a) That all subjects will yield uniform negatives with uniform development.

"(b) That no alteration in the composition of the developer will produce any other result than that given by the unmodified developer."

As far as I can understand the meaning of English, the above two "assumptions" are crude and incorrect, although they could be made truthful by rewording and extending.

Moreover, the ideas which are here attempted to be conveyed are not the primary basis of time development. The true basis of time development, as I understand it, is that at an early "time" of

development there is little or no contrast between the tones; that at a very late "time" of development there is far too much contrast between the tones; and that at some intermediate "time" of development there is just such amount of contrast that the tones of the subject are not extended beyond the capacity of the printing paper, but rendered by a truthful degree of contrast.

Of course, this is not all, but it is the basis, the starting point, both for simple time development and for factorial development.—Yours truly,

ALFRED WATKINS.

Hereford.

## News and Notes.

**THE Scottish National Salon.**—The prospectus of the fourth Scottish National Salon, promoted by the Scottish Photographic Federation, now comprising 43 societies, has just been issued. The Salon, which appeals to all Scottish photographers, is to be held this season in Paisley, in the Art Gallery of the Museum, from February 23 till March 16. Paisley, apart from its close proximity to Glasgow (six miles), and easy accessibility from all parts, is a capital centre, it having within its boundaries a population sufficient to justify the federation in anticipating a most successful exhibition. The Scottish Salon, it may be said, is confined to the work of photographers resident in Scotland, and to the work of Scots residing abroad. Two eminent workers not thus qualified are each year invited to send examples of their work, and this year the Salon committee have been fortunate in securing Mr. C. F. Inston, who will represent England, and Herr Masuren, Halle, who will send a representative collection of German and Austrian work. All photographs entered, excepting the invited work, are submitted to a Board of Selection, the Board for this Salon being J. Craig Annan, W. Crooke, Patrick Downie, R.S.W., Alex. Keighley, and James Patrick. An art union has been promoted in connection with the Salon, to encourage the sale of work by prominent workers. The arrangements are in the hands of a local committee, which meets under the chairmanship of Sir John Ure Primrose, Bart., LL.D. All communications should be made to the hon. secretary, Robert Milne, Linnvale, Potterhill, Paisley, who will be glad to forward prospectuses on application.

**INCANDESCENT MANTLES.**—In reference to the announcement of the improvements in mantles, made in the "Times" Engineering Supplement, and reported in the B.J.P. some week or two ago, mention is made in the "Times" Engineering Supplement of December 12 of a British new mantle, the invention of Mr. John H. Ladd, and manufactured by the Laddite Incandescent Mantle Company, Surbiton. In this case there is nothing special in the manufacture of the fabric of the mantle, which is knitted from ramie fibre in the usual way, and its excellence in respect of toughness and light-giving power is due to the solution in which the fabric is steeped. The composition of this solution, which, of course, consists largely of the nitrates of thorium and cerium, depends on the presence therein of an extra ingredient which the inventor has called "Laddite." The effect of this addition is not only to impart a remarkable amount of toughness to the otherwise fragile ash which serves as the framework for the deposits of the thorium and ceria, but it would seem also to render the ceria much less volatile and to cause the oxides to adhere more strongly to the residue left by the fibre. Moreover, under the influence of intense heat, the light rises steadily in brilliancy. Mantles of this kind which have been tested by public authorities have been found uninjured after burning for upwards of 2,500 hours, and Mr. Ladd claims for his ordinary mantles a life of at least 2,000 hours. The Laddite mantles, even after long use, can be removed from their supports and can be handled. As an illustration of their toughness, one of these mantles, which had been burning for upwards of 2,000 hours, was laid on its side and was found to be capable of supporting two bronze pennies. From authoritative tests, the statements as to the durability and high illuminating power of the Laddite mantles are fully confirmed, while shock tests on the vibrating apparatus are greatly in their favour, for whereas the ordinary mantle is destroyed by 30 or 40 shocks, the improved mantle has resisted 500 shocks without damage. In one of the tests for illuminating power the loss in light after burning for 1,400 hours was only 2 per cent., and it is stated that even this small diminution in brilliancy was probably caused by a slight injury to the mantle arising from its removal from the burner.

## Answers to Correspondents.

- All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.
- Correspondents are informed that we cannot undertake to answer communications through the post. Questions are not answered unless the names and addresses of the writers are given.
- Communications relating to Advertisements and general business affairs should be addressed to MESSRS. HENRY GREENWOOD & Co., 24, Wellington-street, Strand, London, W.C.
- For the convenience of Readers, our Publishers, MESSRS. HENRY GREENWOOD & COMPANY, of 24, Wellington-street, Strand, W.C., undertake the registration of copyright photographs at a charge of 1s. 7d. each photograph, to cover cost of registration fee, form, etc. Two unmounted copies of each photograph must be sent with the fee.

### PHOTOGRAPH REGISTERED:—

F. G. Bright, Herbert Villa, Salcombe, South Devon. Photograph of H.M. Transport "Reva."

TRICK PHOTO.—Messrs. Marshall Brookes, Harp Alley, Farringdon Street, E.C., are the publishers.

DARK ROOM.—We are at a loss to recommend a better solvent. Acids will have more effect in breaking up the deposit, but at the risk of ruining the joints of the pipes. Sulphuric or acetic might be tried, but we should prefer to call in a plumber.

J. S. (Stratford).—Messrs. Sichel and Co.; 52, Bunhill Row, E.C., and Messrs. W. Butcher and Sons, Farringdon Avenue, E.C., supply outfits for titles. For quantities it is usual to set up in type or draw details, make a negative, and strip off on to the portrait negative.

DRYING CUPBOARD, ETC.—(1) What size would you advise me to have my drying cupboard for bathed plates, for, say, not more than twelve half-plates? Also (2) what is the highest temperature the plates will stand without risk of injury? (3) Am I right in supposing that the Pinatype process of three-colour printing and Sanger-Shepherd's demand the same character negative?—F. B. W.

(1) The size will entirely depend upon the number of plates to be dried, and it can be easily calculated by allowing for four inches between the plates, which should be placed at an angle of 45 degrees. They can, of course, be placed in two rows, on one shelf or on two shelves. It is an advantage to have a fairly roomy cupboard, as greater evenness of drying is obtained. (2) The temperature should not exceed 85 deg. Fahr., and 80 deg. is better, with a good current of air; lower temperature is quite sufficient to dry the plates in about six hours. (3) Yes, soft thin negatives, which will print even in the high lights, should be aimed for.

Y. Z.—The commercial cards produced in large quantities are toned in the hypo alum bath, and on some glossy papers the tone is a very good imitation of P.O.P. The sulphide processes are used on a smaller scale, but not to the same extent, we think. We should advise you to try hypo alum in conjunction with a make of bromide paper, for which that process is recommended; but you must keep the process working in large bulk to ensure regularity of output.

BROMIDE.—(1) Given a plucky negative from which a soft print is required, would you print it in direct sunlight or in the shade? (2) Similarly in a bromide print, would you hold the frame nearer to, or further from, the light to obtain a soft print, allowing, of course, for the difference of exposure? (3) Given two negatives of the same apparent density, the one a blue-black and the other having a slight yellow colour, which would give the softer print?—GLADYS.

(1) In the sunlight. (2) Nearer. (3) Pluckier results will be obtained from yellow stained negative.

REGISTRATION.—Your supposition is correct. The design should be registered without the photographic view. These latter should be registered separately, if it is desired to protect them.

RUTT.—Try an eight-inch piece on each side.

NEGATIVES.—(1) Which is the best way of making a negative from a transparency? I have tried one way by placing the plate to be exposed in contact with transparency in printing frame exactly the same way as I did the transparency. Another way I tried was to put negative and plate in contact and then in dark slide and exposed through the lens, the same as taking a view with the camera looking to the sky. This way was also a failure. In both ways the negatives were so fearfully fogged-looking and flat, with no brilliance. (2) Also, why it is that in films I am unable to get writing matter not so transparent of the letters like an ordinary glass plate if a special kind of developer would be the same result. (3) What developer is the best to get an ordinary plate as hard and black as I possibly can?—OCTOBUS.

(1) Method 1 is liable to give a little fog or veil, but not the excessive amount you describe. Try a black cut-out mask on the transparency to cut out the edges, and use a printing frame a size larger, this to prevent fogging from the edges of the glass. But we suspect the real cause is over-exposure. (2) An emulsion of a "softer" working character is frequently used. (3) A strong hydroquinone developer, either of those on page 953 of the "Almanac," 1907, will give good results, on plates and greater contrast or films.

VARIOUS.—(1) Do you know of any method of rendering bichromated gelatine, gum, etc., more sensitive to the action of light than it is in the ordinary practise of carbon printing? Can you suggest, to one with a slight knowledge of chemistry, any experiments with this object in view? (2) Can you suggest any chemical or physical means to secure greater rapidity in the "continuing action of light" with colloids sensitised with bichromate? (3) What is the known or presumed action (in words, not symbols) of hydrogen peroxide in producing catalysis or transference of light action? (4) What metal salts, other than silver, platinum, iron, are sensitive to light, and what is their proportionate sensitiveness to silver bromide? (5) Can you tell me what colloid has the greatest amount of expansion under the influence of heat?—COLLOID.

(1) Bichromate of ammonia is said, by some, to give greater sensitiveness than the potash salt. The larger the proportion of the bichromate the more sensitive will be the tissue, and the shorter the time it will keep in good working condition after sensitising. (2) Moisture and heat greatly increase the action. If the exposed tissue be kept in a moist atmosphere, at a temperature of from 75 deg. to 80 deg. Fahr., the action goes on rapidly, and in this way the necessary exposure can be greatly curtailed. (3) Hydrogen peroxide is not a catalyst but the substance used in catatype processes, which is readily decomposed by the catalytic action of, say, manganese peroxide. The latter oxidises the peroxide, is thereby reduced, and can be reoxidised for further action. (4) The bichromate salts are the only others, in addition to iron and silver, of practical importance. We should not include platinum salts, the photo-sensitiveness of which is very small. As regards relative sensitiveness, well, you have a range from a rapid emulsion to blue print paper. (5) We know of no colloids that expand with heat when in the dry state. They all contract with heat when dry.

CARBON PICTURES ON METAL.—Can you give me a formula for making a carbon transfer adhere to metal so as to stand the weather without peeling? And if it would be advisable to varnish it, what varnish to use?—F. O. R.

Clean the metal thoroughly. Then immerse it, and the print on the flexible support, in the following warm solution:—Nelson's No. 1 gelatine, one ounce; water, one pint; when dissolved, add fifteen grains of chrome alum in hot water. Add this slowly and with vigorous stirring. When the print is softened in this bring in contact with the metal and squeegee together. It is possible, if the picture is then varnished with "Zapon" varnish, it will stand the weather for a time. This



varnish may be had from the Crane Chemical Company, Birmingham. It is substantially a celluloid varnish. Perhaps a better varnish would be a copal stoving varnish, if it were "stoved"—that is, heated in a japanner's oven, or the kitchen oven might be used for small work. This would probably stand the weather better than the first-named varnish.

**PUZZLE.**—1. The over-exposure mentioned would scarcely have been sufficient to cause the reversal. We should say the plate might easily have been under-exposed. The most probable cause of the reversed appearance is fogging by long development. We have frequently seen similar effects when plates, under-exposed in some cases, have been forced to bring out all possible detail. We ascribe it to the greater amount of fog, proportionately, in the shadows of the subject, causing these portions to print much lighter than they should. This effect can be seen in the photograph you have sent. 2. There is no remedy.

**THE FACTORY ACTS.**—I should feel greatly obliged to you if you would let me know in what way the Factory Act applies to the ordinary photographic studio. At this season of the year, owing to heavy pressure of business and poor light, we are obliged to work on late to cope with rush orders. I understand from the inspector that according to this Act we can, as a staff, only work on until eight o'clock in the evening, and must close one half-day in the week; anyway, assistants must be let off at four o'clock. Of course, these hours are longer than we should work at ordinary times, and my assistants always have half-day, leaving at two o'clock, but taking it in turns, except during December. I am not quite sure, but am inclined to think it only affects those under eighteen.—**ANXIORS.**

The Factory Acts apply to photographers just as they do to all other businesses where a number of hands are employed, and you will have to abide by them. The hands must have the bank holidays and leave off on Saturday at four o'clock. You may get permission to change the Saturday to another day, when the workrooms must be closed at four o'clock. You may, also get permission to work a few days during the year overtime by giving notice to the inspector of the district.

**PYRO-SODA DEVELOPER.**—I have been trying the pyro developer described on pp. 763 and 782 of the B.J. for September 28 and October 5. I made up 20 oz. according to the first formula, viz.

Pyro .....	160 gr.
Soda sulphite .....	2 oz.
Potass. metabisulphite .....	½ oz.
Water to .....	20 oz.

This developer, with me, works very slowly, and after prolonged development does not give any density worth mentioning. The par. on p. 782 of the B.J. for October 5 states that some errors crept into the first note, and recommends a stock solution of—

Soda sulphite .....	4 oz.
Potass. metabisulphite .....	1 oz.
Water to .....	20 oz.

10 oz. of this is to be taken, and 10 oz. of water in which 20 gr. 160 gr. of pyro is to be dissolved. This, however, is exactly the formula in the first note, and is what I have used. I should like to know whether this is really the formula you recommend, and whether it should work so slowly and fail to give density. Adding more soda carb. had only the effect of fogging the whole surface of the plates, rebates and all.—**REX.**

The correction referred to applied only to the stock solution of neutral sulphite. The developer itself was correctly given. Using 4 grains per ounce full density should be attained in something under ten minutes at normal temperature. We have commented on the slowness of this developer several times. It was given as a specimen of a non-staining pyro-soda developer that would keep. Whether a rapid developer of the same class can be compounded has yet to be determined.

**TENANCY AGREEMENT.**—I have taken a private dwelling-house from October last, and have signed an agreement of tenancy of same for one year, but the landlord insists on me paying my rent weekly, which I have done since occupying the house, and since then, here I find the house is so damp that not only our furni-

ture, etc., is suffering thereby, but my wife and family's health is also suffering, and we wish to move out as early as possible. Can I do so without being liable for a year's rent? Seeing that the landlord insists on me paying a weekly rent do I become a weekly tenant thereby, and does this cancel my agreement as a yearly tenant, or does my agreement stand under any system of paying rent. The landlord knew that the house was damp before we entered, but never informed us, or we should not have taken it.—**M. M.**

You having signed an agreement for a year's tenancy, we expect you will have to hold the house for that period, unless you can prove that it is not habitable and injurious to health. The fact that you pay the rent weekly, we think, will not invalidate the agreement. You might, however, submit the question generally to a solicitor.

**WINDOW ATTRACTION.**—Would you kindly let me know of any mechanical toy suitable for the window of a photographer to cause a little attraction during the Christmas time.—**CAMERA.**

Apply to Messrs. Potter, shop fitters, Aldersgate Street, London, E.C.

**T. BURLIN.**—We do not quite see the connection between your stained whites and Mr. Carnegie's theory. The stain in question is most probably due to impure soda sulphide solution. This should be boiled and filtered before use. The stock solution must be a strong one, and it should be diluted immediately before use. The diluted solution will not keep at all. Bromine water will completely bleach the image, and the image will slowly reappear in daylight. The result, however, is very weak.

**CHROME ALUM FIXING BATH.**—Please give formula for addition of chrome alum and sulphite soda to fixing bath for plates.—**TROOPER.**

The following from the "Almanac" is a suitable formula:—

Sulphuric acid .....	1 drachm.
Water .....	2 oz.

Add the above to—

Sodium sulphite .....	2 oz.
Water .....	6 oz.

and pour the mixture into—

Hypo .....	1½ oz.
Water .....	48 oz.

Finally, add to the above mixture—

Chrome alum .....	1 oz.
Water .....	8 oz.

**COPYING FADED PRINT.**—I have a photograph that is much faded to copy for a customer. Can you give me the formula and how to treat it to get a copy of same.—**COPY.**

There is no satisfactory method of restoring a faded print, so you will have to copy it as it is. We should recommend you to employ an orthochromatic plate for the purpose. If the print is very yellow, much of the yellowness may be bleached by treating it with a rather dilute solution of bichloride of mercury—that is, supposing the photograph has been toned with gold. If not, the whole of the image will be bleached out. In copying, illuminate the picture by a strong side light.

**\* \* NOTICE TO ADVERTISEES.**—Blocks and copy are received subject to the approval of the Publishers, and advertisements are inserted absolutely without condition, expressed or implied, as to what appears in the text portion of the paper.

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## SUMMARY.

The index to the BRITISH JOURNAL OF PHOTOGRAPHY for 1906, including the items of to-day's issue, is presented as an eight-page supplement.

A studio has now been placed at the disposal of members of the Blenheim Club. (P. 1037.)

Demonstrations of a new commercial self-developing plate have taken place in the North of England. (P. 1036.)

The medalled formula for a developer of warm tones on chloride lantern-plates is given on Page 1029.

Formulae for relief-effect prints are given on Page 1033.

A German chemist has recommended a delicate test for gelatine. (P. 1030.)

A printing-frame and bromide printer are among the patents of the week. (P. 1034.)

Pencil photographs, presumably a combination of photography and drawing, are said to be a boom at present in Paris. (P. 1033.)

An over-worked Society Secretary.—The publication of book-ings of the R.P.S. affiliation lectures has brought to light a society which has secured sixteen hired lectures for a six months' session. (P. 1022.)

"To retouch or not to retouch" proofs is discussed with other "proof" questions by an American contributor. (P. 1028.)

The discussion of Mr. de Graaf Hunter's paper on shutter speed testing, in which Sir William Abney, Mr. Conrad Beck, Mr. H. F. Purser, Mr. Horace Beck, and Mr. S. D. Chalmers took part, is given on Page 1031.

Mr. A. Lockett, in an article on "Measuring and Surveying by Photography," treats of the elementary principles upon which these applications of the camera are based. (P. 1024.)

## EX CATHEDRA.

### Our Hearty Reciprocations.

We must thank most sincerely all those friends and readers—a distinction without a difference, we hope—who have sent us Christmas greetings, many the product of their own photographic skill, and others equally evincing the possession of a refined taste in graphic art. These expressions of regard are as welcome to us as any missives which we receive in the whole course of the year, and we would tender to the senders our brief, but none the less genuine, reciprocations. To all those who read these pages, whether known to us personally or not, we would wish a prosperous year throughout 1907.

\* \* \*

### The Index to the "Journal" for 1906.

We hope we may be pardoned for feeling some satisfaction with the index to the 1906 volume of THE BRITISH JOURNAL OF PHOTOGRAPHY, which is presented with the present issue, and includes the items occurring in all the fifty-two numbers of the past year. The compilation of an index which shall be as compact as possible while at the same time codifying the contents of the volume is a task which we have undertaken very seriously and systematically from the commencement of the year. A glance through the eight pages of over two thousand entries will, we hope, convince the reader that we have at any rate spared no pains to provide means of rapid reference to the contents of our text pages. It will be seen, also, that the first portion of the index is a subject one, and that the entries are sub-classified under such headings as

Backgrounds.	Gum-bichromate.
Bromide papers.	Lantern matters.
Cameras.	Leuses.
Carbon printing.	Orthochromatics.
Cinematographs.	P.O.P.
Collodion.	Postcards, picture.
Colour photography.	Self-toning papers.
Copyright.	Shutters.
Development.	Stereoscopy.

In each of these cases, all in the volume of permanent interest is indexed in alphabetical order, and not only that, but in the majority of instances there is an indication of the nature of information, whether a patent specification, letter to the editors, a society report, or a review of a book or of new apparatus. We believe we may assume that facilities such as these will be appreciated by everyone who has occasion to consult the volumes of the BRITISH JOURNAL, and we believe we may say, also, that the obligation to compile such an index is one which we, of all photographic journals, cannot disregard, inasmuch



as our contemporaries leave to us the publication of the papers and communications of permanent interest in the progress of photography. The preparation of an index worthy of the subject-matter is therefore a duty which we have at any rate endeavoured to discharge with all our might. Our readers, in their use of the index, must judge of the success which has attended our work.

\* \* \*

**Voice Photography.** According to the "Daily Telegraph," Dr. Morage, lecturing at the Sorbonne, Paris, one day last week on the Pollak-Virag system of multiple telegraphy, announced that he had devised a method of photographing the voice, and showed some results. The information given is somewhat meagre, but apparently the words are spoken into a microphone, and are registered in special wave-like signs somewhat akin to shorthand, which are photographed at the other end of the line. From such a bald statement but little can be gathered, but one can at least assume that the wave-like signs are due to the actual vibrations produced in some responsive medium by the voice. Somewhat similar announcements have been made in past years, for in 1901 Ruhmer utilised the variations of the well-known speaking arc lamp in connection with selenium cells, a telephone, and a cinematograph film, on which were recorded, through a narrow slit, wave-like signs similar to shorthand, which could in turn be used with a projection apparatus, another selenium cell, and telephone. In 1902 Cervenka obtained graphic records of sound waves, both on negative paper and plates, from which electrotypes in copper and vulcanite were subsequently obtained that could be used in conjunction with a gramophone or similar apparatus. In 1903 Ewald, of Strasburg, constructed his "camera acoustica," in which the sound waves were received by a vibratory membrane placed at the base of one of the ordinary tin gramophone trumpets, the vibrations being photographically recorded on a moving celluloid film.

\* \* \*

#### The Misuse of Federation Lectures.

A short time ago we had a note on this subject, pointing out the want of wisdom shown by societies that practically fill their programmes with lectures obtained from outside sources. The list of bookings of the Affiliation lectures published in the "Photographic Journal" for December throws an interesting light on this matter. Thirty-two lectures being available, thirty-five out of sixty-six societies have secured only the modest number of one apiece. Nineteen societies have booked two lectures, six have taken three, four have taken four, and only one society has booked five lectures. But then, one society distinguishes itself above the rest by booking no fewer than sixteen lectures to fill a programme lasting only from December to May! The total period being less than five months, it is obvious that very few evenings are left to be filled by members of the society. There is a marked contrast between the programme of this society and that of the others, and it is very satisfactory to see that only one society out of sixty-six is apparently so helpless. Forty of the bookings are concerned with competition slides, which most societies naturally like to see, hence it is evident that many of the affiliated societies are quite resourceful enough to fill their own programmes. The biggest demand appears to be for lectures of the lantern show order. This may be indicative of a preference for light entertainment, but we are rather inclined to think that it shows ability on the part of the societies to provide their own technical lectures, and, if so, we can only look upon it as a healthy sign. In any case, lantern lectures

must be good if they are to serve as an attraction, and it is highly probable that many societies would never shun a really first-class set of slides if they depended entirely on their own resources. With the exception of the "awful example" we have referred to, it appears to be that the Affiliation societies use their privileges wisely. The members of other federations do no worse, the complaint made by the correspondent to whom we referred in our previous note would seem to have little foundation. It would be of interest to know how other lists of "booked" lectures compare with the one on which we have commented.

\* \* \*

#### Postcard Portraits.

The letter of a correspondent in our issue of last week raises a question that we have had in our mind for some little time past, namely the policy of photographers who supply portrait postcards at the ridiculously low price that many are now doing. A friend recently showed us a postcard portrait of himself taken a short time back at a fashionable seaside resort at the price of three for a shilling. This included the sitting, and a proof was submitted before the other two were printed. The portrait was the full size of the card, and, if not cut down, as it evidently was, would have been the full cabinet size. Technically the photograph was a good one, a fair specimen of middle class work. The size of the picture postcard,  $5\frac{1}{2}$  in. by  $3\frac{1}{2}$  in., is so close to the standard size of the trimmed cabinet portrait,  $5\frac{1}{2}$  in. by 4 in., that the public may well ask why it should be charged from twelve and sixpence to a guinea a dozen for the latter while the same photographers do what is practically the same size for from three and sixpence to five shillings a dozen, the only difference being the mounts. In many places where the postcard is not made a special feature of, the negatives are made on half-plates; therefore the production of the negative, and the retouching, costs the same as for the ordinary cabinet size portrait. This seems to us a matter that should receive the immediate attention of all professional photographers. The subject is one that might well be dealt with by the Professional Photographers' Association, but, unfortunately, that useful body has but little weight outside its own members. There is one way by which we can see that the growing evil might be checked. Let photographers as a body agree to supply as portrait postcards only such pictures as can be printed from quarter-plate negatives. Such pictures would not then clash with the ordinary cabinet portraits.

\* \* \*

#### Shabby Apparatus.

Last week we had something to say on the appearance of the studio and the effect it may produce on customers. What was then said with regard to the apparatus in the studio applies with equal force to that used out of doors. For example, supposing a photographer is commissioned, say, to take a group away from home; he unpacks his apparatus, which is clean and highly polished and the brass-work bright; the idea is at once created that it must be good and the work done with it must be correspondingly good. Whereas if it is shabby and dilapidated in appearance a doubt may arise in the minds of some that the results produced with it can be of a high order; although it may be far better for work than apparatus of a more showy character. First impressions go a long way with the public. Though outdoor apparatus necessarily receives more rough usage than that which never leaves the studio, there is no reason why, with care, it should not be kept in decent appearance. Soap and water and a little furniture polish will

work wonders and practically transform a shabby-looking apparatus into one that looks new and up-to-date. Again, some photographers in provincial places, at this season, make a feature of lantern entertainments. At these the appearance of the apparatus goes a long way with the audience. If, when it is uncovered, it shows a large amount of brightly lacquered brass-work a good impression is at once created, and the remark is sometimes heard, "That is a better thing than we had last time," while it may really be an inferior apparatus compared with the one used on the former occasion, and may not show the pictures to the same advantage.

\* \* \*

#### Surveying with the Camera.

On another page we publish an article dealing with the important subject of "Measuring and Surveying by Photography." Some readers may remember a valuable and most complete paper on this matter, that was read before the Society of Arts some seasons ago, by Mr. Bridges-Lee, M.A. Few people seem to realise the fascination of this subject, or the fact that there is still much to be done in investigation and improvement of methods. For very accurate work, of course, special apparatus is required. The average camera is of little use, for the back and front must be rigidly parallel, and the exact point where the principal axis of the lens intersects the plate must be known. The first of these conditions is fulfilled in very few cameras, and it is difficult to fulfil it in any camera fitted with a focussing adjustment. The second condition cannot, of course, be ensured without perfect rigidity of all parts. A good deal of useful information can, however, be derived from negatives taken in an ordinary camera, if one has any accurate knowledge of the lens of plane perspective, and of their application to photographs; which are true plane perspective delineations if the lens is absolutely free from distortion. We have ourselves frequently taken snapshots with a Shew "Eclipse" camera, and from the results have calculated heights (and sometimes widths) with very satisfactory results; but the most difficult task we ever undertook in this way was the measurement of the height of a stone building from a bought photograph taken with an unknown lens that had been tilted somewhat, and also evidently gave slightly distorted results. In this particular case our method was to construct a scale on the image of the stone building, by perspective projection from the brick courses of a brick building visible some distance away. As the line of frontage was not straight, and the brick courses diminished in height towards the top of the building (owing to the distortion), this was a troublesome task. But there was no way of avoiding it, as we were in London and the building was in King's Lynn, and the measurement was urgently wanted. On a subsequent visit to King's Lynn we seized an opportunity of dropping a rope down the building to test our measurements, and, much to our surprise, we found that the measurements made from the photograph were in error to the extent of about 6 per cent., or no more than  $1\frac{1}{2}$  in. in 20 ft. This is an example of what can be done with the aid of a scale photographed at the same time as the building. One can have better scales than brick courses (though these are fairly reliable for rough dimensions) and we are much inclined to think that a couple of suitable scales (one vertical and one horizontal) in front of the camera would be of great value in facilitating future measurements. For land surveying very accurate apparatus, such as a photo-theodolite, is required, but for what may be described as sketch surveying and building surveying more can be done with an ordinary good camera and lens than many would deem possible.

#### ELECTRIC LIGHT INSTALLATIONS.

AN enquiry from a correspondent on the matter of installing electric light for portrait and group photography in an ordinary room, to which we briefly reply in our "Answers to Correspondents" column, suggests one or two points which we think may be usefully referred to at greater length. The room in question, being 17 ft. long by 12 ft. broad, is of ample size for the greater part of ordinary studio photography, though a width of 12 ft. will not allow groups of more than 12 or 15 people to be satisfactorily handled if pleasing arrangement of the figures is desired. As the height of the apartment, however, is only 11 ft. it is here that difficulty will arise both in making and working the installation.

Let us first consider the use of one or more of the enclosed arc lamps, to which reference has several times been made in these pages, and on the installation of which an epitomised note is printed in the "Almanac" for 1907 (*vide pp. 716-78*). Those who are familiar with these lamps or have seen illustrations of them will at once recognise that when suspended as near the ceiling as possible the arc and the positive carbon will be two feet to two feet six inches lower than the ceiling, or in a room of the height mentioned by our correspondent only eight feet six inches from the floor. This height would no doubt be sufficient for head and shoulder portrait work and for half lengths, but difficulties would arise when full length portraits, either sitting or standing, were attempted. The feet and floor would be something like twice as far from the light as the head, and, in consequence, the illumination would only be about one quarter as strong, the strength of the light varying, as is well known, inversely as the square of the distance.

In the case of single figures or groups of two or three a good deal may be done to get over this difficulty by using a large area of reflector, both on the same side of the sitter as that on which the lamp is suspended and also on the opposite or shadow side. The direct light from the lamp is diffused by the aid of a head-screen covered with tracing linen, but care is taken to allow the full power of the light to reach both reflectors so that the maximum of light is received and reflected again towards the feet and lower portions of the figure. For such reflectors there is nothing better than a surface approximating to white blotting-paper, but perhaps a cheap cartridge paper is easier to paste on to a canvas screen than the blotting-paper. Some of the cheap white lining papers which may be obtained from a house decorator are also satisfactory.

Where full length standing portraits of men are required the problem becomes more difficult, for the head of a six foot man will be within about a couple of feet of the height of the arc. This, of course, will be the case also if three-quarter length standing portraits are to be done, and they are quite a style often demanded. In order to obtain a source of light as high as possible, and higher than the arc itself, it would be well to place a dead white reflector on the upper part of the wall of the room extending from the ceiling downwards for, say, three feet. If this reflector could be sloped with its upper edge touching the ceiling and its lower edge touching the side wall so much the better, as it would then reflect a more direct light on to the sitter. The diffusing screen should also be placed as high as possible, and an opaque screen may sometimes be used to cut off some of the direct light from the lower part of the tracing linen diffuser, so that the whole of the effective illumination is from as high a point as possible.

When all these arrangements have been made for the effective management of the light from the photographic point of view we are still left to consider the matter from



the standpoint of the insurance companies. High-power lamps give out a great deal of heat and when placed as near the ceiling as would be necessary in the case in question the plaster and the supporting lathing would get more than warm. Woodwork subjected to continuous heat tends to become charred, or, at all events, to get into such a condition that it is ready to smoulder with very little extra heat, or if a spark should reach it from any flue. A couple of sheets of asbestos cloth attached to the ceiling with an air space of an inch or two will be a great safeguard.

Turning now for a moment to the question of groups, we are face to face with the greatest difficulty of all, and one which cannot be completely got over either in a daylight or artificial light studio of this size if a good effect of light and shade is desired on each face. In a daylight studio it would only be possible to light evenly a group of twelve figures by cutting down the side light to the minimum and employing a great deal of top and front light. Much the same course must be adopted with the electric light. The lamp must be brought nearer the camera or the figures on one side will get much more illumination than those on the other. In order to still further equalise the lighting over the whole of the group the same arrangement of reflectors as that suggested for groups of two or three sitting figures may be utilised, though the reflectors will need to be kept more nearly flat against the walls on account of the width of the group. The lighting will, of course, be rather flat, but under the conditions given this is inevitable.

Another method of getting a fairly uniform lighting, and a method, moreover, which will enable this to be done without altogether losing the normal character of studio lighting, is to keep the lamp in what may be termed the average position, that is, with the light a little above, a little to the side, and a little in front of the group, and then to interpose a tracing linen head-screen sufficiently large to diffuse the light over the whole of the subject. A second supplementary diffusing screen may then be used to cut off still more light from those four or five figures nearest to the lamp.

Some workers may prefer to effect a compromise by disregarding to some extent the unequal illumination, endeavouring first of all to so arrange the figures that the lighter draperies shall be farthest away from the light, then taking care to give a sufficient exposure to secure detail in the shadows of the figures most remote, and finally, shading the negative during printing, so that one side is not lighter than the other. With due care in the arrangement of the light on the lines suggested, if one half of the negative is a little thicker this will be all, and there should be little or no difference in the gradation and relative tones, so that extra printing will generally put matters right as far as the final picture is concerned.

It may be well to point out that the suggestions offered are merely a broad guide, and that in every room or studio an installation requires individual adjustment so that the distribution of the light is the most suitable for that particular apartment.

## MEASURING AND SURVEYING BY PHOTOGRAPHY

PHOTOGRAPHY is now a good deal employed as an aid in land surveying and map delineation, the fullness and accuracy of a photographic record taken with proper precautions from a given standpoint being quite above suspicion, and obtained much more quickly than by any other method. A few remarks on the principles underlying such work and the manner in which it is generally carried out may not be without interest. Occasions frequently arise when the photographer would be glad to know the precise measurements and other data connected with objects or places shown in his prints, and it is the intention of the present article to explain the very simple rules by which such facts may be deduced, even from a photograph taken in the usual way, without special apparatus. The legal value of photographic prints from which the dimensions and distances of buildings, which perhaps have been destroyed, can be proved with mathematical certainty need hardly be pointed out, and a knowledge of what can be satisfactorily demonstrated in this direction, merely from a single print, certainly seems among those things which the enterprising photographer might wisely make himself at least superficially acquainted with.

It will perhaps be best to commence by explaining a few of the geometrical and optical facts and formulæ which are of most use in this connection.

### Finding Height of Distant Object.

This problem depends upon four factors, any three of which being known, the fourth can at once be calculated. Thus, let  $O$  = height of object;  $I$  = height of image on ground glass, negative, or print;  $F$  = actual focus of lens (i.e., distance from optical centre to ground glass at time of taking photograph); and  $D$  = distance from object to optical centre of lens. Then

$$\frac{ID}{O} = \frac{F}{I} \quad (\text{See Fig. 1.})$$

That is to say, in order to make this clear to the non-mathematical reader, the height of the image multiplied by the distance of the object and the product divided by the (actual) focus of the lens will give the real height of the object. This formula can, of course, be used to find width measurements as well as heights, but in that case the result will not be accurate unless the plane of the object on which the width is measured is parallel to the focussing screen. In all these examples it is assumed that the camera is truly level and the plane of the focussing screen absolutely vertical.

### Ascertaining Distance of Object from Camera.

It has already been stated that, given three of the before-mentioned factors, the fourth is readily found. It follows from the preceding problem, therefore, using the same lettering, that

$$D = \frac{OF}{I}$$

or, in other words, if the measurement of the object is multiplied by the actual focus and the product divided by the measurement of the image, this will give the distance of the object. The actual focus of the lens may be deduced from the facts supplied by a photograph taken with it, providing the distance of any object is known, the formula being

$$F = \frac{DI}{O}$$

All objects whose bases are on a line drawn parallel to the horizon line of the picture are obviously at the same distance from the camera. Thus, in Fig. 2, it will be noticed that the base of the factory chimney starts from a horizontal line  $AB$ , parallel to the horizon line  $HL$ , and that this line  $AB$  happens also to cut the base of the lamp-post  $C$ . The latter, therefore, is at the same distance from the camera as the rear angle  $DE$  of the factory, and the height of the lamp-post, being

easily found, may be used to ascertain that of the line D E, or any part of it. In a similar manner, employing those factors which we know to find those which are not known, and, when found, using the latter to obtain fresh data, quite a remarkable amount of information can be scientifically built up from any reasonably clear photograph.

### Finding Horizon Line.

The horizon line of a photograph corresponds with that of the draughtsman, but with the obvious difference that in the present case it is fixed by the position of the lens instead of the observer's eye. To carry the resemblance further, all

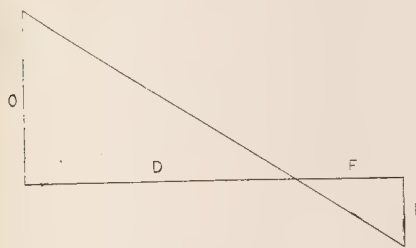


Fig. 1.

retiring horizontal lines in the photograph have their vanishing point upon the horizon line, and all retiring horizontal lines which are parallel with each other have the same vanishing point. Furthermore, when these retiring horizontal lines are at right angles to the plane of the focussing screen their vanishing point will lie at the end of a perpendicular drawn from the plane of the focussing screen through the optical centre of the lens.

From the preceding facts it follows that, providing there are at least a couple of converging horizontal lines in a photo-

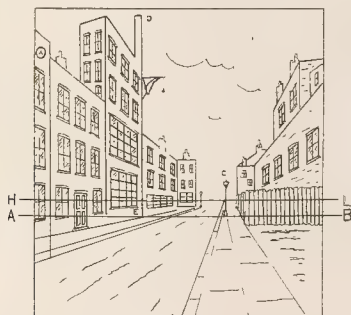


Fig. 2.

graphic print—the opposite kerb lines of a pavement or masonry courses in a building, for example—it is possible by producing these till they cut each other to find (a) the horizon line; (b) providing the said horizontal lines were at right angles to the plate, the exact point in the photograph which was opposite the lens centre; and (c), by a simple calculation, the height of the camera from the ground when the exposure was made.

As regards the latter, to find this produce any two converging horizontal lines on the print until they cut each other, and through the point of junction (vanishing point) draw the horizon line. Select any object in the picture which is known to rest on the ground level, and which cuts the horizon line—a lamp-post or flagstaff, for example. Suppose the lamp-post or other object selected is cut in half by the horizon line, as is nearly

the case with the lamp post C, in Fig. 2, then the height of the camera above the ground (or rather of the lens centre) is equal to half the actual height of the lamp-post, which may be either measured from the object itself or deduced by the formula  $O = \frac{ID}{F}$ , as previously explained. To state this more exactly:

The measurement on point of any vertical line starting from ground level to where it cuts the horizon line, multiplied by the distance of said vertical line from camera, and the product divided by the actual focus of the lens, will give height of camera (lens centre) from ground. It is, of course, assumed that the ground is practically level, although it is quite possible to

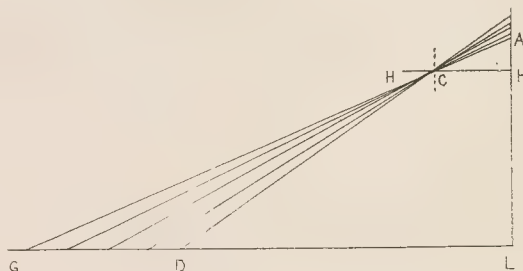


Fig. 3.

allow for any regular rise or fall, if known, by adding this to, or subtracting from the result.

### Calculating Distances from Print.

When the horizon line can be deduced from a photograph, as described in the previous paragraph, and the actual focus of the lens is known or can be calculated, it is possible to ascertain the distances of any objects which appear in the print by using the following graphic method:—At one end of any ground line of indefinite length, G L (Fig. 3), erect a perpendicular, and mark off upon it a distance H L equal

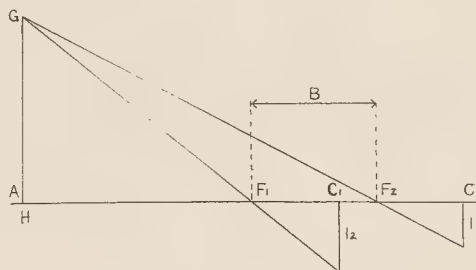


Fig. 4.

to the height of the lens centre above the ground—of course, to some convenient scale. Through H draw a perpendicular H H, parallel to G L, and step off upon it a distance C H equal to the actual focus of the lens. Now, on the print, rule a line through the base of the object whose distance is to be ascertained parallel to the horizon line, and carefully measure the distance between these two lines. Next, reducing it to the same scale as is used in the diagram, mark off a similar distance A H in the latter, above the horizon line H H. From A through C draw a line cutting G L in D. The distance D L is then equal (read to scale) to that of the object shown in the photograph. The other lines in Fig. 3 show how a number of distances may be found in the same manner. It is obviously feasible, by means of a large diagram of this kind, and reversing the previous procedure, to construct a scale of distances applicable to any photograph taken with



a given lens focus and at a definite height from the ground, and a number of such scales may be calculated for different foci and heights. An adaptation of this method is seen in M. Bertillon's system of metric photography, in which various scales are used to give at once, when applied to a photograph, the distances and measurements of any object represented in it.

#### Measurement by Means of Two Photographs.

When it is possible to take two photographs with a measured distance between the respective standpoints, the dimensions and distance of any inaccessible object can be found by means of the following method:—The camera is set up in two successive positions, each in a line with the object, taking care to keep a central vertical line of the latter in the same position on the focussing screen on both occasions, and using the same lens focus throughout. The distance between the lens centres in the two positions (or, if preferred, the plane of the focussing screen) is measured, and may be called  $B$ . Then, if  $I_1$  and  $I_2$  = the heights of the two images,  $B$  = the actual focus of lens, and  $O$  = height of object,

$$O = \frac{B I_1 I_2}{F (I_2 - I_1)}$$

Or, to show this graphically, draw a line  $A C$  (Fig. 4), and from one end, to any convenient scale, drop a perpendicular  $I_1$  equal to the height of the image in the first position (that furthest from the object), and measure off on the horizontal line a distance  $C F_2$  equal to the lens focus. From  $F_2$  set off the distance  $F_2 F_1$  equal to  $B$ , the distance between the

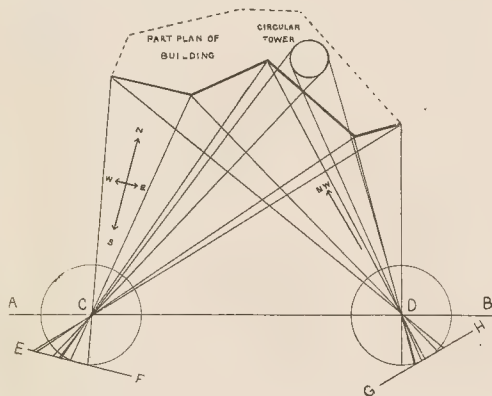


Fig. 5.

two positions of the camera), and from  $F_1$  mark off the distance  $F_1 C_1$  equal to  $F_2 C$ . From  $C_1$  let fall a perpendicular  $I_2$  equal to the height of the image in the second position. From  $I_2$  through  $F_1$  and from  $I_1$  through  $F$  draw lines meeting in  $G$ , and from  $G$  let fall a perpendicular cutting  $A C$  in  $H$ . Then  $G H$  is the required height of object.

The height (or width) of the object having been found, the distance may be deduced by means of the method shown in Fig. 1, the formula being from the selected standpoint either

$$(a) D = \frac{OF}{I_1} \text{ or } (b) D = \frac{OF}{I_2}$$

#### Apparatus for Photographic Surveying.

In surveying by photography a rigid stand is essential. The camera should be provided at the back either with a sheet of plain glass ruled with a horizontal and a vertical line crossing in the centre, or with small metal points, one at each side. The ruled glass, coming just in front of the plate

during exposure, will register on the negative the exact position of the horizon line and of the lens centre, or the metal points will indicate in the print how pencil lines can be ruled to serve the same purpose. The crossing place of the lines on the ruled glass, or of those settled by the metal points, as the case may be, must be carefully adjusted to coincide with the centre of the lens, and the lens board and front should have guide marks, so as to render it possible to always secure that the lens is in this position. A graduated scale working against a zero mark on the camera front is advisable, in order that when it is really necessary to raise or lower the lens the amount of deviation from the central position may be noted for future reference. The ground glass should be cemented in the frame to prevent it shifting when making measurements by its aid. The best lens to use is a wide-angle rectilinear, and, to secure uniformity in calculating, this should always be employed at the infinity focus. Accurate levels are required on the camera, as well as a compass to give the direction in which the view is being taken. In specially made surveying cameras certain features of the theodolite are commonly embodied, as, for instance, a circular graduated scale over which the camera revolves, thus enabling the angle between successive views, or between different objects in the same view, to be readily recorded at the time. By this means, when the compass direction of the first exposure is taken, the direction of all the others can be found with a minimum of trouble. In the photo-theodolite designed by Mr. J. Bridges-Lee, M.A., mechanism is arranged inside the camera which automatically records on the negative, besides the horizontal and vertical guide lines, the magnetic bearing of the principal plane and a scale of angular distances right and left of the latter. There is also provision for recording, at the desire of the operator, any memoranda relating to the height of the station, barometric pressure, station number, number of photograph, date, time, etc. At the top of the camera is the theodolite telescope, and rigidly attached adjustable crop levels, which enable the apparatus to be expeditiously and exactly levelled.

#### Method Adopted in Surveying.

In surveying by photography, the work is accomplished by a system of triangulation from a carefully planned base or series of station points. A number of negatives are taken, in any convenient series, in such a manner that any given point to be projected in the plan is included in at least two different negatives from varying stations. It is indispensable that the camera should be accurately levelled and the plane of the focussing screen strictly vertical. The horizon line, also, should be constant throughout the series of pictures, or a very exact record of any variation kept. Each negative is numbered, and systematic notes of its position on the planned base and its compass direction are entered. Then, assuming that prints have been obtained from all the negatives, the principal points to be plotted are marked on the horizon line of each print by means of perpendiculars drawn from them to the horizon, and corresponding points in different prints are lettered with similar letters. On the plan of the base, with each station point as centre and the lens focus as radius, circles are drawn, and tangent to these circles lines to represent the plane of the respective negatives, taking care that each is given its proper compass direction. Of course, all this must be done to the same scale as the plan. The distances of the various marked points right and left of the vertical line in the different photographs are now measured and reproduced to scale on their respective tangents in the plan, lettering them to agree with the prints. Lines are then drawn from each of these transferred points on the tangents, through the centres of the corresponding circles, and where the lines representing the same letter or

object intersect a point may be plotted on the plan. By joining the respective intersections, the whole survey is eventually completed. This is illustrated by Fig. 5, in which A B is a measured base plotted on the plan, C and D station points, E F and G H tangents to circles drawn as described, and having the required points marked on them from their proper negatives. The manner in which the lines drawn from these points through the centres of the circles intersect and are used for plotting the required plan will be understood from the diagram.

#### Contraction or Expansion of Prints.

The liability of the paper print to expand or contract during toning or development, and the after manipulations, is naturally a matter of interest, since if serious it is likely to render the photographic record inaccurate. According to the experiments of E. J. Spitta ("Photography," November 28, 1905), prints on any ordinary paper support do not expand except when wet, while when dry a slight contraction takes place,

which in some cases is uniform in both width and length, and in others may be greater in one direction. The writer may, however, point out that this can only apply to unmounted prints, since it is within the experience of most photographers that prints do decidedly stretch in one direction when mounted, at any rate when the mountant is strong enough and the mount sufficiently stiff to prevent contraction in drying. Spitta found that, with some bromide papers, the contraction is quite prevented in one direction, and reduced to a negligible quantity in the other, by wetting the back of the paper and allowing to dry before exposing. This would seem to be a subject to which manufacturers might well devote their attention, with a view to the production of a non-expansive and non-contracting support. In the present state of affairs, it may be suggested that when absolute accuracy is required, all measurements should be made from the negative itself, or from a contact transparency on glass, since these have been found neither to expand nor contract.

A. LOCKETT.

## A NOTE ON THE REVERSAL OF SOLARISED NEGATIVES WITH FARMER'S REDUCER.

If a bromide negative is exposed under a photometer in such a way that the more transparent area of the fields appears already as a positive by solarisation, and the negative obtained by this is reduced afterwards with Farmer's reducer, then a part of the reversed (by solarisation) regions is changed again into a negative. This is best to be seen in those places where the solarisa-

fine grains which are to be seen in the lower parts of the film are much finer than those in the corresponding parts of the solarised portions. It is easy to understand that a reduction with ferricyanide of potassium under certain circumstances must invert the relative portions of transparency of these two parts. Suppose the reducer has penetrated down to the half of the two

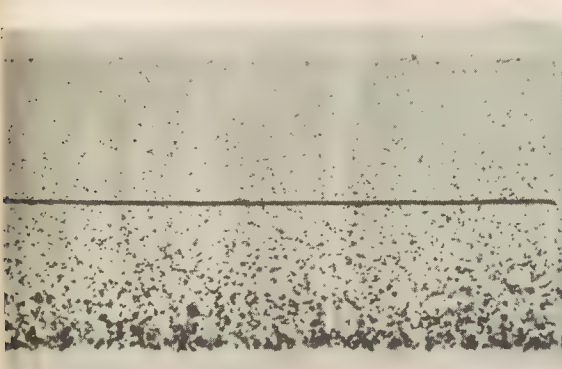


Fig. 1.

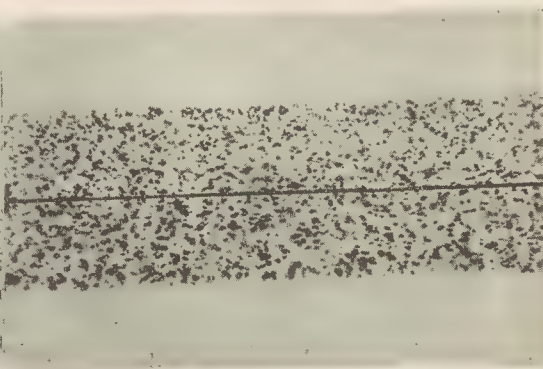


Fig. 2.

tion has not gone too far. This phenomenon is easily explained by the microscopic examination of vertical sections of the films. Figs. 1 and 2 show such vertical sections. Fig. 1 is the less exposed, and Fig. 2 the solarised. It can be clearly seen that the less exposed parts must be much more opaque than the more exposed (solarised). In the solarised parts the grains are equal in size and evenly distributed over the whole thickness of the film. In the less exposed parts the size and quantity of grains in the upper parts are both greater. The comparatively few

films equally. In Fig. 1 the greater quantity of the grains has dissolved, and only a very slight opacity remains. In Fig. 2 comparatively more of the grain remains unattacked, and consequently the parts, formerly more opaque, must be relatively more transparent after reduction. These experiments naturally succeed well only if the plates are thoroughly developed with a well-penetrating developer of strong action. The fact that the solarised part is thinner is explained by the hardening of the film by solarisation.

DR. W. SCHEFFER.

**SALISBURY Camera Club.**—The second annual exhibition will be held on February 5, 6, and 7. There are to be four open classes, with Mr. S. G. Kimber as the judge. Enquiries and applications should be addressed to Mr. T. S. Bloom, Farnett, Salisbury.

**A LANTERN-SLIDE Competition** is announced in connection with the Northumberland and Durham Federation. Plaques will be awarded for the most pictorial slide. The judges are Messrs. Walter S. Corder and A. E. Cowling.



## BUSINESS ASPECTS OF PROOFS.

The following two contributions, which we quote from our American contemporary, the "St. Louis and Canadian Photographer," discuss certain of the points which are equally vexatious to the professional photographer in this country.

In taking up a subject of this kind, writes Mr. John A. Schreurs, it is the intention to endeavour to prove the commercial value and practicability of the plan of which this article treats. Many a dollar has eluded him, many resittings made needlessly and at his expense if the photographer has not thought that it pays to retouch, partially, his negatives before showing proofs. Enough is being said about every other branch of the profession. What of our knowledge in advertising, in the art of portraiture, in the skill necessary to the obtaining of a good order—does it not all depend, all the previous efforts hinge, upon how well pleased the sitter is at first sight of the proofs?

### Retouching for Proofs.

It is known that in nearly every studio there are negatives that are never ordered finished. It is also a fact that people will try to obtain a sitting without leaving a deposit—for the only reason that they want to see first how the proof will look. Then, with these facts before us, we ought to find a way to meet them. Retouching is done in most studios in one of three ways: by the piece in the studio or at the retoucher's home, on a salary at the studio, or by the proprietor. How can this necessary work be done in all the above instances? If the proprietor is a retoucher the best results can be accomplished if he does it himself: because, in most studios, he will make the sittings and will know from his conversation with the sitter what he or she wishes. If the retouching is done by a person on a salary their time will be well spent. If, as in the first instance, by the piece, a reasonable amount can be agreed upon. The piece workers might find that the number of negatives to be retouched had increased, after trying the plan, and could afford to do the necessary work free. It will be found that the reception room work will show better results, and three dozen from three or more styles will not be an uncommon order, where previously one dozen from one was the average. The amount usually charged for retouching extra negatives, cabinet size, is from fifty cents to one dollar. It is not for the gain of this extra amount alone that we speak but that the sitter will be better pleased with the proofs and will invariably give a larger order. With this in view, a pleased customer is willing to give a liberal order. The price for retouching extra negatives can be made less than regular, say two negatives for seventy-five cents; or, if figures, three for one dollar; in other words, don't let a too high price for retouching keep a customer from placing a good order. The way a proof is made, and shown, is of considerable importance. Too often any old kind of paper is made to do, and the colour and size given no consideration, just so it prints. But the experience of many is that the paper cannot be too good, nor should it be too small in size. In some studios a folder is used to contain proofs and in which to exhibit same, and no doubt many other neat ways are in use to help to make an impressive-looking proof.

In the retouching of the negatives for proofing all in the order need not be retouched. The vast difference in the ones so treated and those which you may choose to leave unretouched, will be an aid to you to influence the sitter to order from the ones which, in your judgment, you know will finish the best. Often the customer will want to order from a proof that is from an inferior negative, they not knowing that it is such, because it was printed light, or some similar reason, when it would not finish nearly as good as another. All proofs ought to be returned to the studio, and the fact emphasised by the printed request on back of the proofs.

### Proofs Unpaid For.

In these days of the numerous amateurs, many an extra negative failed to get an order owing to the fact that it has been fixed and made to answer as an extra "photo" from your studio, and you are out the fifty cents or more which should have come to you. And, in addition to that, the sitter is more likely to want the extra styles if they are not allowed to keep the extra proofs. In some instances it might be advisable to let a sitter keep a proof for a certain length of time, if it was one particularly liked; but the photographer should make a memorandum of the fact and, when the time arrives, write a request for an order. Much could be written in regard to the necessary changes to be made in improving a negative before proofing, but that would require too much space and needs a separate treatise. In some instances the mere softening of a line, or the removal of a facial defect, or the changing of the outline of a figure, will satisfy the person, but care must be taken not to go to extremes. The proofs are usually seen by members of the sitter's family, and frequently numerous friends are asked to pass judgment; some flattery is permissible and will be recognised to your credit, but do not let the friends have cause to say: "How changed from what he once was" (*Quantum mutatus ab illo*).

Amateur photography has come to stay and its enthusiasts are to be found in nearly every home. No doubt your customer has had a "picture taken" at home in the easy attitude thought to prove just right, because natural and in a congenial environment, and has decided to try the photographer. Think you they will be looking for a fuzzytype, or want to look too natural? No, they have been experimented upon, have seen themselves in the easy attitude, and are expecting to see, even in the proofs, that they are not so uncommonly homely after all. It is the sitter who is enthusiastic about the proofs, who is really agreeably surprised, from whom the large orders are obtained, providing they are well pleased with the proofs. It is true there will need to be some talking done in the reception room, but if the person is pleased at the start the large orders are all the more readily obtained.

### A Uniform Charge for Each Unreturned Proof.

In regard to the return of all proofs, and where the same have not been returned, instances like the following have been known to occur: A sitting of an attractive child was made on the understanding that if the proofs were good a combination was wanted. Ten or twelve fine proofs were sent to the mother, and a deposit of \$1.50 had been made on the order. Some time afterwards the photographer was asked if he had made all those fine pictures for Mrs. B., and much to his surprise he learned that the proofs had been "fixed" and framed into a combination photograph. Children's photographs do not need much retouching, and they, more often than those of older people, are kept when they should all be returned. Well, the proofs had to be returned to the studio where this incident occurred, or paid for, after the facts were discovered. A price of 25 cents is demanded for each proof not returned in some studios when persons retain same after request is made to "return all proofs." It is true the above instance has more to do with the return of proofs than the retouching of same, but it shows the need of giving more attention to them.

In conclusion, I think that the proof has a good deal to do with the amount the photographer will realise from each sitting.

Among the numerous ways now in use in the better studios to obtain orders for higher-priced work, when the customer does not seem disposed to order the best, is to make other negatives than the size ordered, and when the proofs are seen finished, platinum prints of the special ones are also presented for approval, which usually brings the desired result. But will not, after all, an order for two or four dozen photographs from four to six different negatives pay the photographer more and be a better advertisement for him than one or two specially finished ones only to be seen in one or two homes?

### A Business Practice.

I am inclined to think (writes R. W. Phillips) that the profession as a whole are thinking a little too much of their work as being strictly in the line of a business. While business methods are undoubtedly necessary, there is one thing which must not be forgotten, and that is that we are closely allied to the Arts. Whether times are dull or profitable the conscientious photographer should adopt this universal rule, "Never allow a client to receive unsatisfactory pictures, no matter what the cost."

This, it seems to me, covers an immense field, and could be talked on for hours at a time. One can readily see the great harm that may come to future business by having adverse criticism. One customer may influence from ten to five hundred dollars' worth of business, and the harm done by an adverse critic will travel and cover twice as much ground as the successful word. The impression made by a neat enclosure for carefully made and occasionally partly retouched proofs, undoubtedly has its effects upon the customer. After many trials, we now use this method:—

We have proofs, made and cut in uniform sizes, and enclosed in a neat folder, of a colour harmonious to the paper used for the proofs. They are placed *one over the other*, and held in place at the top by the use of a Hotchkiss No. 1 fastener. Separate proofs are then not laid in the light to fade during inspection by others. A favourable impression caused by any one proof or proofs may thus be rendered more complete by this temporary isolation. We print on our folders an explanation of what the proofs mean, and that they must all be returned, or a charge made as for finished pictures. Since the adoption of this policy, we have found that our customers invariably return them all.

## FOREIGN NOTES AND NEWS.

### Acid Diamidophenol Developer for Lantern Slides.

A committee of the Société Française has recommended the award of a bronze medal to M. Balagny for his method of obtaining warm tones on chloride or chloro-bromide lantern plates with an acid diamidophenol developer. The plates used were Ilford Alpha and Edwards' chloride, the exposure for the former being 3 cm. of magnesium ribbon et 10, 20, and 30 cm. respectively, whilst for the latter plates 4 cm. of magnesium were used. The developer was:

Diamidophenol .....	2.5 gms.
Bisulphite solution .....	40-50 ccs.
Ammonium bromide, 10 per cent. sol. ....	50 ccs.
Sodium bisulphite lye .....	25 ccs.
Water, to .....	1000 ccs.
The bisulphite solution above referred to is composed of:	
Water .....	125 ccs.
Sodium sulphite anhydrous .....	20 gms.

Dissolve and add:

Sodium bisulphite lye .....	75 ccs.
The image first appears of a maroon colour, and as development proceeds changes to sepia, and the whites keep absolutely clean. As soon as the desired colour is obtained the plate should be well rinsed and fixed in:	

Hypo .....	250 gms.
Sodium bisulphite lye .....	20 ccs.
Water .....	1000 ccs.

and then washed as usual. The committee state that the transparency of the whites is perfect, and that there is no blocking up of the shadows.

### Formation of the Silver Halides in Jelly.

Dr. Lüppo-Cramer describes, in the "Photographische Korrespondenz," some experiments on this subject. Plates were coated with a 10 per cent. solution of gelatine containing  $2\frac{1}{2}$  per cent. of potassium iodide, or the equivalent quantities of bromide and chloride. A few drops of a 10 per cent. solution of silver nitrate were dropped on the plates, and it was seen that the iodide became cloudy first, then the chloride, and finally the bromide, the two latter merely causing a fine opalescence. If a solution of ammonio-nitrate of silver was used, opaque films were immediately obtained, and the iodide was the slowest in formation. Ammonia thus acts directly on the formation of the opaque halides and acts as an energetic ripener, when the latter are *in statu nascendi*. Opalescent films bathed in ammonia also became opaque, but only slowly ripened. Silver chloride ripens more quickly at first, but is then caught up by

the bromide and surpassed. Silver bromide exposed under a solution of silver nitrate darkens more rapidly than the chloride, but is caught up and surpassed by the latter. When a gelatine-potassium-bromide plate, containing 1.5 (bromide) of iodide was bathed in silver nitrate the film became much more opaque and more yellow than the pure iodide. The rapidity of the formation of the halide in this case is not more rapid than with pure bromide, but the mixture is at once more yellow, and this colour is much more striking when ammonio-nitrate of silver is used.

### A New Panoramic Camera.

Commander A. Daubresse has invented a new panoramic camera which embraces the whole horizon, or 360 deg. It is constructed by the well-known optical house Krauss, of Paris, and is shown in figs. 1 and 2, the latter giving the exterior view of the camera, in which a film is used with spools in the usual manner. Fig. 1 shows the optical part, and it will be seen to consist of two rectangular prisms between which is placed the lens, with its axis vertical.

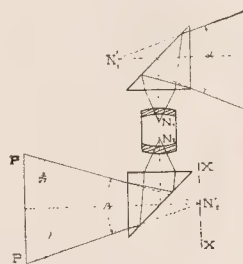


Fig. 1.

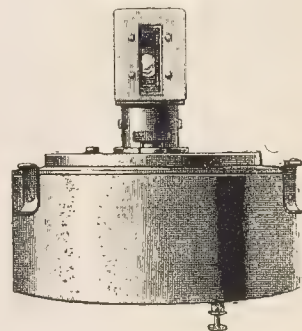


Fig. 2.

If the image  $N_1$  is constructed from the nodal point of incidence  $N_1$  of the upper prism, and also  $N_2$  from the nodal point of emergence  $N_2$  of the lower prism, it will be at once seen that the points  $N_1$ ,  $N_2$  play the same part as the nodal points of a lens used alone, namely, that an incident ray, passing through  $N_1$ , gives rise, after traversing the system, to an emergent ray parallel to the first, and passing through  $N_2$ . The principle pointed out by M. Moëssard should then be applicable to this optical system.



and if the whole collection of lens and prisms is revolved on a vertical axis XX passing through  $N_2$ , the image of an exterior point should be immovable on the film.

### The Action of Hypo in the Ferrous Oxalate Developer.

Dr. Lüppo-Cramer has been investigating the accelerating action of small additions of hypo to the ferrous oxalate developer. The presence of sulphite in the developer prevents the solution of any silver bromide by the hypo, and also prevents the formation of silver sulphide; but if the hypo is used as a preliminary bath the sulphite has no restraining action. The author finds that ferrous oxalate reduces the silver bromide dissolved in the hypo much more rapidly than an organic developer. He confirms Gaedick's statement that a mixture of equal molecules of silver bromide and hypo does not form the theoretical salt, but that some of the silver bromide is always dissolved, and that some remains as a precipitate. This residue was not found to be pure silver bromide, but a compound of bromide and hypo, which was decomposed by washing, and always gave a filtrate that became cloudy. When heated with nitric acid this compound gave silver sulphide. It is thus clear that small quantities of hypo combine

with some silver bromide, and this compound is much more easily reduced by ferrous oxalate than silver bromide. Therefore the initial rapidity of the process of development is increased by the addition of small quantities of hypo.

### A Test for Gelatine.

When a solution of gelatine is vigorously shaken with benzine (petroleum spirit), some of the colloid is precipitated as a stiff emulsion of gelatine, benzene, water, and air. With very dilute solutions the result is a permanent whitish ring of exceedingly small bubbles, settling around the walls of the vessel. This reaction is very delicate, serving to detect a few mgrms. of gelatine per litre. It is best carried out with quantities of 10 c.c., in a vessel of the diameter of an ordinary test-tube. Slight acidity of the solution is favourable, but in presence of much acid, alkali, or salt, the test must be performed on larger quantities. It is found that petroleum, melted paraffin, benzene, chloroform, and carbon bisulphide may also be used. Solutions of other colloids, both organic and inorganic, give the reaction. Tannin reacts, but gallic acid does not. Conversely, solutions of fats in hydrocarbons give similar permanent layers of emulsion with water, or (better) dilute alkaline or acid liquids.—A. Winkelblech, in "Zeitschrift für Angewandte Chemie," through "Journ. Soc. Chem. Indus."

## A NEW METHOD OF MEASURING THE TIMES AND EFFICIENCIES OF PHOTOGRAPHIC SHUTTERS.

(Continued.)

THE reading of Mr. J. de Graaf Hunter's paper, reported in our last two issues, was followed by a discussion on the report, which we publish, by courtesy of the official organ of the Optical Society, the "Optician."

Sir William Abney said the apparatus they had had the advantage of seeing before the paper was read, was very beautiful in design, and, so far as his knowledge went, was novel. It seemed to him to have been worked out with very great skill and care, and he was surprised at its accuracy and the small difference there was in the two or three readings in succession. He was glad that Mr. Hunter had called attention to the actual times and the nominal times, as no one knew, perhaps, better than he, that the ratios of the times put on shutters were in many cases absolutely fictitious. As a rule, the speeds merely indicated that the plate was exposed for a longer or shorter time, and that nobody who knew this would ever think of using the figures marked on the shutters. That, at any rate, was his experience—he would mention no shutters and no names, but there were a great many sinners in that respect, but he had not the slightest doubt that they arrived at their figures by some means or another.

If they got one of the instruments now shown they would, at all events, have the correct nominal exposures to go by. A good deal of experimental work had been carried out by amateurs in measurements in which they had taken for gospel the makers' times of exposure. This was unfortunate, as it rendered such work of but little use. Of course, one had to recollect that with shutters the actual exposures might vary, for anybody who had used a shutter in which thin plates of ebonite formed a part would know that the exposures varied very considerably.

### Causes of Time Difference.

There was one shutter he had in mind with regard to which he could say the times had varied between 1/100th of a second and about 1/12th of a second, though they were supposed to be the same. The difference was due to change of temperature and deposit of moisture. So that one must not blame the makers altogether. He would not make further observations except to congratulate Mr. Hunter on the very efficient apparatus he had introduced, and he hoped it would be found useful to the manufacturers of different kinds of shutters.

Mr. Conrad Beck said that some years ago he noticed that a certain shutter put on a certain camera was marked 1/100th, which a year before had been marked 1/50th, and without any very apparent change, the next year it was marked 1/150th. He was bound to say that he wondered where it was going to stop. At that time he com-

menced a scheme by which he tried customers' shutters for 4d. each, and he tested nearly 6,000.

In the course of this work they got some extremely interesting information. He certainly could endorse everything Mr. Hunter had said as to the question of accuracy of speeds; at the same time he was bound to say there were many ways of looking at it. For instance, if a shutter opened from the centre and closed to the centre, the exposure which was required to be given according to exposure tables, would not be in the same ratio to the total time the shutter was open as that required by a focal plane shutter. Consequently, there were two methods of defining the rapidity of a shutter, one of which had reference to the amount of light admitted into the camera, and regulated the exposure necessary; the other had reference to the period during which a hand camera could be held steady, and to the movement of a quick moving object being photographed, and he thought there was some difficulty in expressing the speeds of shutters for that reason.

### Size of Aperture.

It was the simplest, and perhaps the more practical and certain method of expression, to state the actual period which the shutter opened the central portion of the lens. If the total time during which a shutter was open, modified by an efficiency co-efficient, were taken as the speed of a shutter this might be quite incorrect, because the shutter might have a full aperture of 1-inch on which the efficiency was calculated, whereas the lens used with it had perhaps an aperture of  $\frac{3}{8}$ -inch.

Then, again, one had also to consider the size of stop or aperture of the lens which was going to be used. If he might be allowed, he would indicate a few points on the blackboard. Mr. Hunter had been suggesting that his method was a fair test of a blind shutter, but it was not true to take the total motion of the blind. (Mr. Beck proceeded to sketch a diagram on the blackboard.) A blind shutter working in front of the lens commenced by exposing one edge of the plate, the rest being in darkness; and this edge of the plate ceased to be illuminated some time before the shutter had completed its travel. Thus, a measurement giving the total travel of the blind did not give a correct measurement of the exposure at any one point of the photograph, and was not a useful mode of expressing the speed of that shutter. He merely raised those points with a view to showing that the question of expressing speed of shutters ought to be carefully discussed and set forth by some consulting body who

would consider all these points, in order that some systematic method could be adopted. He thought there were two distinct points which every man wanted to know. Firstly, the speed of his shutter with reference to exposure. Secondly, how much the moving body would move during the exposure, and the probability of shaking the camera during the exposure. They were extremely difficult points, and it was very difficult to know what was the most convenient method of expressing the speed when two such dissimilar points had to be considered.

He thought Mr. Hunter was to be congratulated on his method of testing shutters—the change of speed and other details were ingeniously worked out. He must say he should feel a great deal of satisfaction if, as a check to some of Mr. Hunter's results, they had one or two photographic tests—for instance, Sir William Abney's method—to test their accuracy. In starting any method it was above all essential that there were no sorts of errors creeping in. He was bound to say, judging from the average of his own results, he was a little suspicious as to whether Mr. Hunter's figures did not give shorter exposures than should be the case. In a method he had himself adopted for testing shutters, which had to be a rapid method, the shutter was placed before the eye, a small stop being used and a series of bright spots rapidly uncovered by a revolving slit was observed.

Mr. Hunter's machine was a modification of the invention of Mr. Kershaw, of Leeds, which he thought was the most ingenious he had ever seen. That method was patented by Mr. Kershaw four or five years ago, and he used it for testing his focal plane shutters. For that purpose he did not think it could be much improved, and in discussing a question of this kind he thought credit should be given to Mr. Kershaw for his method. He would like to hear whether Mr. Hunter had any photographic confirmation with reference to the results of his individual tests mentioned in his paper, because it occurred to him—although perhaps he had no right to say so without actual experiment—that some of the speeds appeared to come out a little high.

#### Sir William Abney on "Time of Duration."

Sir William Abney wished to add one or two words in reference to the time of duration in the method he adopted himself—the photographic method. Of course, he always used the method with the lens which was going to be used—not without a lens, although it could be measured without a lens—the photographic diagram had no possible meaning unless it gave the mean time of the exposure on the shutter with a certain stop. With the diagram method there was none of that uncertainty which Mr. Beck referred to. There was the time before them, and they could calculate it as they liked. (Here Sir William Abney drew a diagram on the blackboard.) With a focal plane shutter one could not judge of the ordinary rules of shutters, because they had only got to alter the slit, and they got as rapid an exposure of a certain portion of the plate as they liked. But where they had the shutters near the lens, the diagrams they got by the photographic method left no manner of doubt as to the speed obtained. Mr. Hunter had got approximately the total time a shutter was opened. He did not get the mean time, but he got his diagrams in a different way.

Mr. Purser said it would be a good thing if the speed of shutters could be accurately measured by such an instrument as that which Mr. Hunter had devised, but the question of more importance was the production of a shutter that would do credit to the measuring instrument. Manufacturers are quite conscious of the fact that the speeds of shutters are only approximately correct, and the production of an elaborate instrument for testing does not bring us any nearer the perfect shutter. In the production of such an article there are so many factors that affect the constancy of the working parts, such as changes of temperature acting on the springs of the shutter blades, grit or moisture on the valves, etc.; that, in the absence of constancy, it was not much satisfaction for the photographer to know that some time in a dim and distant past his shutter had worked at correct speeds, because at the present time, under changed conditions, it was working quite differently.

In recording incidents referring to the inconstancy in the working of shutters and other factors, Mr. Purser humorously asked the question, "Did we want speeds in shutters, and are they of any

use when we have got them?" He recently saw some photographs taken by a camera having a shutter working at nominal speeds of 1 to 1/100th of a second. They were hunting pictures, with horses and dogs scampering across a field, and the photographer recorded the information that they were taken at 1/25th of a second. It was generally considered by the amateur photographer that in order to take pictures of animals moving at a rapid rate across a field of vision a speed of at least 1/300th of a second was necessary. He also remembered conversing with a gentleman who had promised to lecture at a local photographic society on "Exposures," and "Rapid v. Slow Plates."

Just two days previous to the lecture he purchased a packet each of extra rapid and ordinary plates, and made a few exposures. On developing the plates under the same conditions he found precisely the same results, the negatives from the extra rapid plates being quite indistinguishable from those of the ordinary plates, notwithstanding the fact that the exposure given had been precisely the same. Whether this result was due to lack of constancy in the working of the shutter or to other causes is not recorded, but the incident goes to prove that where so many factors are unreliable it must be difficult to arrive at satisfactory results, and he thought that an elaborate method of testing of shutters could not be of any serious service to amateur photographers until such time as a shutter could be produced that would give constantly reliable speeds.

Mr. Rosenhain said he particularly admired the ingenious mechanical arrangements of Mr. Hunter's apparatus, and especially the change-speed gear; he only wished it were possible to apply such a form of gear to the transmission of a considerable amount of power, but he understood from Mr. Hunter that there were very serious obstacles to its use, so that those who had looked at the gear and dreamt of noiseless motor cars should not be too sanguine. In the mechanism for releasing the shutter at the proper moment there seemed to him a slight duplication; could not the electro-magnet used to put the mechanism into action be employed to cause the release of the shutter directly?

Further, after looking at the very perfect arrangements of the apparatus, he (Mr. Rosenhain) was led to wonder that no greater degree of accuracy than that claimed by Mr. Hunter (20 per cent.) could be attained; on looking through the figures given in the paper, in fact, it appeared as though Mr. Hunter's claim were rather too modest. He supposed that the object would hardly justify such a refinement, but by the use of a chronograph, the speed of rotation of the disc, at all events, could be measured to a much higher degree of accuracy than the 6 per cent. mentioned in the paper. However, while he (Mr. Rosenhain) was thus asking for greater accuracy, others had said that no speed-testing of shutters was required at all—that these measurements were of no real value to the users of shutters. He did not at all agree with that; if he knew what certain shutters did under standard conditions, and how far they were liable to vary, that would be a means of discriminating between the good shutters and the bad, and would thus be the first step towards the attainment of the perfect shutter.

Even Mr. Hunter's results, as they stood, appeared to show that the roller-blind type of shutter was less liable to vary than the diaphragm shutters. As for the argument deduced from the fact that with the same exposure equally good results might be obtained upon fast and slow plates, that hardly bore on the question; they all knew that by suitable development good results could be obtained with enormous variations of exposure, but for that purpose it was desirable to know approximately what the exposure had been. Similarly as regards a hunting picture taken with an apparently abnormally long exposure, everything depended upon the point of view relatively to the motion of the animals; under unfavourable conditions in this respect a sharp result could sometimes be obtained with relatively long exposures by a suitable movement of the camera during exposure. In any case, the first step towards scientific accuracy in photography was to have the means of knowing the actual duration of the exposure given in any particular case, and he thought they all felt that Mr. Hunter's apparatus would be of considerable service in that direction.

#### The Rate of Opening of Shutter.

Mr. Horace Beck said that there was one question raised by Mr. Rosenhain on which he would like to say a word or two, namely, as



to follow an object by swinging the camera. He had found this a most satisfactory method, and by doing so he had taken photographs at an actual speed of about  $1/100$ th of a second of tobogganing on some of the ice runs, whereas by keeping the camera steady he required  $1/500$ th of a second to get equal sharpness of the moving object. In this case he had a specially speeded up shutter for the experiment.

Another point which arises is, that if one is taking the total length of exposure in the method which Mr. Hunter is using, one takes it from the time the lens begins to uncover, and goes on to the time it is completely closed. In many shutters the rate of opening is a comparatively gradual one at starting, and it then opens more rapidly to a maximum, closing again more rapidly at first, and then more gradually. This applies particularly to any shutter in which a circular aperture is opened by means of straight-edged plate. Thus, only a very small amount of light enters the camera at the time the shutter is beginning opening and finishing closing.

Supposing that in a correctly timed exposure the first and last  $1/10$ th of the exposure do not give sufficient light to appreciably affect the plate. It can be calculated that in some shutters which, taken in Mr. Hunter's method, would show a certain speed, in actual practice would give results of 50 per cent. difference as far as movement of the object goes.

Another reason why one wanted correct speeds for photography was that when one was using a slow speed a person who had a good, steady hand, could hold a camera comparatively steady for a tenth of a second, and occasionally for longer, but with the ordinary person it was perfectly certain, in the vast majority of cases, that if he had a shutter which, when set at the nominal  $1/25$ th of a second, was really running at a third of a second, he could not help shaking the picture. Then, with reference to Mr. Hunter's actual instrument for testing, he thought it was an extremely ingenious arrangement, particularly the device of the rubber ball between the two cones.

He believed if Mr. Hunter wanted to apply it to greater power he could do so by putting a solid bicycle tyre in between, which would hang loosely on one cone. Then Mr. Purser raised another point, namely, the difference that occurred either by accident or malicious intent, owing to foreign matters getting into the shutters. Many of the shutters his firm had received for repairs were in such a condition that they reminded him of the "Mad Hatter's" watch in "Alice in Wonderland," who, when he complained of the treatment it had received, the March Hare replied, "But it was the best butter."

#### Dr. Drysdale and Stroboscopy.

Mr. Chalmers said he was very much interested in Mr. Hunter's paper. As an easy means of measuring the speed of the disc and determining its constancy, the method described by Dr. Drysdale, in his paper on "Stroboscopy," read to the Optical Society some time back, might be useful. Mr. Hunter had encountered difficulties due to the necessity of setting on the two ends of a scale; a similar difficulty occurs in the "ophthalmometer," and is there obviated by the device of "doubling the image." This device would render the method independent of the constancy of the shutter, and thus enable it to be applied to test this constancy.

He thought that the ideal method of testing shutters would be one which gave an actual picture of the shutter at regular intervals during exposure. He therefore suggested the use of a photographic recording drum, on which images of the shutter were focussed by the aid of a good lens. If the shutter were illuminated by intermittent light, pictures of the shutter at regular intervals could be obtained. As a preliminary test of the method he proposed using an alternate current arc with a period of  $1/100$ th second.

He anticipated no serious difficulties for low speeds, but expected that it would be necessary to use a tuning fork to obtain the required frequency for high speed shutters. This method should give the efficiency and time of the shutter for any aperture, and should be specially applicable to roller blind and focal plane shutters. The suggestion of Mr. Beck that not only the actual time of exposure, but also its value for use with exposure tables, should be given, was most valuable.

Mr. H. S. Ryland congratulated Mr. Hunter on his method of

attacking a difficult problem. The chief source of inaccuracies appeared to him to be that the speed of the disc was not constant. This could be eliminated by a self-recording centrifugal speed indicator. Then the speed could be easily read at any moment, or a key could be arranged, so that when depressed (as it would be at the instant of taking a reading) it would make the speed indicator band. In regard to the speed changing device, Mr. Hunter would deserve congratulation if his device were to lead to a decently quiet changing gear for our motor buses.

As to the need for a means of marking shutter speeds, that undoubtedly existed; but it was annoying when one had a shutter and could not tell the difference between 1 second and  $1/50$ th of a second. With such delicate mechanism as they had in shutters, it would almost be impossible to keep the speeds constant, but one did expect the ratios between the various marked speeds to be constant. The shutters should, he thought, be graduated for total time it is open, and its efficiency given at the aperture for which it was marked.

The President observed that, except in gathering up the threads of the discussion, he did not think he had anything to say before Mr. Hunter replied to the specific points raised. There was one thing borne in on his mind, namely, that in this matter they had one which should be considered by the Optical Standards Committee, as they had ample scope. He thought, however, that they had an agreement at the moment by which they had arranged that they would not interfere with photographic standards. Whoever undertook the work would find there were a great many controversial points, through all the intermediate stages, until they could decide on a standard nomenclature, and the degree of accuracy with which the numerical interpretation could be obtained and recorded.

#### Mr. Hunter's Reply.

Mr. Hunter, in reply to the various questions, said as to what was the proper time to engrave on a shutter, it seemed to him there was little doubt that it was the time for which an image of outside objects was formed by a lens, when the shutter was put close up to the lens, and released. One time which was of importance was the extreme time for which the photographic plate was exposed to light, which was the time during which an image was formed. To know the exposure, of course, it was necessary also to find the efficiency of the shutter. But what he called the time of the shutter gave correct information as to how far the position of a moving object would change during the time the shutter was open.

Of course, before knowing the performance of a shutter it was necessary to find the efficiency. From readings taken with apparatus described it was possible to plot an efficiency curve which gave the state of the shutter at any instant between its opening and closing. This curve was virtually the same as those given by Sir William Abney's method, and the method of finding points on the curve was applicable to all forms of shutter.

With regard to Mr. Conrad Beck's remarks, he (Mr. Hunter) had seen Mr. Kershaw's patent. The apparatus described in it seemed so different from his (Mr. Hunter's) own that he had made no reference to it. As far as he remembered, in this arrangement the shutter was held close to the eye, and a light was observed through the shutter and the radial slots of a disc. No image was formed or used as in the arrangement described that evening. As previously pointed out, the method was applicable only to periods shorter than that of persistence of impression on the retina. His (Mr. Hunter's) method and apparatus may be used in conjunction with a camera to make a photographic test. If it was considered that the visual method was in need of checking this could be done. A visual method, however, was considered more suitable on two accounts: (1) that it could be more rapidly carried out, and (2) that difficulties of getting sufficiently strong illumination would not occur.

#### Greater Accuracy of Measurement.

It had been suggested that speeds in shutters were scarcely any use, and that a shutter was bound to vary widely in performance from day to day, owing to wear, or dirt getting on the moving parts. If this was so it would be better not to mark times on the shutter at all. It was no use saying a shutter gave a hundredth of a second if it really gave a tenth of a second. He (Mr. Hunter) had heard of

the use of a rubber tyre between two cones, mentioned by Mr. Horace Beck, for a speed change mechanism. But to his mind it had not the same advantages as the mechanism with rubber ball between two cones. In this case the normal reaction required to give sufficient friction was automatically supplied, while in the bicycle tyre method it had to be specially applied. Greater accuracy of measuring the speed of the disc of the apparatus might be useful, and for this purpose a stroboscopic method would, doubtless, be very satisfactory; or, possibly, the continuous speed recorder suggested by Mr. Ryland.

The President said Mr. Hunter's suggestion that it might be desirable not to put speeds on the shutters, reminded him of a hydrometer, which not so long ago was used by the Inland Revenue for measuring the density of excisable liquids. Certain weights were issued with the instrument to correct for varying temperatures. These were marked "cold," "very cold," "warm," "warmish," "hot," "very hot," etc. In the same way the speeds of shutters might, perhaps, read "dead slow," "slow," "slowish," "quick," "quicker," "quickish," and so on, thus relieving the maker of the trouble of an exact numerical specification. In conclusion, he had a very pleasant duty to perform, namely, to ask them to accord their hearty thanks to Mr. Hunter for his paper.

### RELIEF-EFFECT PRINTS.

In the current number of the "Photo-Era" appears a contribution from Dr. Detlefsen on the making of prints with the effect of cameo relief, which may interest those of our readers with a taste for experimenting in new forms of photography. The method of Dr. Detlefsen is on the lines of that described by Mr. J. W. Gordon before the Camera Club some year or two ago. We referred to it in a recent issue on publishing a patent for substantially the same process. There are no difficulties in the process other than those of manipulation, and the print obtainable might well be applied by a professional photographer to the creation of a certain amount of interest among his customers in the method of their production. Dr. Detlefsen's notes run as follows:—

Cameo relief prints, so-called, may be produced successfully in two ways, briefly outlined herewith. The first method which I employed and published in the "American Annual of Photography" for 1906 is as follows:—From the negative to be used first print a positive on platinotype paper. Use a developer containing acetate of potassium and mercury, the addition of which produces great contrast—bright high lights and dark shadows. The developer is as follows:—

Acetate of potassium ..... ½ oz.  
Citric acid ..... 2 oz.  
Phosphate of potassium ..... ½ oz.

Dissolve in warm water and add:

Bichloride of mercury ..... 50 gr.  
(Previously dissolved in boiling water)

Add enough water to make one pint and use cold.

Now put a clear glass plate into the printing-frame, and on this place the platinotype print which you have just made, "face out." On this lay the negative, "face in," so that print and negative are slightly "out of register." Next place a sheet of platinotype paper on the negative, film to film; close the printing-frame, and print carefully. Expose to direct sunlight, if possible, and print from one to three days, until a fair outline appears. Print less strongly than for ordinary platinotype printing. Develop in acetate of potash and mercury developer.

The second method, employed by me since with results equally as good, is this:—Place paper positive on negative slightly out of register. Next put a sheet of platinotype paper on top of paper positive and close printing-frame carefully. Print and develop.

**CINEMATOGRAPHY in Colours.**—Daily exhibitions are being given by Mr. W. Friese-Greené of cinematographic projection in colours at the studio of the "Natural Photograph" Company, 203A, Western Road, Brighton. The company offers to make photographs in natural colours for customers by the three-film superposition process. The price is ten guineas for one picture.

### ROYAL PHOTOGRAPHIC SOCIETY.

#### ATTENDANCES OF OFFICERS, MEMBERS OF COUNCIL AND COMMITTEEMEN DURING 1906.

Council Meetings. Number of possible attend'nces.	Committee Meetings. Number of possible attend'nces.	Name.	Number of attendances at	
			Council Meetings.	Committee Meetings.
12	<i>Ex officio</i> all.	Maj-Gen. J. Waterhouse, I.A. (President)	9	8
12	—	The Earl of Crawford, K.T., F.R.S.	—	—
12	—	Sir W. Anney, K.C.B., D.C.L., F.R.S.	—	—
12	—	Sir J. W. Swan, D. Sc., M.A., F.R.S.	—	—
12	10	J. C. S. Mummery, A.R.I.B.A.	12	7
12	<i>Ex officio</i> all.	John Storey (Treasurer)	9	1
12	—	Francis Ince (Solicitor)	—	—
12	9	A. W. W. Bartlett	11	9
12	2	H. W. Bennett	6	—
12	10	Leslie E. Clift	11	10
12	9	Douglas English, B.A.	1	—
12	7	T. E. Freshwater, F.R.M.S.	11	4
12	—	John H. Gear	11	—
12	—	Sir W. J. Herschel, Bt.	—	—
12	3	Fred Holyer	—	1
12	—	G. Lindsay Johnson, M.A., M.D., B.Sc., F.R.C.S.	1	—
12	2	Rev. F. C. Lambert, M.A.	7	1
12	3	Furley Lewis	6	2
12	—	Ernest Marriage	6	—
12	3	F. J. Mortimer	5	1
12	7	C. H. Oakden	9	6
12	2	E. Sanger Shepherd	—	—
12	—	C. Winthrop Somerville	8	2
12	2	J. Spiller, F.I.C., F.C.S.	8	—
12	7	H. Snowden Ward	6	6
12	9	B. Gay Wilkinson	10	2
11	3	E. T. Holding	11	3

The following gentlemen are members of Committees only. It should be understood that the attendances of members of the Selecting and Hanging Committees and the Organising Committee at the gallery are not preserved.

Possible Attendances.	Name.	Actual Attendances.
1	T. Thorne Baker	—
3	Geo. E. Brown	2
1	A. J. Bull	—
2	St. Lawrence Carson	—
1	E. J. Denny	—
3	A. Haddon	2
1	H. Holcroft	1
2	J. A. Hodges	—
2	Chapman Jones	2
1	C. E. K. Mees, D.Sc.	1
1	A. J. Newton	—
1	H. H. O'Farrell	—
1	C. Welborne Piper	1
1	E. W. Prevost, Ph.D.	1
1	E. F. Renwick	1
1	E. A. Robins	—
1	S. E. Sheppard, D.Sc.	1
1	E. J. Wall	—

### PENCIL PHOTOGRAPHS.

THE latest craze in Paris is the beautiful "pencil photo," writes the correspondent of the "Tribune." These lovely and exceedingly costly portraits were introduced at the beginning of the present season by a clever young artist from Vienna, and now they are all the rage. The pictures—which are never large—look exactly like fine pencil sketches, but they are actual photographs. The process is kept a secret, but I have come to the conclusion that in the first instance a partial enlargement is made from an ordinary photograph, and then the details are filled in with a finely pointed pencil. After the picture is finished in this way it is photographed on a small plate, the prints then being taken in a specially soft manner.

The "pencil photos" executed by the artist to whom I have alluded are only for those fortunate persons who have not to consider the question of £ s. d., each print, measuring 8 by 8, costing 25 5s.

When I speak of a "partial enlargement," I mean one in which



certain parts of the picture are—during the enlarging process—covered with a “mask” and completely effaced. Take, for example, the photograph of a pretty girl in ordinary evening dress; the photographer decides to make a picturesque study, and wishes to introduce a soft-lace fichu and large plumed hat; also some indication of an artistic background. In this case a clear negative is made from the photograph, and from this a very carefully arranged enlargement, on rather smooth paper. An important point is that this enlargement should be of good size—in fact, the larger the better—because when the final negative is made the great reduction will give exquisitely fine effects.

To return to the enlargement; a long exposure is necessary with slow paper and a very small stop, and with a couple of pieces of paper, cut to required shape, the dress and part of the hair can be softly effaced. When the enlargement is finished and quite dry the fichu and large plumed hat can be carefully drawn in with a pencil or crayon, and also the slight background. The picture must be finished in every respect, and delicate pencil lines used to join sketch with photograph. Then a clear negative must be made, from which any number of prints can be taken.

#### FORTHCOMING EXHIBITIONS.

1907.

January 14 to 26: Royal Institute of Fine Arts. Entries close January 10.—Sec., J. Lizars, 101, Buchanan Street, Glasgow.

January 24 to 26: South Essex Camera Club. Entries close January 17.—Sec., T. Mitchell, 180, Browning Street, Manor Park, E.

January 31 to February 2: Nelson Photographic Society.—Sec., Henry H. Beetham, 98, Brunswick Street, Nelson.

February 6 to 7: Cowes Camera Club. Entries close January 23.—E. E. Vincent, 4, High Street, Cowes, I.W.

February 11 to 14: Cripplegate Photographic Society.—Sec., J. B. Iarnham, “Chafford,” Old Church Road, Chingford.

February 12 to 23: Sheffield Photographic Society.—Sec., J. W. Wright, 62, Vale Road, Sheffield.

February 13 to 15: Northern Tasmanian Camera Club.—Last day for entries, December 31, 1906. Secretary, F. Styant-Browne, 112, Brisbane Street, Launceston, Tasmania.

February 20 and 21: Royal Albert Institute, Windsor.—Hon. Sec., Mr. J. W. Gooch, 9, High Street, Windsor.

February 22 to March 4: Norwich and District Photographic Society.—Sec., J. T. Tanner, The Lodge, Norwich.

February 23 to March 2: Birmingham Photographic Society.—Sec., Lewis Lloyd, Norwich Union Chambers, Birmingham.

February 25 to 28: Worthing Camera Club. Entries close February 16.—Sec., E. F. H. Crouch, 11, South Street, Worthing.

February 26: Norwich and District Pho. Soc. Entries close February 12.—Sec., J. T. Tanner, The Lodge, Bowthorpe Road, Norwich.

February 27 to March 2: Nottingham Camera Club. Entries close February 14.—G. R. Cranch, St. Jude's Avenue, Nottingham.

March 2 to 9: South London Photographic Society.—Sec., W. L. White, Bank House, Ladywell, London.

March 6 to 9: Wearside Camera Club. Entries close February 20.—Octavius C. Wilmot, 297, High Street, West, Sunderland.

March 14 to 23: Leicester Photographic Society.—Sec., W. Murray, 60, Melton Road, Leicester.

March 22 to April 13: Northern Photographic Exhibition.—Sec., C. F. Inston, 25, South John Street, Liverpool.

April 17 to 19: Belfast Y.M.C.A.—Sec., J. W. Bushey, Y.M.C.A. Camera Club, Belfast.

April 29 to May 14: Photographic Society of Ireland.—Sec., R. Benson, 35, Molesworth Street, Dublin.

February 23 to March 16.—Scottish Salon. Entries close January 31. Receiving day for pictures, February 11. Sec., R. Milne, “Linndale,” Potterhill, Paisley.

## Patent News.

*Process patents—applications and specifications—are treated in “Photo Mechanical Notes.”*

The following applications for patents were made between December 10 to 12:—

**SILVER PRINTS.**—No. 28,067. Improvements in printing and developing photographs on silver chloride papers. Edward John Browne, 37, Moorfields, Liverpool.

**SHUTTERS.**—No. 28,174. Improvements connected with photographic shutters. Walter Frederick Giles, c/o Mrs. Thorp Wilsom, Alton, Hants.

**DEVELOPING APPARATUS.**—No. 28,305. Improvements in magazine developing cameras. Louis Mandel, 100, Wellington Street, Glasgow.

**MOUNTING PHOTOGRAPHS.**—No. 28,312. Improvements connected with the mounting of photographs and mounts therefor. Alfred Odell, 55, Chancery Lane, London.

**HALATION.**—No. 28,376. Improved means for preventing halation in sensitised photographic plates. Johann Hartlett, 31, Bedford Street, Strand, London.

**LENS MEASUREMENT.**—No. 28,502. Improvements in lens-measuring instruments. H. H. Lake for Franklin Hardinge, U.S.A.

**FILM CHANGERS.**—No. 28,543. Improvements in the cases or packs of photographic films or plates, and in the method of loading and changing same. Fred Hilton and Arthur Brown, 5, Corporation Street, Birmingham.

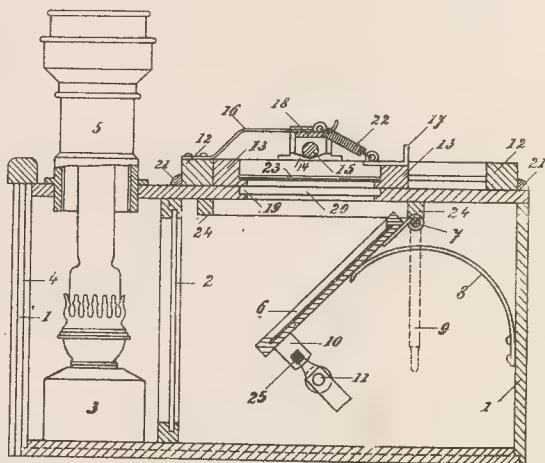
**WASHING AND DRYING RACK.**—No. 28,667. Improved device for suspending photographic plates for the purpose of washing them. Frederick Harrison, 19, St. Dunstan's Hill, London.

#### COMPLETE SPECIFICATIONS ACCEPTED.

*These specifications are obtainable, price 8d. each, post free, from the Patent Office, 25, Southampton Buildings, Chancery Lane, London, W.C.*

**BROMIDE PRINTER.**—No. 13,798. The invention relates to an apparatus for printing photographs by means of artificial light. The printing frame is that which forms the object of the application for English Patent, No. 13,799, filed June 15, 1906.

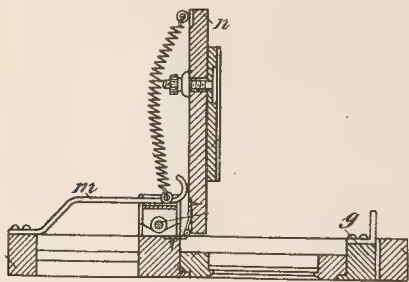
After sensitive paper and negative have been placed in frame



13 and printing frame 13 has been pushed back under roller 15, the handle lever 9 of reflector 6 is turned from the inoperative position through 45 degrees, whereby the reflector is opened at the same angle, blade spring 8 being tensioned at the same time.

Reflector 6 is secured in this position by spring catch 25, which snaps into the opening of arm 10 of the reflector. To remove the copy from the cliché after it has been sufficiently exposed to the light rays, pusher 11 is pushed and arm 10 thereby released from spring catch 25 and the reflector 6 pressed into frame 24 by blade spring 8, thus closing the opening 20. Printing frame 13 can now be pulled out from under the pressing roller 15 and the photograph taken out of frame 13. Hermann Müller, 6, Landfriedstrasse, Heidelberg, Germany.

PRINTING FRAMES.—No. 13,799, 1906. The invention is for a frame into which the negative and the printing paper can be rapidly placed and removed. The main frame is made to slide under a



roller, and when moved in this way has the back *n* pressed down on the paper by the springs, *m*. On pulling out the frame, *g*, again, the back is automatically raised. Hermann Müller, 6, Landfriedstrasse, Heidelberg, Germany.

## New Books.

"The Wellcome Photographic Exposure Record and Diary." 1907. London: Burroughs, Wellcome, and Co. 1s.

We have in the past said innumerable good and true things of this annual exposure notebook, and therefore we have only to point out that the present issue shows no marked departure from recent ones in order to bestow high and well-deserved praise upon the 1907 volume. All of which the latest issue merits even more than its predecessors, since it embodies a few improvements and additions worthy of note, and enhancing the usefulness of the Diary. Messrs. Burroughs, Wellcome, it is evident, are at a loss to make much of a showing of these new features, because, in sober truth, they have done their work so thoroughly in past years that little remains which can be usefully added to a volume intended as a pocket companion of the photographer every day of the year. Their failure is merely an admission of their record of assiduity. Yet they have taken a step for which no doubt many users of the diary will thank them. They have added a table of development factors for use in the Watkins system. The table is separately printed on a card which may be hung in the dark room, to be at hand throughout the photographer's practical work. It gives the factors of ten "tabloid brand" developers, and is to be used in reference to the greatly amplified directions for time or factorial development which appear in the text of the diary.

The other improvements include new drawings of typical subjects as a guide to exposure, an increased space for exposure records of exposures, and a revision, very up-to-date, of the speeds of the commercial gelatine plates. Messrs. Wellcome's table of these latter is the most complete extant. We see that they also give a table of conversion of their speed numbers into Watkins and Wynne, which will be useful to those who think of plate speed in terms of one or other of these quantities. The relation of Watkins to Wynne is apparently based on the rule that the square root of the Watkins number multiplied by 6.4 is the Wynne number, although the table exercises excessive caution in some of its conversions.

We ought to add for the benefit of the minority who do not know

the Diary that the included exposure calculator is in a most simple solution of a beginner's difficulties, and short of an actinometer, as good an aid as a novice can have. We can imagine Messrs. Burroughs Wellcome saying "Better," but we will not argue the point with them.

"Deutscher Camera-Almanach." Edited by Fritz Loescher. Berlin: Gustav Schmidt. 3s. 6d.

This is the third annual appearance of this yearbook, which is specially intended for amateur photographers. It contains a series of articles by well-known writers, a very large number of half-tone illustrations, and a three-colour frontispiece. Many of the half-tones are from monochrome and coloured bi-gum prints, and the results are extremely heavy and unsatisfactory, leading one to think that they do not convey the slightest idea of the originals themselves. The articles, however, are for the most part well written notes on topics directly bearing on the photographer's practical work, and we would mention especially the one showing the latitude at the command of the worker who prints in bromide.

"FAULTS IN NEGATIVES."—An addition has been made by the Imperial Dry Plate Company, Ltd., to the technical literature which they issue to their patrons in a booklet bearing the title "Faults in Negatives," and describing the defects which mar the negatives of the inexperienced. The causes of spots and markings, of mottlings, stains and frilling, and of other ills which afflict negatives, are concisely set forth, accompanied by a few reproductions which should be particularly valuable in supplying a comparison for the uninformed person. We have no doubt that the Imperial Company will send a copy of the booklet to anyone who applies to them.

THE PHOTOGRAPHIC LENS.—A second edition of a German work which we should like to see in English—despite the many works already published—has been issued by the house of Herr Gustav Schmidt, Berlin. The volume is "Das Objectiv," by Dr. E. Holn, and its special feature is the numerous illustrations showing by actual photographs the effects and defects of photographic lenses. The labour expended on these photographs alone must represent a large expense. The firm of C. P. Goerz, Berlin, has prepared a large number of them. The price of "Das Objectiv" is 2s.

## New Materials.

Jewelling Powders. Made by Reinemann and Co., 7, New Zealand Avenue, Barbican, London, E.C.

The jewellery or tinselling of photographs, particularly of picture postcards, being now a regular branch of trade, it is not surprising that firms should specially lay themselves out to supply the photographer with the materials exactly suitable for his work. The trader, fortunately, is not harassed with artistic considerations, otherwise he would not be placing such facilities at photographers' doors. On the contrary, he recognises that commercial advantages of some importance are involved in the use of the jewellery process, and the photographer will realise them, too, when he appreciates the cheapness of the labour needed for the work, and the enhanced prices which a jewelled or tinselled card will fetch. Holders of stocks of picture-postcards, which for some reason have proved unsaleable, have employed the jewellery powders to embellish the cards, and have had the satisfaction of seeing them purchased by the kind British public. In other ways, too, the photographer can use the jewel colours, for example, for calendars, Christmas cards, advertisement circulars, in short, for any purpose or on any occasion when the rich embellishment of a photograph may render it more desirable in a customer's eyes. The 'tinselling process is very simple, as follows:—A fixative solution of the nature of fish-glue is daubed on to the prints with a glass pen, that is, with a glass tube drawn out to a fine point. The jewel powders are then dusted on, the surplus immediately swept off, and the cards set up



to dry. The only part of the process where any skill whatever is required is in the markings of the prints with the fixative, but even this procedure may be simplified and adapted to the most unskilled labour by the use of a jewelled card as copy, or by means of a stencil, through which the fixative is applied. The jewel powders submitted to us are of three kinds, designated by the marks 19/80, No. 15, and 31/7. The two former are of much greater brilliancy than the latter. No. 15, too, is much more highly coloured than the first named. No. 31/7, on the other hand, is a different powder, the peculiar florescent effect of which is only seen when the card is at a particular angle. The powders are supplied by weight in the separate colours, or a set of colours with other accessories may be obtained.

Messrs. Reinemann, we might mention, are manufacturers of a special adhesive window decoration, sold as the "Diaphan," and applied to any glass surface simply by moistening with water. The material is sold in the roll, and some of the specimens we have seen were such good imitations of ground glass that we immediately made a note of the material for the benefit of photographers requiring something of the kind for obscuring the glass in their studios or other parts of their establishments. Messrs. Reinemann do not supply the material retail but refer their customers to local decorators or oilmen.

### CATALOGUES AND TRADE NOTICES.

THE Service Photographic Company, 292 and 293, High Holborn, London, W.C., have now on sale a large selection of second-hand photographic apparatus, chiefly cameras and lenses, a list of which they send us, specifying the items more fully than is usually done in bargain catalogues.

MESSRS. R. AND J. BECK, of 68, Cornhill, London, E.C., have just issued a more than usually interesting list of the photographic goods manufactured by them. Lenses and cameras, in the manufacture of which Messrs. Beck have specialised, occupy the chief portion of the list, which runs in all to 216 pages. It contains particulars of Messrs. Beck's offer to test shutters of any make for speed.

THE Halifax Photographic Company, Halifax, have issued a "B" edition of the list of their manufactures under the title of "Art Photographic Encyclopædia." The chief specialty of the firm is, probably, gaslight and bromide papers and postcards, both of which, in addition to gelatine and collodion P.O.P., they place upon the market under the trade mark "Lillywhite." The "Encyclopædia" gives the full working directions for these materials, and is on that account alone a convenient reference volume. It also describes the trade work department of the firm, and mentions a "Nonfrill" compound for addition to hypo in order to produce a hardening and fixing bath. The list will be sent free to any of our readers who apply for it.

PHOTOGRAPHY by Electrical Connection.—In reference to our recent paragraph as to the word which may be used to describe the process invented by Professor Korn, a correspondent sends us "photography," and "photoelectricography," neither of which, we must confess, impress us as an improvement on the word coined by ourselves in the first instance, viz., "telectrophotography," which etymologically and euphonomously is preferable.

STAGE Photographs.—The "Daily Mirror," in a brief and breathless article, informs its readers that it is showing "something new and important in photography." The "something" is a series of photographs of a moving stage performer, said to have been taken with an ordinary hand-camera, an ordinary lens, and ordinary plates. The photographs are satisfactory as regards sharpness, but no better than the snap-shots of stage performers which appeared in our pages six months ago illustrating Mr. Arthur Payne's article on the subject. Similar photographs, of better quality, are reproduced in "Penrose's Annual" from negatives made by Mr. J. E. Gould. Apparently the new and important discovery of the "Mirror" is the use of a bathed plate.

## Meetings of Societies.

### MEETINGS OF SOCIETIES FOR NEXT WEEK.

Dec.	Name of Society.	Subject.
28.....	Aberdeen Photo. Art Club....	"Ozobrome." "Demonstrated. G. L. Smith.
28.....	Photo. Society of Ireland.....	R.P.S. Slides.
31.....	Preston Camera Club .....	Convivial Evening.
31.....	South London Photo. Society	"Our Excursions." Illustrated. J. T. French.
Jan.		No Meeting.
1.....	Royal Photographic Society ..	"Caramel and the Backing of Plates." T. W. Davies.
1.....	Stafford Photo. Society .....	"Enlarged Negatives." W. T. Wilkin.
2.....	Catford and Forest Hill Ph. S.	"Enlarging on 'Rotograph' Bromide Paper, including a Chat on Toning. Bromide Paper."
2.....	Woodford Photo. Society .....	"After Treatment of the Negative." Affiliation Lecture Slides.
2.....	Croydon Camera Club .....	"Lantern Slide Making" H. P. Clark.
2.....	Edmonton and Dis. Ph. Soc....	"What Can be Done with a Hand Camera." C. P. Goerz.
2.....	Borough Polytechnic Ph. Soc.	"Sports and Pastimes with the Goerz-Anschutz Folding Camera."
2.....	Everton Camera Club .....	"Pictures with the Goerz Lens." C. P. Goerz.
2.....	Dukinfield Photo. Society .....	"Enlarging on 'Rotograph' Negative Paper."
3.....	North London Photo. Society	"Our Highways and their Engineers." James Wilding.
3.....	Liverpl Amateur Photo. Assn..	Lecturette Competition.
3.....	Tunbridge Wells Amat. Ph. A.	

WARRINGTON PHOTOGRAPHIC SOCIETY.—Lecturing for Messrs. Wellington and Ward, Mr. Harry Wade referred to the new self-developing plates of the Elstree firm to be placed on the market in the New Year. The grades would be exactly the same as at present—"Speedy," "Iso-speedy," and "Landscape," with the developer in the form of a soluble backing, requiring the use of water only for development, the developer backing would be practically non-halative. Mr. Wade then proceeded to develop a half-plate which had been exposed in an ordinary room. Using 2 oz. of cold water, the image appeared in a little over a minute, and full development was complete in five minutes. It was explained that the temperature of the water should be not less than 62 deg. Fahr, as, using a lower temperature, a plate which had received correct exposure would on development have the appearance of under-exposure. The easy method of development, and the clean, sparkling results of Mr. Wade's efforts strongly appealed to those present.

A series of slides made on the new S.C.P. plates made from self-developing negatives were then shown on the screen, the demonstrator afterwards showing his method of obtaining a range of tones on these plates from black to sepia with a simple hydroquinone developer made up as follows:—

Water .....	20 oz.	Dissolve in order given.
Sodium sulphite .....	500 grains	
Hydroquinone .....	80 grains	
Sodium carbonate .....	500 grains	

#### B.

Potassium bromide .....	10 per cent. solution.
-------------------------	------------------------

Tone Required.	Exposure.	Developer.
Black	15 seconds	2 ozs. A.
Warm Black	30 seconds	2 ozs. A, 3 drops B.
Brown	60 seconds	2 ozs. A, 6 drops B.
Warm Brown	2 minutes	2 ozs. A, 12 drops B.
Red Brown	4 minutes	2 ozs. A, 24 drops B.
Red	8 minutes	2 ozs. A, 48 drops B.

LIGHT.—Incandescent gas at 12 in.

The demonstration was in every way successful, Mr. Wade being heartily applauded at the close.

**SHANGHAI Amateur Photographic Society.**—On November 8, Mr. J. Mencarini delivered a lecture on the marriage of H.M. the King of Spain, at which function Mr. Mencarini attended in the capacity of Second Secretary to the Special Embassy despatched by H.I.M. the Emperor of China as his representative. The numerous pictures thrown on the screen included a couple showing the havoc wrought by the throwing of the bomb. At the close of Mr. Mencarini's exhibition a number of Chinese and Burmese pictures, taken by Messrs. Carter and Bevan, and others members, were thrown upon the screen.

Council): I understand Bridlington makes the same charges without any Act of Parliament. We rely upon our lease with the Lord of the Manor. The Town Clerk of Scarborough (Mr. D. A. Nicholl), in reply to his Honour, said although the Scarborough Corporation had an Act they did not rely upon it to make charges, but upon their powers as Lords of the Manor and the rights of freeholders under the common law. His Honour reserved judgment until the next Court, and by consent agreed to amend the claim, so that it might include a question as to trespass, on the understanding that the District Council paid Mr. Doran's reasonable expenses for the day.

#### NEW COMPANIES.

**DENTON AND Co., LTD.**—Capital £500, in £1 shares. Objects: To carry on the business of photographers, photographic and general printers, photo-lithographers, manufacturers of and dealers in photographic apparatus, chemicals, and accessories, postcard publishers, etc. No initial public issue. Registered without articles of association.

## Commercial & Legal Intelligence.

**A BRISTOL Bankruptcy.**—Harold Edward Brightman, Colston Street, Bristol, photographer, made an application for his discharge at the Bankruptcy Court, last week, before the Registrar. Mr. Frank Richardson appeared for the debtor, who attributed his failure to bad trade. The Official Receiver, in reply to the Judge, said there was no peculiar feature in the case. The order was granted subject to two years' suspension.

**FRANCIS EDWIN ELLIS**, of Ivycroft, Stockdale Road, Streatham, a photographic artist, applied for his discharge from bankruptcy at the last sitting of the Wandsworth County Court. His case has been already reported on page 218. A solicitor who appeared for debtor asked his Honour to grant Mr. Ellis his immediate discharge. He pointed out that debtor's failure was due to the action of Mr. Hayward, his late partner in business. In consequence of this, followed by Chancery proceedings, Mr. Hayward left the business, and was ordered by the High Court to pay Mr. Ellis £1,218. He was extremely annoyed at this result of the legal proceedings, and filed his petition. His action forced Mr. Ellis into bankruptcy also, but Mr. Ellis' failure was due to circumstances over which he had no control. The Judge granted him his immediate discharge.

**A KNOWLEDGE of Photography for £2.**—At the Halifax Borough Court, last week, a man, aged about forty, giving the name of William Williams, and describing himself as a photographer, of no fixed abode, was charged on remand with obtaining £2 by false pretences from Ernest William Nelson, of Holborn Street, Leeds, in April last. The accused was not traced until the 14th inst., when he was apprehended at Lancaster. Prisoner offered to teach the prosecutor the business of a photographer for £2, representing himself as the proprietor of several photographic businesses. He afterwards absconded. Inspector Bradley deposed to tracing the prisoner to Lancaster, where he apprehended him on the 14th inst. The accused, who reserved his defence, was committed to the quarter sessions for trial.

**RAPID Photo Printing Company, Ltd. (London).**—Issue on December 5 of £300 six per cent. debentures, part of series created July 2, 1906, to secure £10,000, charged on the company's undertaking and property, present and future, including uncalled capital. No trustees. Total amount previously issued of same series, £6,600.

**SEASHORE Photographers.**—A case of special interest to seaside resorts came before His Honour Judge Dodd at the Scarborough County Court on December 18, on a claim by the Sherburn Rural District Council for 30s. from Geo. H. Doran, photographer, Filey, balance of the amount agreed to be paid for a photographic stand on Muston Sands. The Council also asked for an injunction to restrain defendant from using the sands as a photographer. The defence set up the contention (1) that plaintiffs had no authority to enter into the lease under which they got their powers, and (2) if they got their powers in a proper or statutory way they could not make any charge. Filey and Scarborough, said Mr. Wray, who appeared for Doran, got their power to make charges on the sands by Act of Parliament. Mr. Perks (for the Rural

## News and Notes.

THE death took place at Godalming last week of Mr. George West, who for many years had carried on the business of a photographer in the High Street.

**A STUDIO for the Blenheim Club.**—A circular from the Blenheim Club (with which the old Camera Club is now amalgamated), announces that a site for a studio has been obtained in Jernyn Street, and that steps are now being taken to fit it out for the requirements of the members of the Club; every effort will be made to have it ready for use early in 1907. This convenience will no doubt be appreciated by photographic members of the Blenheim, who now have at their disposal all the facilities which a photographer can desire, short of an establishment of his own, in addition to the comforts of a club in the heart of the West End.

**PLANE Development.**—Dr. E. W. Buchner, of Darmstadt, states in the "Photographische Rundschau" that fourteen years ago, when he was a beginner in photography, he busied himself with the question as to whether the upright position of the plates, as is usual in stand development, was a necessary condition, and whether the horizontal position was not equally as satisfactory. His experiments led him to believe that the horizontal position was applicable, but, as he obtained several inexplicable markings, the method was abandoned.

At a meeting of one of the Frankfort photographic societies at that time, he asked whether it was absolutely essential to place the plates in a vertical position for stand development, and pointed out that the process should be equally effective if the plates were horizontal. Details of his experiments and results were shown. The answer, accompanied by some laughter, was, Obviously this method of development could only be effected with the plates in a vertical position, or otherwise why should it be called "stand development"? Thus the whole matter was settled so far as the author was concerned. Dr. Walter's article was therefore of special interest to the author, and explained his failures, which were obviously caused by taking the plates out too frequently for examination. As, however, the essential requirement for plane development is that the dish shall be perfectly level, most dark-room benches would be, as a rule, unsuitable.

Further experiments have now been made by the author, and perfect negatives obtained. In comparative tests with "stand" and "plane" development, with equal duration of exposure and development, somewhat less dense negatives were obtained with the latter, the result of the more intense action of the bromide. With plates exposed for 1.40th of a second the duration of development was from twenty to thirty minutes. Care should be taken in plane development that when the developer is repeatedly used it should be well stirred up each time before a fresh plate is immersed, and the fresh plate should be gone over with a soft brush.

When a series of unknown exposures have to be dealt with, a separate dish must be used for each plate, and it would be as well if manufacturers would make shallow dishes for this purpose.



Where there is room enough a series of such dishes can be placed on a flat table and covered with a close-fitting cover.

Examination of the progress of development can then obviously be seen with a movable incandescent electric light or oil lantern. When one is cramped for room the author suggests a wood or iron stand with shelves one over the other. In both cases the use of clear glass dishes with an electric light underneath would be very advantageous to see the progress of development.

In all cases in which the time of exposure is known, and therefore the approximate duration of development with a very dilute developer is known from a preliminary experiment, the author prefers the upright developing tanks and to use the grooved rack, after removal of the handle, turned on its side.

If a preliminary trial has been made it is not necessary to lift the plates out for examination, as a too-prolonged development will not hurt, and plates developed too long or not enough can be easily corrected by intensification and reduction. The author considers that for this method of development it is absolutely necessary for the plates to be left perfectly quiescent till development is finished, and he has obtained excellent results with glycin as well as with pyrocatechin without sulphite, and warmly recommends the process.

**WRINKLES.**—In the current issue of "Camera Craft," Mr. W. G. Emery brings together some notes on dark-room matters, from which we may cull one or two extracts:—

"Washing Trays. I have been a photographer for a good many years, but I did not know how to make a durable oilcloth washing tray until I learned how at the Salem Convention three years ago. I made a set on my return home, and I have been using them continuously ever since. This little model I have will show you how simple is the process of making them. Cut the material for the tray to be when finished about 24 by 30, and 4 in. in depth. Nail the bottom boards on the sides, leaving the ends to be fastened on after the oilcloth is properly fitted. Next turn up the edges of the cloth so that it fits snugly against the sides and bottom of the tray; then, turning up the cloth at the ends, draw the corner laps or ears out past and around the ends of the side pieces. Nail on the end pieces with these corner ears still on the outside. The usual way is to fold these laps inside the tray. By this better method there are no projecting corners left inside the tray to be shortly worn through.

"Spotting Prints.—We all know what a tedious job is the spotting of photographs for delivery, and how difficult it is to put on just enough colour to cover up the defects. Most photographers use india ink and watercolours, put on with a spotting brush. I have all these things at home, but seldom use them, as I find that the quickest, simplest method is to use a carbon pencil, a Conté, similar to this one I am showing you. These pencils can be secured from any art store in varying degrees of hardness. I get the most satisfactory results from a No. 2. Try one, and you will seldom pick up a spotting brush in the future.

"Fixing Bath.—I used to be bothered a good deal keeping my fixing bath clear and in good working order. Some photographers make up a fresh bath every day, but some of us are in the habit of using the same bath as long as it will not float the negative. I now make up my bath as follows:—

Hypo dissolved in two quarts of water .....	1 lb.
Sulphite of soda .....	$\frac{1}{2}$ oz.
Acetic acid, No. 8 .....	3 oz.
Alum, pulverised .....	$\frac{1}{2}$ oz.

This remains clear for a month or more, and will harden the film sufficiently to prevent frilling or blistering in the warmest of weather."

"Home-made Mounts.—In the city where the photographer has only to go a few blocks to reach a stock-house, there is little, if any, bother about procuring any style of mount suitable to fill almost any kind of a special order. From my own experience I know that the country photographer is often up against a hard proposition when he has an order from an exacting customer, especially as to mounts. I have often booked an order that I would have otherwise lost by showing a simple home-made mount with deckle-edge insert; besides getting a little advance over prices previously quoted. These mounts are especially adapted for platinum or other non-curling papers. Five and eight ply cardboard in a variety of tints, as well as variously

tinted cover paper, can be procured at any of the stock-houses. In making the mount, select a tint of card and insert that which will harmonise with the print to be mounted. Cut the card panel-shaped, about 7 by 11 for cabinet prints, and cut out a cardboard form or die,  $\frac{1}{4}$  in. or  $\frac{3}{8}$  in. larger each way than the print. Emboss the mount by placing the die and the mount together face downward on a smooth table or pane of glass, and with an embosser follow around on the back of the mount, the edge of the form underneath. A knife handle, tooth-brush handle, or any similar article will do for an embosser. Cut the insert a little larger than the print and deckle the edges by bending them, in turn, over the edge of a board and simply cutting through the paper with a wood rasp. Brush a little glue around the edge of the insert and attach to the mount, and it will be ready for the print. Place the finished picture under pressure for a short time, and it will be ready for delivery."

## Correspondence.

- \* \* \* Correspondents should never write on both sides of the paper. No notice is taken of communications unless the names and addresses of the writers are given.  
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### BRITISHERS—WAKE UP!

To the Editors.

Gentlemen,—I have just returned from a five years' stay in the East and during that time have had to professionally visit the chief trading ports of India and the Straits Settlements, etc. It is probably a well-known fact that we sailors, after the somewhat close confinement aboard, are in the habit, when off duty, of getting ashore to obtain a little amusement and recreation. One of the chief and harmless amusements out there is the cinematograph shows, and I should like to call the attention of those at home interested in such things to the existing state of affairs.

One frequently finds a rough shanty, or even a canvas tent, rigged up for these shows, and as sure as one sees that it is run by an Englishman we know it is not worth going to see. On the other hand, should the boss be a John Chinaman, or a Japanese, the show is excellent. The English exhibit is, as a rule, distinguished by unsteadiness, and an irritating shimmer (? flicker.—Eds. "B.J.P."), and dirty old films, with constant flashes of white lightning running through the pictures. If you go into an English show you are cramped for room, and the pictures are shown in silence.

Not so with a Jap or Chin show. Here you have plenty of room, are provided with a fan—quite a minor affair, but when the temperature in the shade runs up to 120 deg. Fahr., even a paper fan is acceptable. One has music—true, it is native, with more tom-tom and weird discords than harmony—still it is music. Then the pictures are absolutely steady, there is no shimmer, and no lightning, and each one is accompanied by appropriate noise. What I mean by this is best illustrated by taking one instance, where a duel is fought with pistols; at the exact moment one hears the crack of the pistols and sees one of the combatants fall. When shown by the English house there is none of this slow music and wailing of the fiddle, etc.

Surely, if such good shows can be given by the Japs and others, Englishmen could do it. It is not a question of price, because, in many cases, they are the same, or the native shows are cheaper, the prices varying from two dollars to four rupees, that is about five shillings in English, whilst the native shows may be about three shillings in some cases.

The business done by these shows is good. In one case I know it ran into over £70 a week. One never finds a good show with an empty or half-filled house.

Since I have been home I have seen two or three shows at your chief London halls, and they are no better, and in some cases worse, than the Jap shows out in the East.

Why cannot the English give us the best that can be got?—I enclose my card and remain, yours faithfully,

CHIEF ENGINEER.

## Answers to Correspondents.

*All matters intended for the text portion of this JOURNAL, including queries, must be addressed to "THE EDITORS, THE BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, London, W.C." Inattention to this ensures delay.*

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### PHOTOGRAPH REGISTERED:—

G. Muse, "Walmerbank," Ladbroke. Photograph of Mr. and Mrs. Tom Kennedy.

**TUDIO QUERY.**—1. If a studio is built in garden, with an east light, will there be a good light; or will the shadow from the houses spoil the light? Could the sitter be placed at the north end of studio as in sketch? 2. What length of glass, how low down at side, and what width of glass in roof should there be? 3. Most suitable colour for painting inside, and colour and material for blinds? Could the following shape be about right?—C. H. OXBURY.

1. There will be a suitable light if the studio is erected as shown in the sketches. The sitter may be placed at either end, but perhaps the south end will be found the more generally useful. 2. Better have 5 ft. or 5 ft. 6 in. at either end, side, and roof opaque, and the rest glass, commencing about 3 ft. from the floor, and carried up to about 2 ft. from the ridge, as shown in sketch. 3. Any light, quiet colour, such as French grey. Dark blue or medium green for the blinds, serge curtains for the side, and window holland for the roof blinds. 4. Yes, quite right.

**USE OF NEGATIVE LENS.**—Will you inform me how to measure the focus of a negative lens?—W. SYKES.

One method is to neutralise the negative lens by a convex fill it acts like a plain glass. As this necessitates the trial of a large number of convex lenses, the following plan is better:—In an opaque card punch two small holes at about three-quarters of the diameter of the lens apart. Place in contact with the lens, and move the lens and card away from a sheet of white paper till the images of the holes are the same distance apart as in the card. It is also possible to place the negative lens in front of or in between the combinations of any ordinary lens and measure the resulting focus, and then calculate by the usual formula or the size of a known subject, such as a foot-rule, the focus of the negative lens.

**AMEL ON COPPER.**—I am asked to reproduce some designs on copper plaques, the image to be capable of standing a slight etch. Presumably I could use a formula such as is used for photo-engraving, and should be obliged if you can tell me the most suitable.—P. HOLR.

Innumerable formulae for such things exist, but the following can be relied on:—

Le Page's liquid glue.....	4 oz.
Egg albumen .....	1 oz.

Mix thoroughly, and then add the sensitiser, which is a 1 in 16 solution of ammonium bichromate. The necessary quantity for the above quantity of albumen and glue is:—

Bichromate solution .....	2½ oz.
Water .....	8 oz.
Ammonium citrate .....	25 gr.

Filter through flannel or linen and flow thinly over the copper. Development is effected with hot water.

**F. T.**—The life of all patents is fourteen years, and therefore the one in question is obviously void. With regard to the more recent ones, you can see whether the fees have been paid after

the fourth year, by referring to the fee registers at the Patent Office Library.

**S. L. M.**—The article appeared on p. 848 of our issue for October 27, 1905.

**A. B.**—Mawson and Swan, Penrose and Co., and Fuerst, make a specialty of the dyes.

**H. M. OSBORNE.**—The work has long been out of print. Your only plan would be to advertise for it.

**RUBBER SOLUTION.**—I have been trying to make a rubber solution of rubber in benzole, but find it merely swells up and will not dissolve. What is the reason?—CARBON.

The most probable reason is that vulcanised rubber has been used, whilst what is required is that known as masticated pure rubber. By far the simplest plan is to purchase a tube of cycle tyre cement or a tin of rubber solution at a rubber store and thin it down to the consistence of treacle with benzole, not benzoline.

**THREE-COLOUR CARBON PRINTS.**—Although carefully following the maker's directions, I find that my three-colour carbon prints in a short time frill up and part company. What is the cause, and remedy?—TRICHROME.

Our correspondent does not state whose tissue he is using, but this defect is frequently caused by using chrome alum in the gelatine cementing solution. This in time appears to tan the gelatine so as to cause the films to part company. Another cause of the trouble is using the gelatine solution too cold. If this is used fairly warm and the constituent prints are taken from water at about 80 degrees Fahr., there will be no difficulty. Another cause may be that the rubber is not all removed from the face of the prints.

**COPYRIGHT.**—Is it possible to mount several prints on one card and then copyright them as a whole, or must each be copyrighted?—C. A. WALKER.

If the idea is to make the individual prints merely parts of the whole, which is the picture, then it can be done. If, on the other hand, the idea is economy and the saving of the fees, then it is not permissible, but each picture must be separately protected.

**P. H. ALMER.**—Your only plan is to at once place the matter in the hands of a solicitor, and let him deal with the firm. We would only suggest that you must be quite sure of your facts, and take into consideration that you are not the first who has done this, and, therefore, your ideas may not have been infringed in any way.

**S. E.**—See the ALMANAC, p. 979, 1906.

**J. MARSHALL.**—The reference appeared under "Photo-Mechanical Notes," p. 1034, of December 29, 1905, and is indexed under "Collodion emulsion orthochromatic." It is obvious that you have overlooked it.

**MATT CARBON PRINTS.**—Is it possible to coat carbon prints with a matt celluloid varnish? If so, can you give a formula?—CARBON PRINTER.

There is no reason why the prints should not be coated with such a varnish, nor any reason why a sheet of ground glass should not be coated with ordinary celluloid varnish, and this used as a temporary support, when the outer surface of the celluloid would be matted. A matt celluloid varnish is a little difficult to make so that it will dry clear, but possibly the following applied thinly would answer:—

Celluloid .....	96 grains.
Acetic ether .....	1 oz.
Methyl alcohol .....	2½ oz.

Dissolve in the above order.

**THREE-COLOUR NEGATIVES.**—I am just starting three-colour work, and although I adhere strictly to the ratio of exposures given by the makers of filters and plates that I use, I find that at times either the red or green screen negatives are incorrectly exposed. This is judged by the results obtainable by carbon printing; and, further, when I have altered the ratios, I get better results. What is the reason of this, and is the ratio altered by the colour of the subject?—W. A. T.

No doubt the makers' ratios are correct, but these are given for daylight of normal spectrum composition, and the ratios



will not be altered by the colour of the subject; but should the daylight vary in character, the ratios would be at once upset. This was very clearly shown by Drs. Precht and Stenger in a paper which appeared in the "B.J." for March 24, 1905, p. 226, to which reference should be made.

**AMIDOL DEVELOPER.**—I am told by a local professional that he always uses alkaline amidol developer for his negatives, and he says that he can get more out of his plates with this than by any other method. He refuses, in a dog-in-the-manger fashion, to give me the formula, but offers to make the developer up for me, but at a rather high price. Can you give me a suitable formula, or should I buy it?—**AMATEUR.**

Everyone is at liberty to withhold any information that he may possess if he thinks fit, nor can anyone be blamed for trying to make a little money. Possibly, however, the following formula, which works well, will answer all requirements:—

Distilled water .....	20 ozs.
Sodium sulphite .....	100 grains.
Amidol .....	50 grains.
Caustic soda .....	10 grains.

Dissolve in the above order.

**RED TONES ON CC. PAPER.** Can you tell me how to obtain red tones on matt. cc. paper? I have tried several baths but have failed.—**TRADE PRINTER.**

Almost any bath can be used provided that it is diluted with an equal quantity of water so as to restrain its action and the duration of toning is cut down. The following has, however, been specially recommended:—

Prepared chalk .....	$\frac{1}{2}$ oz.
Chloride of gold .....	1 grain.
Water .....	20 ozs.

Shake well and allow to settle and use the clear portion only. The tones given by this are reddish brown, but real red tones are obtainable with,

Uranium nitrate .....	20 grains.
Thiosinamine .....	100 grains.
Distilled water .....	20 ozs.

The prints must be thoroughly washed both before and after toning.

**RUSTY BURNISHER.**—My roller burnisher has got rather scratched and rusty. Is there any simple way of cleaning the same?—**S. WALES.**

The only thing to do is to use a fine-grade emery cloth with longitudinal strokes till the scratches and rust are removed. Then with the finest emery flour and oil go over the whole again till it is bright. This is a somewhat long and tedious job without a lathe, and it would be better to send it to an engineer, who would soon be able to clean and polish it for you and at no heavy cost.

**J. O. B.**—We cannot undertake to do what you ask. Your best plan will be to consult the small advertisements or insert one yourself.

**LENS STAINS.**—I have just bought an old portrait lens very cheap, and the front combination shows some small trees and curious coloured stains, which apparently are in the glass itself. Can I remove them, and how?—**PORTRAIT LENS.**

No doubt these are due to the Canada balsam between the two glasses of the front lens, and are frequently seen in old lenses. It is quite possible to do it oneself, but, as a rule, it will be done better by a lens-maker. The lens must be removed from its cell and placed in luke-warm water and left for about five minutes, and then more hot water added very gradually, giving the glass time to warm up, or else it will crack. After some time it will be found that the glasses can be slid apart, and they can then be thoroughly cleaned with methylated spirit or ether and polished and recemented together by placing some Canada balsam in the concave lens and pressing the convex down on to it, using heat, if necessary, to obtain close contact, and then cleaning off excess and putting into the cell.

**ENLARGING LENS.**—In using the lens from an optical lantern for enlarging I find that I cannot get the edges of the enlargement sharp at the same time as the centre. Can anything be done, or would an anastigmat give me better results?—**AMATEUR.**

The lenses generally used for optical lanterns are of the Petzval portrait type, and will not give both centre and edges sharp. The results can be frequently improved by separating the back lenses a little more, which can be easily done with strips of cardboard placed between them. An anastigmat would certainly have a flatter field, and in all probability would cover sharply at full aperture. In taking the portrait lens to pieces care should be taken that the back lenses are put together again in their correct positions—that is, with the convex lens outside and the flatter side of this, too, away from the concave.

**YELLOW BROMIDE PRINTS.**—Will you be good enough to tell me if you can suggest a method of toning a bromide print to a chromatic yellow colour, similar to the yellow carbon tissues used in the three-colour work?—**C. H. MADDEN.**

Bleach the print in the lead ferricyanide solution used for negative intensification as per p. 968 of the "Almanac," and after the usual washing in water, acidified with nitric acid, immerse in solution of potassium chromate.

**ELECTRIC LIGHT.**—Can good work be done by electric light in a room 27 ft. by 12 ft. in height? Would one or two lamps be required of 12 amperes to light a group of a dozen or more persons, or perhaps you can suggest some better light?—**E.L.**

The room is a most convenient size as to length and width, but it will be difficult to get an arc lamp high enough to give really good illumination over a group of a dozen people. Ty lamps might be employed, working in series, and the consumption of electric energy should then be only a little more than with one lamp of rather larger size, as less energy would be absorbed by the resistance. We print this week a leading article on this question to which we may refer our correspondent.

**CITRATE RESTRAINER.**—Will you please give the formula for the citrate method, mentioned in your issue of December 21, page 1,001, restraint for an over-exposed negative; developer, pyro soda.—**H.C.H.**

The usual method is to add some citrate of the alkali used in the developer; in the case in point this would be the citrate of soda, which may be obtained in the dry form, but as it is extremely deliquescent it is preferable to make it by neutralising carbonate of soda with citric acid, according to the following formula:—

Citric acid .....	280 grains.
Bicarbonate of soda .....	345 grains.
Or Carbonate of soda (crystal) .....	580 grains.
Distilled water to make .....	4 ozs.

The above are the approximate quantities of the sodas required, but the solution should be neutral to litmus after being A fairly large measure should be used for this as the solution is considerable effervescence. The result will be a 1 in 10 solution of sodium citrate. It is not advisable to make weaker as it has a tendency to grow mouldy. About 30 to 60 minims should be used for every ounce of developer.

**SAXON.**—The rule you give only applies to very thin lenses. With the deep-curved lenses used in the modern anastigmats it does not apply in many cases.

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**SPECIAL NOTICE.** THE LATEST TIME FOR RECEIVING SMALL ADVERTISEMENTS IS 2 O'CLOCK P.M. ON WEDNESDAYS for insertion in the current week's issue.

LARGE ADVERTISEMENTS should reach the Publishing Office not later than Tuesday.

\* \* Communications relating to Advertisements and general business affairs must be addressed to

**HENRY GREENWOOD & CO., 24, Wellington Street, Strand, London, W.C.**

## Situations Wanted.

**A GENTLEMAN**, just returned from abroad, desires position as Operator or Manager in England; 10 years' practical experience.—"R. E.," 31, Bartram Road, Crofton Park, London, S.E.

**A YOUNG MAN** (21) wishes to assist in studio in his spare time; moderate remuneration; Kensington district preferred.—Address "O. F.," 53, Abingdon Road, Kensington, W.

**ADVERTISER** (28), smart, desires Berth as Operator-Retoucher, &c.; could manage; thoroughly understands business throughout; South preferred; highest refs.; sal. mod.; disengaged Jan. 1.—"C.," 113, Wanstead Park Road, Ilford, Essex.

**ARTIST**, B. W. Oils, Crayons, large or small work, wants Engagement; quick worker.—"Artist," care of Chas. Lucas, 121, Haydon's Park Road, Wimbledon, Surrey.

**AS Operator and Manager**; artistic; quick and businesslike; well up in all branches; not afraid of work. Parkes, Kate Villa, Bognor.

**AS Operator-Retoucher** or Manager; disengaged; London preference; good references; good class.—A. Howell, 100, Chamberlayne Wood Road, Willesden, N.W.

**ASSISTANT**, of good experience, desires Engagement; excellent references; moderate salary.—Address "A. C.," 145, Lewisham Road, Lewisham, S.E.

**EXPERT Operator-Retoucher**, Regent Street firm, seeks most as Manager or otherwise; thoroughly competent in all branches; refs.—Address "V.," 101, Bovill Road, Forest Hill, S.E.

**IMPROVER**—Young man seeks Situation in good studio, with outdoor trade preferred; has whole and half-plate outfit; wages moderate.—Parken, Lapthorne, Modbury, South Devon.

**MIDGETS**—First class man now at liberty; take entire charge of studio; finish work throughout; 12 years' exp.; highest references; will serve a good employer well.—"C. F.," 1, Stamford Street, Leeds.

**OPERATOR and Retoucher** disengaged; many years' first-class West-End experience; excellent references, &c.—Address "H.," 80, Goldhawk Road, Shepherd's Bush, W.

**PRINTER**, expert in Sepia and Black, Plat., C.C., used Cosway borders; 11 years' experience.—P. Ward, "Firs," Caversham Heights, Oxon.

**RECEPTIONIST-CORRESPONDENT** requires Re-appointment in high-class studio; retouching, finishing, small and large work, tinting; spec. and testis. "Receptionist," 352, Clapham Rd, London, S.W.

**SMART General Assistant** or Bromide Printer requires Situation about middle of January; good all-round hand (except retouching).—Victor Buckipitt, Escoback, Wells Road, Bath.

**STUDIO and Dark-Room Assistant** desires Remuneration with a first-class house only; age 21; good developer.—"E. W. C.," 33, Cotlands Road, Bournemouth.

**YOUNG MAN** (18) wishing to improve in Operating, Retouching, and B. and W., desires Engagement in good house, London.—X. 9, 24, Wellington Street, Strand.

## Situations Vacant.

**ARTIST** wanted, thoroughly experienced in finishing 20 x 16 Bromide enlargements in B. and W. and A. and A. applications; must also be competent and experienced in training and teaching beginners to supervise the work of other artists, and to generally manage the finishing department. Only those need apply who, by references or testimonials, can prove their ability and experience.—Send full particulars, with specimens of work, to The Great Britain Art Co., Grosvenor Street, Manchester.

**ARTISTS** wanted, experienced in finishing 20 x 16 Bromide enlargements in B. and W.; must be used to quantities and have their own A. and A. Positions vacant in Manchester, Wolverhampton, Leeds, Liverpool, Hull, Newcastle, Sunderland, Middlesbrough, York, &c., &c.—Send full particulars and sample to The Great Britain Art Co., Grosvenor Street, Manchester.

**CONTACT Bromide Printer** required; must be thoroughly experienced in handling large batches of good work.—Full particulars to 96, North End, Croydon.

**GOOD Operator-Retoucher** required for branch studio; quick trade; open Sundays; no stamps; perm. to a suitable man; wage, 30s. and com. Photo. of self and full particulars.—X. 7, 24, Wellington St., Strand.

**LESSONS** in Negative Retouching, B. and W., Colour Work, Miniature Painting, Tinting. Highest class tuition. *Slow retouchers, &c., quickened and improved.* Lessons by day, night, or by post. B. and W. and colour; pupils also taught the new, quick method of Stippling working (regd.), and retouching pupils the use of *Negafake* pencils (regd.). A pupil taught by T. S. Bruce writes: "You will be pleased to hear I am at Messrs. W. & D. Downey's the Court Photographers of Ebury Street, S.W. I am exceedingly obliged for your skill and attention in teaching me so effectually as to secure such a place." Original letter can be seen if desired. The Editor *British Journal of Photography* stated in that paper "another pupil's work." We congratulate both tutor and pupil.—Address T. S. Bruce, Artist (Est. 1885), 4, Villars-on-Heath, Vale, Hampstead, London. (See pp. 27 to 30 B.J.J. Almanac.)

**MATALL AND CO.**, 126, Piccadilly, have a vacancy for pupil; must be well educated, with artistic ability.

**MIDGET Stamp Trade**.—Man or man and wife for branch; give particulars of previous engagement.—Farr, 168, Hockley Hill, Birmingham.

**MIDGETS**.—Wanted, reliable man for branch; must be used to stamp trade. State experience and wages required.—X. 8, 24, Wellington Street, Strand.

**MR. RILEY** has vacancies for good Printers in Bromide; must be good developers and quick workers for large batches.—State wages and exp., also photo. of self, to 40, Stockwell Road, S.W.

**OPERATOR** required for high-class studio, North.—Write, in first instance, full particulars of qualifications, age, &c.—X. 4, 24, Wellington Street, Strand.

**OPERATOR and Retoucher** wanted at once for Bradford, Yorks; a competent and painstaking man not under 30.—Full particulars of recent engagements to W. A. Brown, Stanley Ave., R. Shome, Manchester.

**PRINTER** wanted at once to tone, mount, and finish P.O.P. throughout; must be good and quick; references, specimens, and salary.—Apply Dannah, 11, St. James's Street, Nottingham.

**RECEPTIONIST-BOOK-KEEPER** required, North of England; must have had experience in high-class studio. State firms, age, &c., and enclose own photo.—X. 3, 24, Wellington Street, Strand.

**RETOUCHER** wanted for Strand studio; must be able to operate and help generally.—Apply, in first instance, Dorrett and Martin, 16, Belle Vue Road, near Wandsworth Common Station.

**RETOUCHER** required, good and quick work essential.—Full particulars to 56, North End, Croydon.

**RETOUCHER**.—Wanted, good all-round Assistant for photo. printing works, to make of forms, test negatives, &c.—London Photo Printing Co., 532, High Road, Balham.

**WANTED**, first-class Printer in P.O.P.; none but first class men need apply; good references as to honesty and ability essential.—Campbell-Gray, Ltd., 17, Cheapside, E.C.

**WANTED**, a first-class Retoucher; must also be capable of taking outdoor groups; none but competent men need apply.—Hills and Saunders, Oxford.

**WANTED**, as Managers to first-class Miniature Studios, man and wife; must be good and quick operators, and used to large quantities, and not afraid of work; also a few good Printers and Developers for Bromide.—State wages and experience to X. 5, 24, Wellington Street, Strand.

## Businesses and Premises.

**AT Glasgow**.—For Sale, one of the finest Studios in the Province.—For full particulars apply "P. L.," 24, Westbourne Grove, London, W.

**COURT Photographers**, established about 40 years, in one of the largest suburbs of London; nearly half a million negatives, including Royalty, nobility, &c.; spacious premises; two studios (32 x 13 N. and 24 x 12 N.); good returns; moderate price.—For full details apply Booty's, 1, Carisbrooke Road, Walthamstow.

**FOR Disposal**, old-established Photographic Business in centre of Glasgow; good accommodation; easy inging; only bona fide enquiries answered.—Address X. 1, 24, Wellington Street, Strand.

**GLASGOW**.—For Sale, one of the finest Studios in the Province.—For full particulars apply "P. L.," 24, Westbourne Grove, London, W.

**GRAND Opportunity**.—Photographer offers for immediate sale Photographic Business, in busy city thoroughfare, Manchester; satisfactory reasons for disposal. Goodman, 65, Oxford Road, Manchester.

**OLD-ESTABLISHED Business** for Sale, in first class Lancashire town; splendid chance for two young men; moderate terms to immediate purchaser; easy terms could be arranged.—X. 2, 24, Wellington Street, Strand.

**PARTNERSHIP**.—Wanted, immediately, lady or gentleman with £100 to £200 capital, for established money-making business. This is a genuine bona fide opportunity, with a good income and splendid future.—Charles, 9, Mountford Rd., Tunbridge Wells.

**STUDIO** to Let in Burnley, good position, in main road, with front shop attached; all ground floor; established 12 years.—For particulars apply John Wintington, 168, Sandycote, Burnley.

**WANTED**, small Business in Lancashire town; connection no object; or premises suitable for same.—Full particulars and price to Taylor Bros., 29, Manchester Road, Bolton.

Continued on Pages IV. and V.

ENCHANTING PRINTS  
OF  
EXQUISITE SOFTNESS.

**ILFORD**

Portrait

**GASLIGHT PAPER**

Matt, and Carbon Surface.

**No Dark Room Needed.**

EASIEST AND QUICKEST OF ALL PROCESSES.

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At Popular Prices of All Dealers.

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ILFORD, Limited, ILFORD, LONDON, E.



## Miscellaneous.

\*.\* For particulars of revised Deposit System please see top of page ii.

**A**T Last!—The Royal Road to Lighting; which has baffled the brains of photographic experts since the days of Daguerre. Addressee: Robt. A. Higgs, "Glendine," St. Mark's, Cheltenham.

**B**LACK and White Finishing School; retouching, colouring, miniatures; the highest testimonials and references.—All applications to Hush Webber, 10, Fitzroy Street, London, W.

**F**RENCH Photographic Books.—Advertiser will purchase any of the following at reasonable prices:—"La Vérité sur l'Invention de la Photographie," by V. Fouque (Châlain-sur-Saône, 1907); "Historique et Description des Procédés du Daguerreotype," by Daguerre (Paris, 1839); "Historique de la Découverte Improprement Nommée Daguerreotype," by Isidore Niepce (Paris, 1841); "Traité Pratique de Photographie des Couleurs," Louis Du Haumont (Paris, Gauthier-Villars, 1878); "Photographie des Couleurs," Louis Du Haumont (Paris, 1900); or other early works on photography.—"Historique," care of Editor, BRITISH JOURNAL OF PHOTOGRAPHY, 24, Wellington Street, Strand, W.C.

**H**ALF-PLATE Camera, with Aldis Anastigmat Lens, T.P. shutter, time and inst., four double slides, triple extension, all movements, stand, 65s., cost 110s., as new.—Exonia Studio, Bampfylde Street, Exeter.

**"NYDIA"** Camera for 8½ x 5½ plates, without lens, but adapted for Zeiss "Double-Protar" No. 16; leather case; special long "baseboard" and focussing screen; sundries; very good condition. Cost £35 3s. 6d. What offers!—155, care of Newman and Guardia, Ltd., 80, Shaftesbury Avenue, London.

**P**HOTOGRAPHS of Baby Studies, artistic or humorous, purchased for reproduction. Photographs submitted for approval returned without delay.—E. T. W. Dennis and Sons, Ltd., Wholesale Publishers, Scarborough.

**V**AN, Photographic, wanted; smart good underworks, to go on rail preferred. Send photo, W. Ainsworth, please communicate in confidence; very important.—X. 6, 24, Wellington Street, Strand.

**W**ANTED, 12 x 10 dark slide for Rouch camera.—"Photographer," 10, Langton Road, S.W.

**W**ANTED, Half-Plate Sarderson, Thornton-Pickard, Ruby, or Special Ruby, D.B. slides, new condition; lowest cash price.—Tham, "Aldie," Port Keri, Aberdeenshire.

## Miscellaneous Trades.

\*.\* For particulars of revised Deposit System please see top of page ii.

**A** NEW List on Application.—Enlargements, Finishing, Retouching (photographers' prices), Sepia, Bromides (10th year), Framing (see my prices for oak).—Henry Ward, Trade Photographer, Leicester.

**A** BACKGROUND, 8 x 6, canvas, 5s. 6d.; 8 x 7, 7s. 6d.; 8 x 8, 9s. Interiors, exteriors, clouds. Own designs painted. Photographs, 1 stamp.—Zonotype Background Studios, Carterton, Clancifield, Oxon.

**A**RTISTIC finishing in water-colours, B. and W., 12 x 10 6d., 15 x 12 9d. each; retouching, Cab. 4d., and C.D.V. 3d. each; high-class exp. Miss L. Butterfield, 9, Gaskarth Road, Balham Hill, S.W.

**B**RUCE'S Non-shifting Retouching Medium, unaffected by varnishing; splendid tooth; advertised years; used by best firms and schools; 1s. post free.—4, Villas-on-Heath, Vale, Hampstead, London.

**B** and W. and Negative Retouching at photographer's own prices; quick return.—G. Howley, 54, Gainsborough Road, Setton Park, Liverpool.

**B**ACKGROUNDS.—Vandyke, a new feature, high-class work; 8 x 5, 10s.; 8 x 9, 15s.; painted both sides, 5s. extra; photographic properties.—Arthur Betts, 18, Addison Road, Reading.

**B**ACKGROUNDS.—See our soft, up-to-date designs. Nothing better on the market; 8 x 6, 10s.; 8 x 7, 18s.; 8 x 8, 20s.; extensions, 2d. square foot.—G. Garo, Rishton, Lancashire.

**B**ACKGROUND.—See our cloud design, painted with the assistance of the American air brush; beautiful and soft; 5 x 4, 6s.; 6 x 5, 8s. 6d.; 7 x 5, 8s.—G. Garo, Rishton, Lancs.

**B**ACKGROUNDS, 8 x 8, 20s.; 8 x 7, 17s. 6d.; 8 x 14, continuous, 35s.; nonobtrusive interiors; foliage effects, etc.; photos. sent, which must be returned.—Edmond Wallis, Duntun Green, Kent.

**B**ACKGROUNDS by S. Hocking, Artist, Church. Lanes. Interiors, exteriors, 8 x 6, 6s.; splendid 6 x 4 clouds 3s. 3d. Photos., 1d. stamp.

**B**OOK FORM Double Slides, triple jointed rabbetted shutters, half-plate reduced from 11s. 6d. to 8s. 6d.; "Cyclopaedia Photo. Brass-work and Wood-work," 60 pages, 2d.—Mason and Son, Camera Makers, Armley Grove Place, Leeds.

**B**URN your scrap Platinotype paper and send to purchaser, who also buys old platinum toning baths. Arthur Kerr, 58, Renfield Street, Glasgow.

**C**OLOURED Pictorial Postcards from your own prints or negatives; 250 each, four kinds, 1,000 in all, £2 2s. Our reputation for high class goods at moderate prices is well known. Where speed is essential we study our customers' interests.—Send for samples.—Mezzotini Co., Collotype Printers, Brighton.

**E**NLARGEMENTS (Platino-Bromide), of the best quality, 12 x 10, 1s.; 15 x 12, 1s. 6d.; ditto, P.S. mounted, 1s. 6d., 2s. 3d.; prompt return; cash with order.—C. Faulkner, 262, Seven Sisters Road, N.

**E**NLARGEMENTS, P.S. mounted and spotted, 12 x 10, 1s. 6d.; 15 x 12, 2s. 3d.; unmounted, 12 x 10, 1s.; 15 x 12, 1s. 6d.; splendid results.—Heddingham and Co., 5, Whitehall Parade, Archway Road, N.

**E**NLARGEMENTS.—First class work; 12 years' experience. P.S. mounted, spotted ready for framing; 12 x 10, 1s. 6d.; 15 x 12, 2s. 3d.—George Faulkner, 30 Archway Road, Upper Holloway, London.

**E**NLARGEMENTS.—P.S. mounted and spotted, 12 x 10, 1s. 6d.; 15 x 12, 2s. 3d.; unmounted, 12 x 10, 1s.; 15 x 12, 1s. 6d.; best results. Send for price list.—A. Smith, 159, Stroud Green Road, N.

**E**MULSIONS.—Formulae for sale, including P.O.P., Gaslight, Bromides, and Self-Toning. Emulsions made and sent any distance ready for coating; will not decompose.—W. 3, 24, Wellington Street, Strand.

**F**INISHING.—Monochrome and Water-Colours, best work, air-brush used; prompt return; customers' prices; very cheap much not wanted.—"Artist," 113, Antill Road, Bow, London.

**F**RAMING.—Taking orders, pricing tables, 2s. 1d.; Mouldings, 10 each; 2d. scale catalogue, 1s.; Glass Selling Squares Reckoner, 1s. 6d.—Engert, 74, Dartmouth Parkhill.

**P**ICTORIAL Postcards printed in best quality Collotype, produced from customers' own negatives, plain or hand coloured; customers may depend on their work being executed in the very best quality and style, and with great promptitude.—Harvey Barton and Son, St. Michael's, Bristol. Established as photographic view publishers for 46 years.

**P**ICTURE Postcards (Bromide), printed from photographers' own negatives; matt, 5s. 6d. 100; glossy enamelled, 6s. 100; prompt delivery; sample stamp.—E. G. Wilson and Co., 35, Cooper Street, Doncaster.

**P**ICTURE Postcards printed in high-class collotype from customers' subjects. Do not hesitate to send your work; we guarantee the best possible result from all subjects. Half-tone and colour work also done.—Senior and Co., Coltham Hill, Bristol.

**P**LATINO-MATT Bromide Enlargements, 8½ x 6½, 8d.; 10 x 8, 10d.; 12 x 10, 1s.; 15 x 12, 1s. 6d.; 20 x 15, 2s. 6d.; finest quality; Cooke Anastigmat Lenses used; sepia 20 per cent. extra; mounted and well finished, 12 x 10, 2s. 6d.—E. G. Wilson and Co.

**P**OSTCARDS.—Unbeatable Quality.—"Glosson," gaslight or bromide 2s. 10d. 100; 24, 6d. 1,000, post paid, with Season's Greetings same price.—Bart. Photographic Co., 3, New Market Street, Buxton.

**P**OSTCARDS.—Get out your own set of picture postcards for local sale. You supply one print, and the London Studio, 20 and 22, St. Bride Street, E.C.4. will do all the rest cheaply, well, and quickly. Write at once for full terms. From 12s. 1,000. Big profit.

**P**OSTCARDS.—P.O.P., 2s. 6d. 100; gaslight, 3s. 6d. 100, specially coated, unequalled for brilliancy; samples 6d. Martin's P.O.P., 10s. quire, equal to best. Inquiries solicited.—Martin, Chemist, Southampton.

**P**OSTCARDS, Collotype, 250 5s. 6d.; larger quantities lower rates; all of high class; orders executed with dispatch.—Hoffmann and Co., 74, Devonshire Road, Westbury Park, Bristol.

**P**.O.P. Postcards, finest quality, 100 2s. 3d., 1,000 £1 1s. 6d.; bromide, 100 2s. 9d.; 1,000 £1 4s.; prompt delivery; cash with order.—E. G. Wilson and Co., 35, Cooper Street, Doncaster.

**P**.O.P. Picture Postcards printed from photographers' own sets of negatives; best work only; nothing inferior; every card enamelled and separately trimmed; 100, 7s.; 1,000, £3. Sample stamp.—E. G. Wilson and Co., 35, Cooper Street, Doncaster.

**R**ETOUCHING and Lessons.—T. S. Bruce, (Est. 1886). Finest finish; sharp return; prices moderate; tinting. Postal and personal lessons in retouching and B. and W. and colour work. Send for price list.—4, Villas-on-Heath, Vale, Hampstead, London.

**R**ETOUCHING (finest work).—Cab. bust, 6d.; 3, 3d.; C.D.V. bust, 4d.; 3, 2d.; prompt return; cash and postage with order.—E. G. Wilson and Co., 35, Cooper Street, Doncaster.

**S**TAMP and Midget Outfits from 50s. Repeating and Revolving Backs, to fit any camera, from 20s. Studio Stands for midget camera, from 12s. 6d.—J. B. Campbell, 163, Renfield Street, Glasgow.

## Received too Late for Classification.

**A**S Consulting Photographer.—Mr. J. W. Hilder, M.P.A. (formerly with Marion and Co. and S. Fry and Co. Ltd.), 30 years' practical experience. Fees moderate.—Lyndhurst, Clarence Road, E. Croydon.

**B**OARDMAN'S (Open or Enclosed) Electric Arc Light Apparatus for Portraiture, Copying, and (P.O.P.) Printing; used in 350 studios; circulars free.—Boardman, 10, Southwark Bridge Road, London, S.E.

**C**.O. PAPER.—Results at less cost and work can be obtained on our effect. P.O.P. in grosses, 8 x 6, 6s. 9d.; 6 x 4, 3s. 4d.; 5½ x 4, 2s. 10d.; post paid; samples free.—The Tress Co., 42, Oxford Street.

**D**EMAND for Boardman's Portrait Lamps has exceeded ordinary winter's supply. Fresh batch ready for immediate delivery.—Boardman, 10, Southwark Bridge Road, London, S.E. Cheap; reliable.

**E**ASY Terms.—Midget Cameras, stands, artificial lights, bromide printers, and material, made by The Tress Co., supplied on our unique gradual payment system.—Service Co., Ltd., 282, High Holborn.

**E**LECTRIC Light Apparatus for Portraiture & P.O.P. printing from £10 10s. cash or extended payments. Send particulars of electric supply, and by return of post notation for most suitable apparatus will be sent by Boardman, 10, Southwark Bridge Road.

**F**ULL-LENGTH Portraits at night by our 1905 Portrait Lamp (gas only). Specimen of work done by same on application.—The Tress Co., 42, Oxford Street, W.

**M**ANTELLIO Cab. Mounts, 2s. 100, 7 sheet round corners, Cab. 6d. 100, 10s. 6d. 100, 10s. 6d. 100, 9s. 7d. boards, with 6½ x 4½ tint, 1s. 11d. 100, 17s. 6d. 1,000; assorted colours.—The Tress Co.

**M**IDGET Mounts.—1907 Series now ready. A handsome framed and finished enlargement (from midget negative), 2s., carr. paid. New list of midget size glossy and matt bromide now ready.—Tress Co.

**P**OSTCARD Frame and Calendar for 1907, sample 3 stamps. Handmade postcard slip-in mounts, 3s. 6d. per 100; quarter-plate slip-in mounts, 3s. 6d. per 100.—The Tress Co., 42, Oxford Street, W.

**S**END Half Plate Negative and 1s. for a sample of the Ena portrait; a most artistic Sepia print, handsomely mounted either oval or panel; half dozen 2s. 6d., one dozen 4s.—Tress Co., 42, Oxford St., W.

**T**RIPLE Tint Enlargement (from any size negative), 1s. 6d.; framing size, 1s. 12. An effectively finished 20 x 15 enlargement 3s. (from print or negative).—The Tress Co., 42, Oxford Street.

**1907 ILLUSTRATED Catalogue** (now ready) of Photographic Novelties, Studio, Field and Hand Cameras, Lenses, Frames, Photo. Jewellery, Photo. Miniatures, etc.—The Tress Co., 42, Oxford Street, W.

LESLIE STUART.  
Trade Retoucher.

Cbts. 3s. doz. Best possible work 5s. doz., or Photographers' own prices. Quick Return.  
101, Bovill Road, Forest Hill, London, S.E.

## J. EPSTEIN & CO.'S SPECIAL LINES OF 20x16 ENLARGEMENT FRAMES

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Our Speciality is Sepia Plats. printed by Electric Light.

Avoid your waste, let us do your orders, and compare results with daylight. No delay through bad weather.

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### IMPROVE YOUR POSITION.

Learn Retouching and B. & W. Finishing, by Personal or POSTAL Course, Slow and Defective Retouchers and B. & W. Artists Improve and Quickened your work by Expert Instruction. See pages 27, 28, 29, & 30, "B. J. ALMANAC, 1907," and address T. S. BRUCE, Artist, 4, Villas-on-Heath, Vale, Hampstead, London for terms and particulars.

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A BOX OF

### "NEGAFAKE" and "STIPPLETTE"

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Send remittance, name, and address and I will forward on with

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SUBSTITUTE FOR THE RETOUCHING KNIFE SIMPLE AND EASY TO USE. CAN'T SCRATCH.

Messrs. B. & W. of Ealing, write:—"Having given your 'NEGAFAKE' a most careful trial we consider it as great a boon to the retoucher as the Aerograph is to the artist. NEGAFAKE does practically all the knife can do—for some operations it is far superior." Price 3/6 with full directions. Post free 3/9. T. S. BRUCE (Est. 1886), 4, Villas-on-Heath, Vale, Hampstead, London. Of all Dealers.

## STIPPLETTE (Reg.)

THE NEW POWER IN THE HANDS OF THE B. & W. and COLOUR ARTIST.

A QUICK, ARTISTIC, and EXACT imitation of sable brush stippling and hatching—saving hours of laborious finishing. Now being used by the smartest artists and leading firms, 10/9 post free. Send stamped envelope if particulars and high-class testimonials are desired.—T. S. BRUCE (Est. 1886), 4, Villas-on-Heath, Vale, Hampstead, LONDON, N.W.

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## SANDS, HUNTER, & CO

Dealers in Photographic Apparatus, have removed to

NEW AND PERMANENT PREMISES AT 87, BEDFORD STREET, STRAND

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IVORY MINIATURE PAINTER,

One of the First London Artists,

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Highest quality "CARBON IVORYS," exquisitely painted and delivered in 6 days. Also

ENLARGEMENTS IN BROWN, CARBON &amp;

PLATINOTYPE SPECIALITIES.

Finished in Colour and Monochrome.

Full Price List forwarded.

National Telephone—No. 96, Y4 Brighton ("Trunks").

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Dear Sir or Madam,  
We have much pleasure at this season of the year in thanking our many customers in the British Isles for their kind patronage, and trust they will continue the same for many years. Wishing one and all a prosperous New Year,

We are

Yours Respectfully,

T. J. SMITH &amp; SONS.

Dec. 25th, 1906.

## DEAL DIRECT WITH THE PAINTER

AND save 50 per cent 12x10 En-

larged and solidly painted in Oil, 5/-; 15x12, 7/6; 18x14, 8/6; 24x20, 12/6. Water-colours and Black and Whites same price as Oils. All likenesses guaranteed perfect or money refunded. Established 25 years. Enlargements, post free: 12x10, 1/6; 15x12, 2/-; 18x14, 2/6; 24x20, 4/-. Colonial work a speciality.

F. T. HAYES, ARTIST and ENLARGER,  
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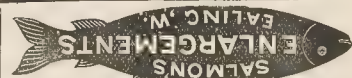
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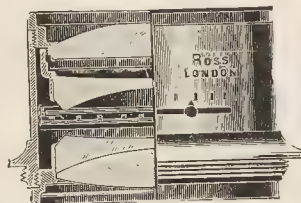
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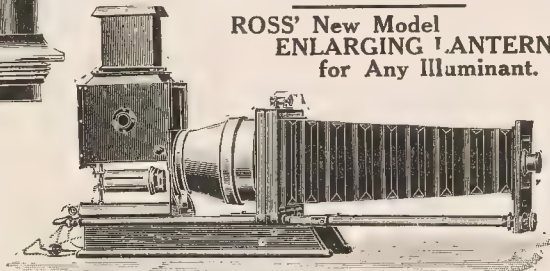


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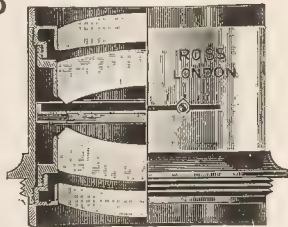
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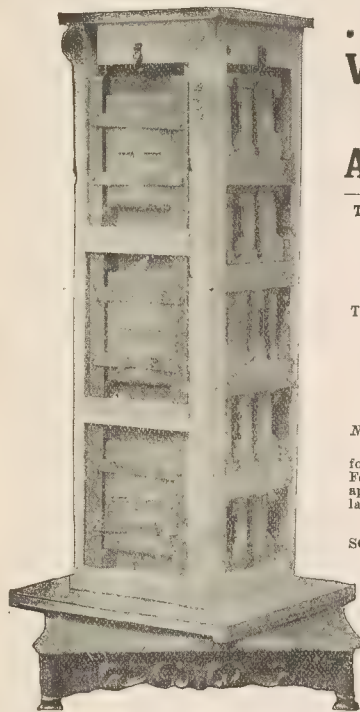
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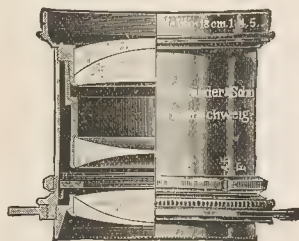
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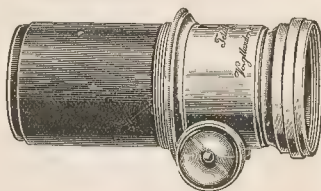
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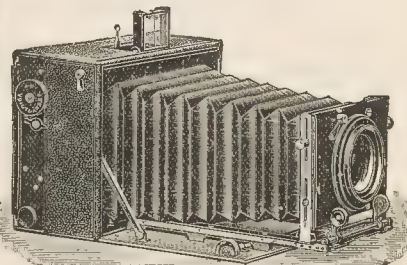
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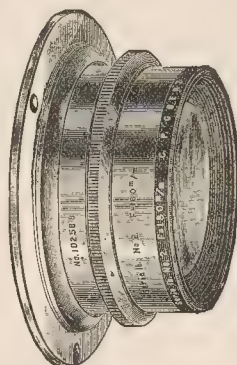
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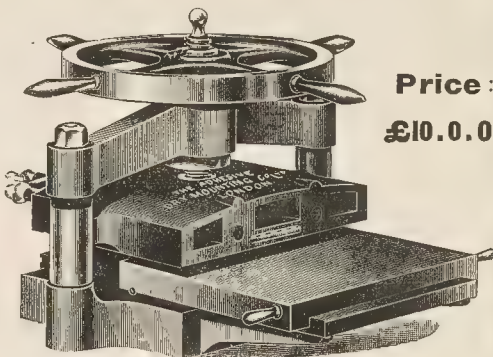
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ON 1st January 1907 "THE PROCESS ENGRAVER'S MONTHLY" appears as an entirely separate magazine from "THE PHOTOGRAPHIC MONTHLY," with which it has been affiliated since its first issue in January 1894.

¶ 1. **The Reason.**—The growth of the photo-mechanical trade throughout the world, and the considerably increased support which "THE PROCESS MONTHLY" has recently received, seem to warrant an enlarged magazine, and one devoted entirely to photo-mechanical matters.

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¶ 3. **The Reduction in Price.**—The retail price for single copies will remain as before (sixpence net; post free, eightpence; special numbers at higher rates), but the subscription price, including all supplements and special numbers, will be six shillings per annum, delivered free in the British Isles, or eight shillings, post free to the Colonies and foreign countries. Subscriptions may be through the trade; but the name, address, and trade status of the subscriber must be given, to secure advantages contemplated in ¶¶ 5 and 6.

¶ 4. **Pictorial Supplements** will be special features; and the Editor will endeavour to make "THE PROCESS MONTHLY" the recognized medium for introducing new and improved reproduction methods to those who use illustrations. This seems a most important part of the work of the enlarged magazine.

¶ 5. **"Confidential" Supplements.**—For years "THE PROCESS MONTHLY" has devoted space to commercial topics, price-cutting, etc., but has been hampered by the fact that it was purchasable by non-members of the trade, and therefore could not discuss figures freely. One great object of the attempt to convert all its regular readers into subscribers is that occasional "Confidential" supplements may be printed, which will be sent to *subscribers in the trade only*, and excluded from copies supplied to purchasers who are not known to be in the trade.

¶ 6. **Occasional "Special" Supplements.**—Subscribers are asked to specify the branch of the trade in which they are engaged, in order that special supplements may be sent occasionally to a particular section. For instance, when an important new dye for light-filters comes on the market, the maker may be prepared to give a small sample dyed film to each of the two or three hundreds who can use it, while he would not think of doing the same for the thousands of general readers; and to most of them the sample would be a mere curiosity, of no use.

¶ 7. **The arrangements for the January issue include**, in addition to much interesting technical and trade matter, three general supplements; (a) an exceedingly fine piece of work, reproduced, printed, and mounted by the Printing and Photographic Department of the Manchester Municipal School of Technology; (b) a colored half-tone, mounted print made by the newly perfected Aerograph Spray-printing machine, in illustration of an article on that machine and its working; and (c) a two-color design in illustration of an article by Chas. E. Dawson on a new and easy method of cutting flat-tint designs (for posters, etc.) and tints for working under half-tones.

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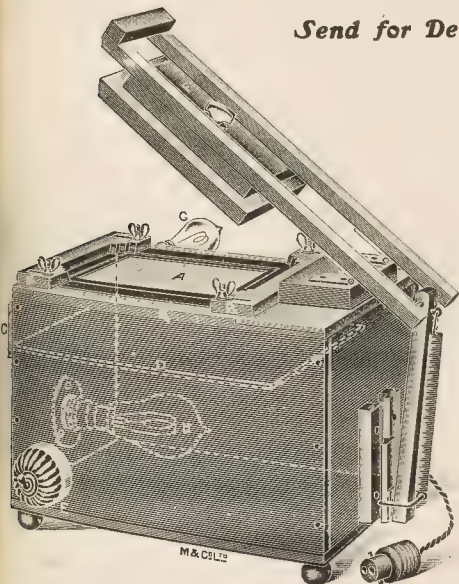
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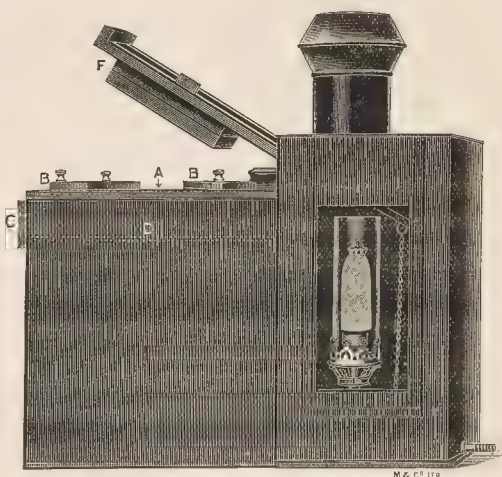
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